

Surface Water Supply of the United States 1950

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

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of Oregon and Washington and other
agencies*



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PREFACE

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ILLUSTRATION

Figure 1. Gaging-station structures: A, B, Columbia River near The Dalles, Oreg.;	Page
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SURFACE WATER SUPPLY OF PACIFIC SLOPE BASINS IN OREGON AND LOWER COLUMBIA
RIVER BASIN, 1950

SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of stage and flow made on streams, lakes, and reservoirs in the United States during the water year ending September 30, 1950. The work was begun in 1888 in connection with special studies relating to irrigation. Measurements of the flow of streams and of the stage and contents of lakes and reservoirs have been made at about 12,060 gaging stations in the 48 States and also at many in the Territories of Alaska and Hawaii. On September 30, 1950, 6,540 gaging stations, including those in Hawaii and Alaska were being maintained by the Geological Survey and cooperating organizations. Miscellaneous discharge measurements were made during the water year at many other points.

In the execution of the work many State and private organizations have cooperated, either by furnishing data or by assisting in collecting data. Cooperation of the first kind is acknowledged in connection with the description of each station affected; cooperation of the second kind is acknowledged, under the heading "Cooperation," in the introductory matter that precedes the gaging-station records in each volume. In the present volume, the section on cooperation of the second kind appears on page 13.

DEFINITION OF TERMS

The units in which stream-flow data are presented in this report and other terms used herein are defined as follows:

"Second-foot" is an abbreviation for "cubic feet per second." A second-foot 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.

"Second-foot per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the runoff is distributed uniformly both as regards 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. It is used for comparing runoff with rainfall, which is usually expressed in inches.

An "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 connection with storage for irrigation.

"Second-foot-day" is the volume of water represented by a flow of 1 second-foot 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 an abbreviation for the term "relation between gage height and discharge."

"Control" is a term used to designate a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural section, a reach of the channel, or an artificial structure.

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

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

EXPLANATION OF DATA

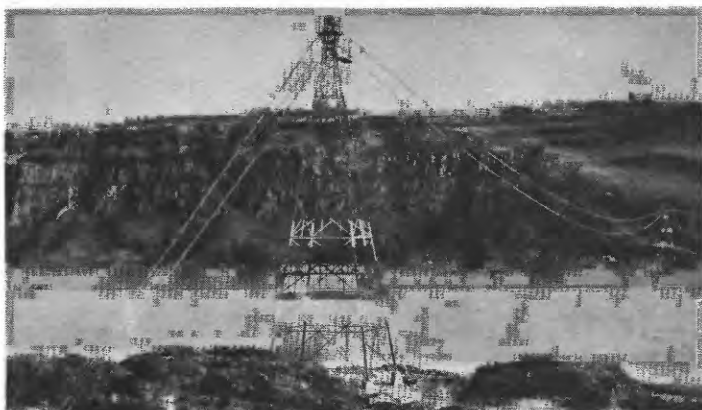
The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the records of stage and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. Typical structures in use at gaging stations are shown in figure 1.

Rating tables giving the discharge for any stage are prepared from the discharge measurements. 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 applying the gage heights to the rating tables. At times the stage-discharge relation for a station may be temporarily changed by the presence of aquatic growth or debris on the control. For such times the daily mean discharge is computed by what is essentially the "shifting-control" method, described above.

At some gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources, which necessitates the use of the "slope method," in which the slope or fall in a reach of the stream is a factor in the determination of 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, and for them 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, which makes it 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 stations in the same or nearby basins. For those stations at which the stage-discharge relation is affected by ice, the days included in the periods of ice effect either are indicated in the table by symbols referring to a footnote that states this fact or are given in a general note following the table. The days on which discharge measurements were made during or between periods of ice effect, shortly before the first period, or shortly after the last period are similarly indicated by a footnote.

For most of the gaging stations on streams in the area covered by this report the data presented comprise a description of the station, a table showing the daily discharge of



A. COLUMBIA RIVER NEAR THE DALLES, OREG.
Measuring cable.



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



C. WILLAMETTE RIVER AT ALBANY, OREG.

FIGURE 1.—GAGING-STATION STRUCTURES.

the stream, and a table of monthly and yearly discharge and runoff. Skeleton rating tables are published for all stations except those at which the daily discharge for the greater part of the year was determined by the shifting-control method, the slope method, or other special methods.

The description of the station gives the type of gage, location, drainage area, records available, average discharge, extremes of discharge, general remarks, and notations of revisions of previously published record. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having less than 10 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). 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 non-recording gage read at the time of the crest. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

For some stations previously published records have been found to be in error on the basis of data or information obtained subsequently. 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 station description of all stations for which revised records have been published. Listed therein are all the reports in which revisions appear, each followed by the water years for which figures are revised in that report. In listing the report number, W. means Water-Supply Paper. In listing the years, water years are indicated by only 1 year, for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If there were no daily, monthly, or annual figures of discharge involved 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 second-feet 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 second-feet 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.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the 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 either once-daily readings of the gage, the mean of twice-daily readings, or 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 monthly discharge the column headed "Second-foot-days" gives the sum for each month of the figures given in the table of daily discharge. The column headed "Maximum" gives the maximum daily discharge, not the momentary discharge when the water surface was at crest stage. Likewise, in the column headed "Minimum" the quantity given is the minimum daily discharge. The column headed "Mean" gives the average flow in cubic feet per second during the month.

Peak discharges with the times of their occurrence are listed below the table of monthly discharge for most stations. 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.

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 a station are published but is omitted from succeeding reports.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily on (1) the permanency 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 flow, and interpretation of records.

The station description gives a statement in regard to the general 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 accurate than the daily records.

Yield at some stations as indicated by monthly means may vary widely from natural yield, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or other factors. For such stations figures of "second-feet per square mile" and "runoff in inches" are not published unless storage or diversion records are included indicating the extent of the regulation or diversion or unless satisfactory adjustments can be made for changes in contents or 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 its inclusion is indicated. Even at those stations where adjustments are made, in some instances large errors in computed yields may occur when relatively large negative adjustments are applied or when evaporation is large in comparison with the observed discharge. Figures of second-feet per square mile and runoff in inches are also omitted if the drainage area includes large noncontributing areas or if the average annual rainfall over the drainage area is less than 20 inches.

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 show the water supply available for further development, as prior appropriations below the station must first be satisfied.

The table of monthly discharge presents in summary the distribution of the flow past the station. The table of daily discharge affords opportunity for more detailed studies of the variation in flow. As further observations in each succeeding year may be expected to throw new light on data previously published, it should be borne in mind that such data are subject to revision in succeeding water-supply papers.

PUBLICATIONS

The results of stream-flow measurements are now published annually in 14 parts, each part covering an area whose boundaries coincide with natural drainage features as indicated below:

- Part 1. North Atlantic slope basins (St. John River to York River).
2. South Atlantic slope and eastern Gulf of Mexico basins (James River to Mississippi River).
3. Ohio River Basin.
4. St. Lawrence River Basin.
5. Hudson Bay and upper Mississippi River Basins.
6. Missouri River Basin.
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.
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 obtained or consulted as explained below.

1. Copies may be purchased at nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C., who will, on application, furnish lists giving prices.

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 as follows:

East of the Mississippi River:

Albany, N. Y., 526 Federal Building.
 Asheville, N. C., 220 Post Office Building.
 Atlanta, Ga., 644 Peachtree Seventh.
 Augusta, Maine, 420 Statehouse.
 Baton Rouge, La., 850 North 5th Street.
 Boston, Mass., 939 Post Office Building.
 Champaign, Ill., 605 South Neil Street.
 Charleston, W. Va., 408 Union Building.
 Charlottesville, Va., Cabell Hall, University of Virginia.
 Chattanooga, Tenn., 442 Post Office Building.
 College Park, Md., 106 Engineering Building, University of Maryland.
 Columbia, S. C., 207 Creason Building.
 Columbus, Ohio, 1509 Hess Street.
 Harrisburg, Pa., 490 Education Building.
 Hartford, Conn., 203 Federal Building.
 Indianapolis, Ind., 311 West Washington Street.
 Jackson, Miss., Room 1, Fidelity Building.
 Knoxville, Tenn., 337 Post Office Building.
 Lansing, Mich., 611 Capitol Saving & Loan Building.
 Louisville, Ky., 531 Federal Building.
 Madison, Wis., 666 State Office Building.
 Montgomery, Ala., 507 Post Office Building.
 New Philadelphia, Ohio, Muskingum Watershed Conservancy District Building.
 Ocala, Fla., Building 211, Camp Roosevelt.
 Pittsburgh, Pa., 515 Plaza Building.
 Raleigh, N. C., 908 Capitol Club Building.
 St. Paul, Minn., 1427 New Post Office Building.
 Trenton, N. J., 228 Federal Building.
 Washington, D. C., General Services Administration Building.

West of the Mississippi River:

Austin, Tex., 302 West Fifteenth Street.
 Bismarck, N. Dak., 7 Eltinge Building.
 Boise, Idaho, 429 Federal Building.
 Denver, Colo., Federal Center.
 Fort Smith, Ark., 6 Post Office Building.
 Helena, Mont., 408 Federal Building.
 Honolulu, Hawaii, 225 Federal Building.
 Idaho Falls, Idaho, 204 Federal Building.
 Iowa City, Iowa, 508 Hydraulic Laboratory, University of Iowa.
 Juneau, Alaska, Sub Port.
 Lincoln, Nebr., 510 Rudge-Guenzel Building.
 Los Angeles, Calif., 429-F United States Post Office and Courthouse.
 Oklahoma City, Okla., 405 Post Office Building.
 Pierre, S. Dak., 207 Federal Building.
 Portland, Oreg., 606 Post Office Building.
 Rolla, Mo., 211 Ramsey Building.
 St. Louis, Mo., 1004 New Federal Building.
 Salt Lake City, Utah, 303 Federal Building.
 San Francisco, Calif., 541 Federal Office Building.
 Santa Fe, N. Mex., 228 United States Courthouse.
 Tacoma, Wash., 207 Federal Building.
 Topeka, Kans., 305 Federal Building.
 Tucson, Ariz., 210 Post Office Building.

A list of Geological Survey publications may be obtained by applying to the Director, Geological Survey, Washington, D. C.

Prior to publication, records of discharge in provisional form for individual stations may usually be obtained from the district offices listed above.

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.

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

(A = Annual Report; B = Bulletin; W = Water-Supply Paper)

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.
W 11.....	Gage heights.....	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge.	1895-96.
W 15.....	Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River.	1897.
W 16.....	Descriptions, measurements, and gage heights of stream 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.
W 27.....	Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries.	1898.
W 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.
W 35 to 39...	Descriptions, measurements, gage heights, and ratings.....	1899.
21st A, pt. 4	Monthly discharge.....	1899.
W 47 to 52...	Descriptions, measurements, gage heights, and ratings.....	1900.
22d A, pt. 4	Monthly discharge.....	1900.
W 55, 56.....	Descriptions, measurements, gage heights, and ratings.....	1901.
W 75.....	Monthly discharge.....	1901.

Papers on surface water supply containing records from 1899 to date, grouped by years and drainage basins, are listed by number on page 8. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained. For example, the data for 1910 to 1920 for any station in the area covered by part 3 are published in Water-Supply Papers 283, 303, 323, 353, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

Numbers of water-supply papers containing results of stream measurements, 1899-1950 (for basins included see p. 6).

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1899 a.....	35	47, 48	35	36	36	36, 37	37	37	37	38, e39	39, 739	38	38	38
1900 g.....	49	49	48	49	49	49, 50	50	50	50	50	51	51	51	51
1901.....	65, 75	65, 75	65, 75	65, 75	k65, 66, 75	66, 75	k65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902.....	82	82	82	82	82	82	82	82	82	82	82	82	82	82
1903.....	128	128	128	128	k98, 99, 100	100	k98, 99, 100	100	100	100	100	100	100	100
1904.....	127	127	127	127	k126, 127	127	k126, 127	127	127	127	127	127	127	127
1905.....	169	169	169	169	171	171	k169, 171	171	171	171	171	171	171	171
1906.....	204	204	204	204	205	205	k204, 205	205	205	205	205	205	205	205
1907-8.....	242	242	242	242	245	245	k205, 247	247	247	247	247	247	247	247
1908.....	261	261	261	261	265	265	k265, 267	267	267	267	267	267	267	267
1909.....	281	281	281	281	285	285	k285, 287	287	287	287	287	287	287	287
1910.....	301	301	301	301	305	305	k305, 307	307	307	307	307	307	307	307
1911.....	321	321	321	321	325	325	k325, 327	327	327	327	327	327	327	327
1912.....	351	351	351	351	355	355	k355, 357	357	357	357	357	357	357	357
1913.....	381	381	381	381	385	385	k385, 387	387	387	387	387	387	387	387
1914.....	401	401	401	401	405	405	k405, 407	407	407	407	407	407	407	407
1915.....	431	431	431	431	435	435	k435, 437	437	437	437	437	437	437	437
1916.....	451	451	451	451	455	455	k455, 457	457	457	457	457	457	457	457
1917.....	471	471	471	471	475	475	k475, 477	477	477	477	477	477	477	477
1918.....	491	491	491	491	495	495	k495, 497	497	497	497	497	497	497	497
1919-20.....	501	501	501	501	505	505	k505, 507	507	507	507	507	507	507	507
1921.....	521	521	521	521	525	525	k525, 527	527	527	527	527	527	527	527
1922.....	541	541	541	541	545	545	k545, 547	547	547	547	547	547	547	547
1923.....	561	561	561	561	565	565	k565, 567	567	567	567	567	567	567	567
1924.....	581	581	581	581	585	585	k585, 587	587	587	587	587	587	587	587
1925.....	601	601	601	601	605	605	k605, 607	607	607	607	607	607	607	607
1926.....	621	621	621	621	625	625	k625, 627	627	627	627	627	627	627	627
1927.....	641	641	641	641	645	645	k645, 647	647	647	647	647	647	647	647
1928.....	661	661	661	661	665	665	k665, 667	667	667	667	667	667	667	667
1929.....	681	681	681	681	685	685	k685, 687	687	687	687	687	687	687	687
1930.....	696	696	696	696	700	700	k700, 702	702	702	702	702	702	702	702
1931.....	711	711	711	711	715	715	k715, 717	717	717	717	717	717	717	717
1932.....	726	726	726	726	730	730	k730, 732	732	732	732	732	732	732	732
1933.....	741	741	741	741	745	745	k745, 747	747	747	747	747	747	747	747
1934.....	756	756	756	756	760	760	k760, 762	762	762	762	762	762	762	762
1935.....	771	771	771	771	775	775	k775, 777	777	777	777	777	777	777	777
1936.....	781	781	781	781	785	785	k785, 787	787	787	787	787	787	787	787
1937.....	791	791	791	791	795	795	k795, 797	797	797	797	797	797	797	797
1938.....	801	801	801	801	805	805	k805, 807	807	807	807	807	807	807	807
1939.....	811	811	811	811	815	815	k815, 817	817	817	817	817	817	817	817
1940.....	821	821	821	821	825	825	k825, 827	827	827	827	827	827	827	827
1941.....	831	831	831	831	835	835	k835, 837	837	837	837	837	837	837	837
1942.....	841	841	841	841	845	845	k845, 847	847	847	847	847	847	847	847
1943.....	851	851	851	851	855	855	k855, 857	857	857	857	857	857	857	857
1944.....	861	861	861	861	865	865	k865, 867	867	867	867	867	867	867	867
1945.....	871	871	871	871	875	875	k875, 877	877	877	877	877	877	877	877
1946.....	881	881	881	881	885	885	k885, 887	887	887	887	887	887	887	887
1947.....	891	891	891	891	895	895	k895, 897	897	897	897	897	897	897	897
1948.....	901	901	901	901	905	905	k905, 907	907	907	907	907	907	907	907
1949.....	911	911	911	911	915	915	k915, 917	917	917	917	917	917	917	917
1950.....	921	921	921	921	925	925	k925, 927	927	927	927	927	927	927	927

s Rating tables and index to WSP 35-39.
 contained in WSP 39. Monthly discharge
 for 1899 in 21st Annual Report, part 4.
 b J. R. Green and Gunnison Rivers and Colorado
 c Oallatin River.
 d Green and Gunnison Rivers and Colorado
 River above Gunnison River.
 e Mojave River only.
 f Klamath, Kern, and south Pacific slope
 g Rating table and index to WSP 47-52.
 h Schuykill River to James River.
 i Scioto River.
 j Loup, Platte, and Elkhorn Rivers and
 k Tributaries of Mississippi River from east.
 l Lake Ontario and tributaries to St.
 m Lawrence River proper.
 n Hudson Bay only.
 o New England Rivers only.
 p Saguenay, St. Lawrence, and
 q Plateau and Kansas Rivers.
 r The Great Basin in California, except
 Truckee and Carson River Basins.
 t Below mouth of Gila River.
 u Rogue, Umpqua, and Siletz Rivers only.

The records at most of the stations discussed in these reports extend over a series of years. Miscellaneous 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 listed appearing in the same relative order as the streams and gaging stations in the body of the report. An index of the records obtained prior to 1904 has been published in Water-Supply Paper 119.

Each of the reports on surface water supply for the year 1939, issued as Water-Supply Papers 871 to 884 (see table on p. 8), contains, for the area covered by that report, a summary of yearly discharge at gaging stations at which 10 or more complete years of record have been collected. These summaries are available also as separate reprints.

Reports 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 have been revised), as well as some records not contained in the annual series of water-supply papers. The following table gives the numbers and titles of these reports, arranged alphabetically, some by States and some by drainage basins.

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

Report	Period	Water-Supply Paper
STATE		
Alabama, Water powers of, with an appendix on stream measurements in Mississippi.	1895-1903	107
California, Water resources of, part 1, Stream measurements in Sacramento River Basin.	1887-1912	298
California, Water resources of, part 2, Stream measurements in San Joaquin River Basin.	1878-1912	299
California, Water resources of, part 3, Stream measurements in the Great Basin and Pacific Coast river basins.	1891-1912	300
California, southern, Surface water supply of Pacific slope of.....	1890-1918	447
California, Surface water supply of Sacramento River Basin.....	1895-1927	597-E
California, Surface water supply of San Joaquin River Basin.....	1895-1927	636-D
California, southern, Surface water supply of Pacific slope basins in.....	1894-1927	636-E
California, Surface water supply of minor San Francisco Bay, northern Pacific, and Great basins in.....	1895-1927	637-A
Colorado, Water resources of.....	1884-1900	74
Georgia, Water resources of.....	1895-1905	197
Massachusetts, Surface waters of.....	1848-1915	415
Massachusetts, Hydrology of, Part 1, Summary of stream-flow and precipitation records.	1863-1945	1105
Nebraska, Surface water supply of.....	1894-1906	230
Oregon, Surface water supply of.....	1878-1910	370
Texas, Summary of records of surface waters of.....	1896-1937	850
Vermont, Surface waters of.....	1875-1916	424
Washington, Summary of hydrometric data in.....	1878-1919	492
Washington, Summary of records of surface waters of.....	1919-35	870
Wisconsin, northern, Water power of.....	1895-1905	156
Wyoming, Surface waters of, and their utilization.....	1894-1921	469
DRAINAGE BASIN		
Colorado River (Ariz., Colo., N. Mex., Utah, Wyo.) and its utilization..	1888-1914	395
Colorado River, upper (Colo., Utah), and its utilization.....	1897-1927	617
Colorado River Basin (Ariz., Calif., Colo., Utah, Wyo.), Surface waters at base stations in.....	1891-1938	918
Colorado River Basin (Ariz., Calif., Nev., N. Mex., Utah), Surface waters at stations on tributaries in lower.....	1888-1938	1049
Columbia River Basin, upper (Mont., Idaho), Surface waters of.....	1898-1938	916
Great Salt Lake Basin, Water powers of.....	1889-1920	517
Green River (Colo., Utah, Wyo.) and its utilization.....	1894-1926	618
Kennebec River Basin (Maine), Water resources of.....	1890-1906	198
Milk River. See St. Mary and Milk Rivers.....		
Missouri and St. Mary River Basins (Mont.), Surface waters of.....	1881-1938	917
New-Kanawha River Basin (N. C., Va., W. Va.), Surface water supply of.....	1895-1920	536
Penobscot River Basin (Maine), Water resources of.....	1904-9	279
Potomac River Basin (D. C., Md., W. Va.).....	1895-1906	192
Rio Grande Basin (Colo., N. Mex., Tex.), Water resources of.....	1888-1913	358
St. Mary and Milk Rivers (Mont., Canada), Water supply of.....	1898-1917	491
St. Mary River. See St. Mary and Milk Rivers; Missouri and St. Mary River Basin.		
Sewer Lake Basin (Utah), Utilization of surface water resources of.....	1889-1937	920
Susquehanna River Basin (Pa., Md.) Hydrography of.....	1890-1904	109

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.

SURFACE WATER SUPPLY, 1950, PART 14

State reports containing compilations of records of discharge

State	Period	Report	Issued by
Alabama.....	1895-1915	Bull. 17, Water powers of Alabama.....	Geological Survey of Alabama.
Do.....	1904-47	Special Report 20, Water Resources and Hydrology of southeastern Alabama.	Do.
Arkansas.....	1857-1928	Stream-gaging Rept. 1.....	Arkansas Geological Survey.
Do.....	1903-48	Surface Water Resources of Arkansas.....	Arkansas Resources and Development Commission; University of Arkansas, Institute of Science and Technology.
Colorado.....	1881-1935	Water resources of Colorado, Appendix 2, Data on stream-gaging stations of Colorado. ¹	State Planning Commission, Water Conservation Board, State engineer.
Do.....	1881-1938	Water resources of Colorado, Appendix 3, vols. 1 and 2, Stream-flow data of Colorado.	Do.
Connecticut...	1900-1927	Bull. 44, Water resources of Connecticut...	State Geological and Natural History Survey.
Do.....	1912-33	5th biennial report.....	State Water Commission.
Florida.....	1898-1946	Bull. 31, Springs of Florida.....	Florida Geological Survey.
Georgia.....	1895-1906	Bull. 16, Water powers of Georgia.....	Geological Survey of Georgia.
Do.....	1907-19	Bull. 38, Water powers of Georgia.....	Do.
Illinois.....	1908-11	Water resources of Illinois.....	Rivers and Lakes Commission.
Do.....	1900-1934	Stream-flow data of Illinois.....	Division of Waterways.
Indiana.....	1923-27	Pub. 72, Surface water supply of Indiana.....	Department of Conservation.
Do.....	1927-30	Pub. 112, Surface water supply of Indiana.....	Do.
Iowa.....	1873-1932	Stream-flow records of Iowa.....	State Planning Board.
Do.....	1873-1940	Water-Supply Bull. 1, Summaries of yearly and flood flow relating to Iowa streams.	Iowa Geological Survey.
Do.....	1941-42	Water-Supply Bull. 2, Surface water resources of Iowa.	Do.
Kansas.....	1895-1919	Surface waters of Kansas.....	Kansas Water Commission.
Do.....	1919-24	Report of Division of Water Resources.	Do.
Do.....	1924-28	Stream-flow data of Kansas.....	State Board of Agriculture.
Do.....	1928-35	.....do.....	Do.
Do.....	1935-39	.....do.....	Do.
Kentucky.....	1910-20	Surface waters of Kentucky.....	Kentucky Geological Survey.
Louisiana.....	1903-38	Geol. Bull. 16, Surface water supply of Louisiana.	Department of Conservation.
Maine.....	1887-1920	1st annual report.....	Maine Water Power Commission.
Maryland.....	1929-37	Flow data and draft storage curves for major streams in Maryland.	State Planning Commission and Water Resources Commission.
Do.....	1892-1943	Bull. 1, Summary of records of surface waters of Maryland and the Potomac River Basin.	Department of Geology, Mines, and Water Resources.
Do.....	1931-48	Bull. 5, Anne Arundel County Water Resources	Do.
Minnesota.....	1909-12	Water-resources investigation of Minnesota.	State Drainage Commission.
Mississippi.....	1900-1948	Bull. 68, Surface Waters of Mississippi....	Mississippi Geological Survey.
Missouri.....	1857-1926	Vol. 20, 2d series, Water resources of Missouri.	Missouri Bureau of Geology and Mines.
Do.....	1927-39	Vol. 26, 2d series, Surface waters of Missouri.	Missouri Geological Survey and Water Resources.
Montana.....	1889-1911	5th biennial report.....	Office of the State Engineer.
Do.....	1881-1938	Special Rept. 10, vols. 1-4, Water resources of Montana.	Montana Agricultural Experiment Station.
Nebraska.....	1894-1914	1st hydrographic report.....	Bureau of Water Power, Irrigation, and Drainage.
Do.....	1914-28	2d hydrographic report.....	Do.
New Hampshire.	1822	Annual and statistical report, vol. 12.....	Public Service Commission.
New Jersey.....	1892-1928	Bull. 33, Surface water supply of New Jersey.	Department of Conservation and Development.
Do.....	1928-34	Special Rept. 5, Surface water supply of New Jersey.	State Water Policy Commission.
Do.....	1934-40	Special Rept. 9, Surface water supply of New Jersey.	Do.
New Mexico....	1888-1925	Surface water supply of New Mexico.....	Office of the State Engineer.
North Carolina	1889-1923	Bull. 34, Discharge records of North Carolina streams.	Department of Conservation and Development.
Do.....	1889-1936	Bull. 39, Discharge records of North Carolina streams. ²	Do.
Do.....	1866-1945	Hydrologic Data on the Neuse River Basin.	Do.
Do.....	1820-1945	Hydrologic Data on the Cape Fear River Basin.	Do.
Do.....	1866-1945	Hydrologic Data on the Yadkin-Pee Dee River Basin.	Do.
Do.....	1872-1945	Hydrologic Data on the Catawba and Broad River Basins.	Do.
Do.....	1857-1945	Hydraulic Data on The French Broad River Basin.	Do.
North Dakota..	1919-21	Report to Governor of North Dakota on flood control.	State chief engineer.
Do.....	1882-1938	Surface water in North Dakota.....	State Planning Board.
Do.....	1882-1944	Supplement B, 4th biennial report.....	State Water Conservation Commission.
Ohio.....	1898-1921	Bull. 173, Ohio stream flow, Part 1.....	Engineering Experiment Station, Ohio State University.
Do.....	1898-1944	Bull. 127, Ohio stream flow, Part 2.....	Do.
Do.....	1902-39	Bull. 200, Compilation of stream-flow records of Ohio.	Department of Agriculture, Division of Conservation and Natural Resources.
Do.....	1898-1939	Bull. 111, Ohio stream-drainage areas and flow-duration tables.	Engineering Experiment Station, Ohio State University.
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.

1 Contains records of yearly discharge only.

2 Contains records of maximum and minimum daily, weekly, and monthly discharge and yearly mean discharge.

State reports containing compilations of records of discharge--Continued

State	Period	Report	Issued by
Oregon.....	1930-36	Bull. 9, Water resources of the State of Oregon.	Office of the State Engineer.
Do.....	1936-41	Bull. 10, Water resources of the State of Oregon.	Do.
Pennsylvania...	1890-1911	Report of the Water Supply Commission of Pennsylvania.	Water Supply Commission of Pennsylvania.
Do.....	1928-32	Stream-flow records of Pennsylvania.....	Department of Forests and Waters.
Rhode Island...	1929-41	7th annual report.....	Department of Public Works.
South Carolina.	1864-1946	Bull. 17, Summary of records of surface water supply of South Carolina.	South Carolina Research, Planning and Development Board.
Tennessee.....	1874-1924	Bull. 34, Water resources of Tennessee ³ ..	Department of Education.
Do.....	1920-30	Bull. 40, Surface waters of Tennessee....	Do.
Utah.....	1889-1905	5th biennial report.....	Office of the State Engineer.
Do.....	1906-10	7th biennial report.....	Do.
Do.....	1911-16	10th biennial report.....	Do.
Virginia.....	1895-1927	Bull. 31, Water resources of Virginia....	Virginia Geological Survey.
Do.....	1927-42	Bull. 4, Surface water supply of Virginia (Potomac, Rappahannock, and York River Basins).	Virginia Conservation Commission.
Do.....	1927-42	Bull. 5, Surface water supply of Virginia (James River Basin).	Do.
Do.....	1927-42	Bull. 6, Surface water supply of Virginia (Roanoke and Chowan River Basins).	Do.
Do.....	1927-42	Bull. 7, Surface water supply of Virginia (New, Tennessee, and Big Sandy River Basins).	Do.
Washington....	1878-1933	Bull. 5, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.
Wisconsin.....	1886-1914	1st report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.
Do.....	1914-23	2d report of Railroad Commission of Wisconsin to Legislature on water powers.	Do.

³ Includes records of discharge for all stations in North Carolina in the Tennessee River Basin. Note.--In addition to the records contained in the reports listed above, the following States have issued annual or biennial reports in which are contained records of discharge: California, Colorado, Connecticut, Idaho, Indiana, Kansas, Maine, Missouri, Montana, Nebraska, Nevada, New Mexico, New York (also New York City Board of Water Supply and city of Rochester), North Dakota, Oregon, Pennsylvania, Rhode Island, South Dakota, Washington, and Wyoming.

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 noteworthy floods. The following list gives the numbers and titles of these reports:

Water-Supply Paper	Title
88	The Passaic flood of 1902.
92	The Passaic flood of 1903.
96	Destructive floods in the United States in 1903.
147	Destructive floods in the United States in 1904.
162	Destructive floods in the United States in 1905.
334	The Ohio Valley flood of March-April 1913.
426	Southern California floods of January 1916.
487	The Arkansas River flood of June 3-5, 1921.
488	The floods in central Texas in September 1921.
520-G	Some floods in the Rocky Mountain region.
636-C	The New England flood of November 1927.
771	Floods in the United States, magnitude and frequency.
773-E	The New York State flood of July 1935.
796-B	Flood on Republican and Kansas Rivers, May and June 1935.
796-C	Flood in La Canada Valley, Calif., January 1, 1934.
796-G	Major Texas floods of 1935.
798	The floods of March 1936, part 1, New England rivers.
799	The floods of March 1936, part 2, Hudson River to Susquehanna River region.
800	The floods of March 1936, part 3, Potomac, James, and upper Ohio Rivers.
816	Major Texas floods of 1936.
836-A	Stages and flood discharges of the Connecticut River at Hartford, Conn.
838	Floods of Ohio and Mississippi Rivers, January-February, 1937.
842	Floods in Canadian and Pecos River Basins of New Mexico, May and June 1937.
843	Floods of December 1937 in northern California.
844	Floods of March 1938 in southern California.
847	Maximum discharges at stream-measurement stations through September 1938.
867	Hurricane floods of September 1938.
869	Flood of August 1935 in Muskingum River Basin, Ohio.
914	Texas floods of 1938 and 1939.
966	Minor floods of 1938 in North Atlantic States.
967-A	Floods of September 1939 in Colorado River Basin below Boulder (Hoover) Dam.
967-B	Flood of July 5, 1939, in eastern Kentucky.
967-C	Flood of August 21, 1939, in town of Baldwin, Maine.
994	Cloudburst floods in Utah, 1850 to 1938.
997	Floods in Colorado.
1046	Texas floods of 1940.
1066	Floods of August 1940 in the southeastern States.
1080	Floods of May-June 1948 in Columbia River Basin.
1134-A	Floods of August 4-5, 1943 in Central West Virginia.
1134-B	Floods of July 18, 1942 in North Central Pennsylvania.
1137-A	Missouri River Basin Floods of April-May 1950 in North and South Dakota.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The following table contains a list of gaging stations for the area covered by this report at which records of daily discharge were collected during the water year October 1949 to September 1950 by agencies other than the Geological Survey. The records for these stations are not contained in the publications of the Geological Survey. Records on many canals, not here listed, have been collected by the Oregon State engineer and the Bureau of Reclamation in connection with the water supply for irrigation projects.

Records of discharge collected by agencies other than the Geological Survey

Stream	Location	Period	Collected by
Amazon Creek.....	At 19th Street in Eugene, Oreg.....	1950	Corps of Engineers.
Big Butte Creek, North Fork...	SW $\frac{1}{4}$ sec. 2, T. 35 S., R. 2 E., 1 mile north of Butte Falls, Oreg.	1928-50	Oregon State engineer.
Big Butte Springs.....	Sec. 17, T. 35 S., R. 3 E., 4 miles east of Butte Falls, Oreg.	1930-50	Do.
Big Marsh Creek.....	NE $\frac{1}{4}$ sec. 20, T. 24 S., R. 7 E., at Hoey Ranch, near Crescent, Oreg.	1924, 1928-50	Do.
Deschutes River.....	N $\frac{1}{2}$ sec. 7, T. 20 S., R. 11 E., $\frac{1}{2}$ mile below Little Deschutes River, at Peters Ranch, near Lapine, Oreg.	1944-50	Do.
Do.....	On line between sec. 31, T. 19 S., R. 11 E. and sec. 6, T. 20 S., R. 11 E., $\frac{1}{2}$ mile below Spring River, near Lapine, Oreg.	1944-50	Do.
Do.....	SW $\frac{1}{4}$ sec. 9, T. 19 S., R. 11 E., below Benham Falls, near Bend, Oreg.	1943-50	Do.
Do.....	SW $\frac{1}{4}$ sec. 27, T. 18 S., R. 11 E., above Lava Island, near Bend, Oreg.	1943-50	Do.
Do.....	SW $\frac{1}{4}$ sec. 4, T. 19 S., R. 11 E., $\frac{1}{2}$ mile above Dillon Falls, at Ryan Ranch, near Bend, Oreg.	1943-50	Do.
Do.....	Near center sec. 7, T. 18 S., R. 12 E., $\frac{1}{2}$ mile above head of mill pond, near Bend, Oreg.	1943-50	Do.
Evans Creek.....	Sec. 20, T. 34 S., R. 2 W., 3 miles above West Fork, $\frac{1}{2}$ miles north of Sams Valley, Oreg.	1942-50	Do.
Do.....	SW $\frac{1}{4}$ sec. 26, T. 34 S., R. 3 W., near Bybee Springs, 7 miles northwest of Sams Valley, Oreg.	1940-50	Do.
Fish Lake Dam, tunnel at.....	SW $\frac{1}{4}$ sec. 3, T. 37 S., R. 4 E., 14 miles east of Lake Creek, Oreg.	1929-50	Do.
Fivemile Creek.....	SW $\frac{1}{4}$ sec. 27, T. 4 S., R. 29 E., 14 miles west of Ukiah, Oreg.	1928-30, 1932-35, 1935-44, 1946-47, 1949-50	Do.
Fourbit Creek.....	Near northwest corner sec. 26, T. 35 S., R. 3 E., 7 miles south- east of Butte Falls, Oreg.	1949-50	Do.
Grave Creek.....	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 7, T. 34 S., R. 5 W., $\frac{1}{2}$ miles west of Placer, Oreg.	1929-30, 1932-50*	Do.
Jumpoff Joe Creek.....	SW $\frac{1}{4}$ sec. 32, T. 34 S., R. 5 W., 7 miles northwest of Merlin, Oreg.	1929-50*	Do.
Little Butte Creek.....	SE $\frac{1}{4}$ sec. 19, T. 36 S., R. 2 E., at Lake Creek, Oreg.	1922-24, 1927-47, 1949-50	Do.
Little Butte Creek, North Fork	Sec. 21, T. 36 S., R. 2 E., above Rogue River Valley Canal intake, near Lake Creek, Oreg.	1932-50*	Do.
Little Butte Creek, South Fork	NE $\frac{1}{4}$ sec. 21, T. 37 S., R. 4 E., 1 mile south of Big Elk ranger station, near Lake Creek, Oreg.	1932-50*	Do.
Little Deschutes River.....	SE $\frac{1}{4}$ sec. 30, T. 20 S., R. 11 E., 4 miles above mouth, at Johnson Ranch, near Bend, Oreg.	1943-50*	Do.
Little Walla Walla River.....	George St., in Milton, Oreg.....	1932-50	Do.
Ochoco Creek.....	NE $\frac{1}{4}$ sec. 6, T. 15 S., R. 17 E., be- low Ochoco Reservoir, 6 miles east of Prineville, Oreg.	1919-50	Do.
Ochoco Reservoir.....	NW $\frac{1}{4}$ sec. 5, T. 15 S., R. 17 E., 8 miles east of Prineville, Oreg.	1918-50	Do.
Rancheria Creek.....	SE $\frac{1}{4}$ sec. 17, T. 35 S., R. 3 E., 4 miles east of Butte Falls, Oreg.	1935-50	Do.
Willow Creek.....	Sec. 28, T. 35 S., R. 3 E., 6 miles southeast of Butte Falls, Oreg.	1949-50	Do.
Wilson Creek.....	SW $\frac{1}{4}$ sec. 9, T. 10 S., R. 15 E., near Madras, 8 miles southeast of Gateway, Oreg.	1950	Do.

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

Note.--Records through 1941 collected by the Oregon State engineer (some of them in cooperation with the Bureau of Reclamation of the U. S. Department of Interior) are contained in the bulletins published by that officer. (See p. 9 "State reports containing compilation of records of discharge.") The other records listed in this table have not been published.

In Oregon the work was done under cooperative agreements with the State of Oregon, C. E. Stricklin, State engineer; Fish Commission of Oregon, A. J. Suomela, Master Fish Warden; and the cities of Corvallis, Eugene, McMinnville, Portland, Coos Bay-North Bend, and Yoncala. In Washington the work was done under cooperative agreements with the State Department of Conservation and Development, J. V. Rogers, director, and C. J. Bartholet, Supervisor of Hydraulics; State Department of Fisheries, Alvin Anderson, director; Walla Walla County; city of Tacoma; and Lewis, Skamania, and Wahkiakum County Public Utility Districts.

Financial assistance was furnished by the Corps of Engineers for the operation of 43 gaging stations in Oregon and 8 in Washington.

Financial assistance was also furnished by the Bureau of Reclamation of the United States Department of Interior.

Assistance in collecting records was rendered by the following organizations:

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

Washington: Pacific Power & Light Co.

DIVISION OF WORK

The stream-gaging work was conducted by the water resources division of the Geological Survey--Carl G. Paulsen, chief hydraulic engineer and Joseph V. B. Wells, chief of the surface water branch. The data for the gaging stations were collected and prepared for publication under supervision of district engineers as follows: In Oregon, K. N. Philips, the work being done in collaboration with C. E. Stricklin, State engineer; in Washington, F. M. Veatch.

The records were reviewed and the manuscript prepared for publication under the direction of B. J. Peterson, chief, annual reports section.

GAGING-STATION RECORDS

COLUMBIA RIVER MAIN STEM

Columbia River near The Dalles, Oreg.

Location.--Water-stage recorder, lat. 45°39', long. 120°58', in NE $\frac{1}{4}$ sec. 20, T. 2 N., R. 15 E., just upstream from Celilo Falls, 3 miles downstream from Deschutes River and 11 miles east of The Dalles. Datum of gage is at mean sea level, datum of 1929.

Drainage area.--237,000 square miles.

Records available.--June 1878 to September 1950. Prior to October 1931, records based on staff gage at The Dalles, supplemented for a few short periods by gage-height records at Umatilla and Cascade locks. Maximum stage for each year in period 1858 to 1877 from readings of gage at Lower Cascades Landing.

Average discharge.--72 years, 194,700 second-feet.

Extremes.--Maximum discharge during year, 744,000 second-feet June 25 (elevation, 148.13 feet); minimum, 76,300 second-feet Nov. 8 (elevation, 128.99 feet).

1858-1950: Maximum discharge, 1,240,000 second-feet June 6, 1894 (elevation, 106.5 feet on gage at The Dalles, 160.1 feet at present site); minimum observed, 35,000 second-feet Jan. 12, 1937 (elevation, 126.0 feet).

Remarks.--Records excellent. Storage and diversions for irrigation are only a small part of total runoff. Some regulation by Franklin D. Roosevelt Lake above Grand Coulee Dam during year, the total increase in contents during the year ending Sept. 30, 1950, being 49,200 acre-feet.

Cooperation.--Recorder inspected and gages read by Corps of Engineers.

Revisions (water years)--W 534: 1920(m). W 554: 1879-1920 (low-water rating curve). W 1094: 1894.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

129	76,500	135	247,000
130	99,000	140	431,000
132	151,000	148	739,000

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84,500	85,400	126,000	92,700	100,000	194,000	165,000	219,000	477,000	688,000	286,000	147,000
2	83,400	83,200	122,000	92,900	99,700	174,000	169,000	215,000	475,000	704,000	278,000	145,000
3	83,200	83,000	115,000	88,500	101,000	158,000	212,000	220,000	478,000	704,000	270,000	152,000
4	82,800	82,800	118,000	83,900	103,000	154,000	226,000	222,000	488,000	693,000	257,000	158,000
5	81,000	81,000	122,000	82,600	105,000	154,000	196,000	223,000	500,000	668,000	249,000	157,000
6	82,800	81,000	120,000	88,100	115,000	161,000	181,000	222,000	512,000	649,000	246,000	156,000
7	83,200	81,000	119,000	90,800	115,000	175,000	179,000	220,000	520,000	631,000	239,000	148,000
8	83,200	78,600	113,000	93,600	117,000	177,000	186,000	217,000	524,000	617,000	235,000	130,000
9	85,200	78,600	102,000	94,500	126,000	168,000	191,000	216,000	530,000	601,000	228,000	127,000
10	90,200	82,600	97,100	92,700	124,000	159,000	199,000	215,000	525,000	584,000	220,000	126,000
11	91,500	88,800	95,200	93,800	129,000	152,000	201,000	214,000	498,000	560,000	213,000	113,000
12	92,000	89,000	95,900	94,800	126,000	146,000	198,000	217,000	480,000	530,000	205,000	114,000
13	88,600	89,000	93,400	95,900	120,000	140,000	196,000	234,000	491,000	534,000	186,000	118,000
14	88,600	87,400	92,000	94,500	123,000	134,000	200,000	265,000	518,000	522,000	164,000	120,000
15	86,300	83,400	92,200	89,700	128,000	130,000	213,000	304,000	553,000	496,000	161,000	118,000
16	87,400	80,100	92,700	88,600	131,000	129,000	223,000	342,000	562,000	477,000	180,000	111,000
17	87,400	81,900	93,400	89,700	138,000	126,000	224,000	374,000	581,000	463,000	167,000	107,000
18	88,100	84,100	95,700	87,900	135,000	133,000	226,000	399,000	630,000	444,000	169,000	110,000
19	86,100	85,400	95,700	88,800	129,000	164,000	239,000	417,000	682,000	429,000	154,000	112,000
20	88,600	87,000	91,100	91,500	123,000	169,000	239,000	410,000	702,000	413,000	152,000	106,000
21	87,900	87,200	91,100	95,700	120,000	187,000	236,000	410,000	712,000	394,000	159,000	108,000
22	89,700	84,800	93,400	101,000	118,000	177,000	233,000	410,000	716,000	387,000	162,000	112,000
23	90,400	81,900	96,400	116,000	120,000	170,000	246,000	407,000	725,000	372,000	161,000	110,000
24	89,700	87,200	96,400	125,000	128,000	166,000	255,000	431,000	737,000	353,000	159,000	106,000
25	85,000	89,900	95,400	116,000	136,000	166,000	249,000	463,000	739,000	344,000	157,000	103,000
26	81,500	90,800	92,700	116,000	172,000	166,000	241,000	480,000	721,000	333,000	151,000	101,000
27	85,200	95,900	88,600	118,000	203,000	169,000	231,000	478,000	705,000	320,000	157,000	95,000
28	88,300	101,000	83,900	114,000	199,000	172,000	226,000	469,000	670,000	307,000	158,000	99,700
29	88,100	108,000	82,800	107,000	-	169,000	231,000	467,000	665,000	300,000	154,000	101,000
30	85,200	123,000	88,800	105,000	-	166,000	233,000	487,000	671,000	294,000	151,000	103,000
31	86,100	-	90,800	103,000	-	166,000	-	488,000	-	291,000	153,000	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	2,681,200	92,000	81,000	86,490	0.365	0.42	5,318,000
November	2,623,000	123,000	78,600	87,430	.369	.41	5,203,000
December	3,091,700	126,000	82,800	99,730	.421	.49	6,132,000
Calendar year 1949	65,612,200	622,000	74,400	179,800	.759	10.29	130,100,000
January	3,032,100	122,000	82,600	97,810	.413	.48	6,014,000
February	3,583,700	203,000	99,700	128,000	.540	.56	7,108,000
March	4,991,000	194,000	126,000	161,000	.679	.78	9,900,000
April	6,444,000	255,000	165,000	214,800	.906	1.01	12,780,000
May	10,355,000	488,000	214,000	334,000	1.41	1.62	20,540,000
June	17,787,000	739,000	475,000	592,900	2.50	2.79	35,280,000
July	15,102,000	704,000	291,000	487,200	2.06	2.37	29,950,000
August	5,952,000	286,000	151,000	192,000	.810	.95	11,810,000
September	3,613,700	158,000	95,000	120,500	.508	.57	7,168,000
Water year 1949-50	79,256,400	739,000	78,600	217,100	.916	12.43	157,200,000

Peak discharge (base, 400,000 sec.-ft.).--June 25 (3 a.m.) 744,000 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of combined records for Columbia River at Trinidad and Snake River near Clarkston.

b Stage-discharge relation affected by ice.

WALLA WALLA RIVER BASIN

South Fork Walla Walla River near Milton, Oreg.

Location.--Water-stage recorder, lat. 45°50', long. 118°10', in NE¹/₄ sec. 15, T. 4 N., R. 37 E., 1 mile upstream from Pacific Power & Light Co.'s penstock intake and 13 miles southeast of Milton. Altitude of gage, about 2,050 feet (from river-profile map).

Drainage area.--63 square miles.

Records available.--February to October 1903 (gage heights only), August 1906 to November 1917 (incomplete), May 1931 to September 1950.

Average discharge.--26 years (1908-15, 1931-50), 172 second-feet.

Extremes.--Maximum discharge during year, 870 second-feet Feb. 25 (gage height, 3.03 feet, from rating curve extended above 450 second-feet); minimum, 113 second-feet Oct. 31, Nov. 1 (gage height, 1.56 feet).

1906-17, 1931-50: Maximum discharge recorded, 2,430 second-feet Dec. 12, 1946 (gage height, 4.20 feet), from rating curve extended above 240 second-feet; minimum, 72 second-feet Feb. 14, 1932.

Maximum stage known, about 6 feet Mar. 31, 1931, present site and datum.

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

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.5	103	2.3	360
1.7	142	2.6	530
1.9	200	2.9	750
2.1	270		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	117	113	153	148	b130	270	440	260	375	246	142	129
2	117	115	150	140	a130	249	428	260	385	232	142	131
3	117	115	142	135	a130	370	320	249	390	224	142	129
4	118	117	138	135	b135	446	278	263	400	214	142	131
5	127	117	138	138	142	446	266	294	405	204	142	131
6	124	117	133	133	176	405	274	278	380	194	140	131
7	127	117	131	131	176	325	266	263	380	185	138	129
8	122	118	*131	131	162	282	266	263	614	179	135	127
9	131	120	133	131	*148	252	260	274	530	176	135	127
10	131	122	131	*131	140	235	249	315	458	173	133	124
11	122	122	129	129	138	210	256	390	446	164	133	124
12	120	122	131	129	135	197	310	500	428	162	131	124
13	120	120	129	127	142	194	435	551	395	159	131	127
14	120	118	127	b127	153	185	282	551	370	156	131	124
15	120	118	129	b127	204	179	260	530	365	153	131	124
16	122	118	131	135	282	188	263	506	370	150	131	129
17	122	118	131	*b127	260	388	302	470	390	148	131	129
18	124	117	133	b124	224	434	298	385	385	148	131	127
19	122	117	129	127	224	400	294	330	380	150	131	127
20	120	117	129	148	204	330	330	335	370	145	129	127
21	120	117	133	228	182	282	370	395	365	145	129	127
22	120	117	135	446	176	282	340	476	325	140	129	127
23	118	145	173	290	207	266	296	458	298	158	133	127
24	118	204	176	224	560	249	252	422	282	138	140	124
25	117	162	162	188	694	235	242	400	266	140	133	127
26	117	156	150	170	544	221	228	428	252	142	133	135
27	115	200	148	162	428	210	238	428	252	142	131	127
28	129	173	148	150	*320	191	228	405	252	148	131	124
29	122	150	159	148	-	188	224	380	252	145	131	122
30	115	162	159	a140	-	185	232	360	256	145	129	122
31	113	-	153	a135	-	235	-	360	-	145	129	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	3,747	131	113	121	1.92	2.21	7,430
November	3,944	204	113	131	2.06	2.33	7,820
December	4,374	176	127	141	2.24	2.58	8,680
Calendar year 1949	72,933	607	113	200	3.17	45.05	144,600
January	4,934	446	124	159	2.52	2.91	9,790
February	6,546	694	130	234	3.71	3.86	12,980
March	8,528	446	179	275	4.37	5.03	16,920
April	8,617	440	224	287	4.56	5.09	17,080
May	11,779	551	249	380	6.03	6.95	23,360
June	11,016	614	252	367	5.83	6.50	21,850
July	5,130	246	138	165	2.62	3.03	10,180
August	4,149	142	129	134	2.13	2.45	8,230
September	3,813	135	122	127	2.02	2.25	7,560
Water year 1949-50	76,578	694	113	210	3.33	45.19	151,900

Peak discharge (base, 600 sec.-ft.)--Feb. 25 (1 a.m.) 870 sec.-ft.; May 12 (9:30 p.m.) 628 sec.-ft.; June 8 (2 p.m.) 702 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for North Fork Walla Walla River near Milton.

b Stage-discharge relation affected by ice.

WALLA WALLA RIVER BASIN

North Fork Walla Walla River near Milton, Oreg.

Location.--Water-stage recorder, lat. 45°54', long. 118°16', in NW¼ sec. 23, T. 5 N., R. 36 E., 1½ miles upstream from confluence with South Fork Walla Walla River and 5 miles southeast of Milton. Altitude of gage is about 1,470 feet (from river profile map).

Drainage area.--46 square miles.

Records available.--October 1940 to September 1950, in reports of Geological Survey; December 1929 to September 1941 in reports of State engineer.

Average discharge.--20 years, 47.8 second-feet.

Extremes.--Maximum discharge during year, 620 second-feet June 8 (gage height, 5.60 feet); minimum, 3 second-feet Aug. 20, 21.

1929-50: Maximum discharge observed, 1,980 second-feet Dec. 12, 1946 (gage height, 6.97 feet, site and datum then in use), from rating curve extended above 230 second-feet; minimum, 1 second-foot Aug. 8-19, 1936, Aug. 7-11, 1940.

Remarks.--Records fair except those below 10 second-feet, which are poor. Diversions above station for irrigation of about 220 acres; no regulation.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Nov. 22 to Feb. 25)

Oct. 1 to Feb. 25

Feb. 26 to Sept. 30

1.7	5.0	2.3	47	3.8	305	1.4	3.0	1.9	17	3.1	146
1.8	8.5	2.5	70	4.4	455	1.5	4.0	2.0	23	3.6	221
1.9	13	2.7	99	4.8	560	1.6	6.0	2.2	38	4.2	321
2.0	20	3.0	147			1.7	8.5	2.4	59	5.0	475
2.1	28	3.4	220			1.8	12	2.7	94		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7	10	24	31	25	124	160	92	115	38	7	6
2	7	10	21	26	23	106	180	96	119	36	6	7
3	7	10	18	23	24	200	142	96	120	33	7	6
4	7	10	16	22	26	278	119	105	126	29	7	6
5	8	10	14	21	32	265	110	143	131	26	8	6
6	8	10	13	19	77	247	112	135	132	24	8	6
7	8	10	13	18	65	182	107	123	172	23	8	6
8	8	10	11	17	56	147	106	119	468	22	7	6
9	8	12	11	16	47	125	104	126	370	21	7	6
10	11	13	11	16	42	107	98	126	250	19	7	6
11	10	12	11	15	39	95	96	143	204	18	6	6
12	9	12	11	15	36	82	120	170	174	17	6	6
13	8	11	11	14	51	76	139	202	149	16	7	6
14	8	11	10	10	96	70	124	205	135	14	7	6
15	8	11	10	13	142	64	109	199	124	13	7	6
16	8	11	12	12	171	68	106	186	116	12	6	6
17	8	10	12	12	154	167	128	178	139	12	6	6
18	8	10	13	12	119	213	127	154	129	12	5	6
19	8	10	12	12	110	190	123	133	118	12	4	5
20	8	9	12	16	93	159	131	123	105	12	3	5
21	9	9	12	86	74	135	146	129	98	12	3	5
22	8	9	13	201	65	129	140	150	86	11	4	5
23	8	12	32	156	102	119	123	154	75	10	5	5
24	8	24	50	104	328	112	104	142	70	8	7	5
25	8	23	37	73	542	101	95	132	61	6	7	5
26	8	22	31	56	284	94	88	132	55	6	7	8
27	8	29	26	46	210	88	89	140	50	7	7	9
28	9	24	28	38	156	80	83	139	47	9	6	8
29	12	21	36	33	-	69	78	129	43	9	6	8
30	12	24	40	31	-	68	80	118	40	8	6	8
31	11	-	33	24	-	87	-	114	-	8	7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	264	12	7	8.5	524
November.....	408	28	9	13.6	809
December.....	604	50	10	19.5	1,200
Calendar year 1949.....	19,067	299	3	52.2	37,830
January.....	1,188	201	10	38.3	2,360
February.....	3,189	542	23	114	6,330
March.....	4,045	278	64	150	8,020
April.....	3,463	180	76	115	6,870
May.....	4,327	205	92	140	8,580
June.....	4,021	468	40	134	7,980
July.....	503	38	6	16.2	998
August.....	194	8	3	6.3	385
September.....	185	9	5	6.2	367
Water year 1949-50.....	22,391	542	3	61.3	44,420

Peak discharge (base, 300 sec.-ft.)--Feb. 25 (12 m.) 611 sec.-ft.; Mar. 3 (11 p.m.) 306 sec.-ft.; June 8 (12 m.) 620 sec.-ft.

Mill Creek near Walla Walla, Wash.

Location.--Water-stage recorder, lat. 46°00', long. 118°07', in SE1/4 sec. 12, T. 6 N., R. 37 E., 4 miles downstream from city of Walla Walla diversion dam, 4½ miles upstream from Blue Creek, and 1½ miles southeast of Walla Walla. Datum of gage is 2,000 feet above mean sea level, unadjusted.

Drainage area.--54 square miles.

Records available.--August 1913 to September 1917, April to September 1938, October 1939 to September 1950.

Average discharge.--15 years (1913-17, 1939-50), 96.5 second-feet.

Extremes.--Maximum discharge during year, 1,920 second-feet Feb. 24 (gage height, 17.10 feet), from rating curve extended above 620 second-feet; minimum, 35 second-feet Oct. 1-4, Nov. 22.

1913-17, 1938, 1939-50: Maximum discharge, that of Feb. 24, 1950; minimum observed, 16 second-feet Oct. 11-15, 1939.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. City of Walla Walla diverts about 22 second-feet 4 miles above station for municipal use.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 24, June 9 to Sept. 30)

Oct. 1 to Feb. 24

Feb. 24 to Sept. 30

14.5	20	15.3	187	14.5	32	15.3	230	16.3	900
14.7	43	15.5	265	14.7	82	15.5	320	16.6	1,220
14.9	76	15.7	360	14.9	103	15.7	430	17.0	1,760
15.1	124	16.1	600	15.1	157	16.0	630		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	40	80	85	b45	270	466	a140	164	85	48	43
2	35	40	72	74	b45	234	484	a145	164	81	48	43
3	35	40	65	67	b45	345	320	151	164	79	48	43
4	36	39	62	65	b43	581	250	190	170	79	48	45
5	46	39	60	65	b45	678	238	340	174	77	49	43
6	43	39	55	60	b60	609	250	290	164	72	49	43
7	44	39	54	55	121	406	230	246	174	70	49	43
8	40	46	54	55	108	315	234	218	355	68	48	43
9	44	43	54	54	96	262	d200	210	345	66	48	43
10	46	49	52	52	89	230	d190	218	258	64	48	43
11	40	50	49	50	85	198	d180	270	230	60	48	43
12	39	52	49	49	78	177	d240	330	198	59	48	43
13	39	48	48	48	124	164	270	365	174	59	46	43
14	38	46	48	b47	202	148	218	350	160	59	48	43
15	38	44	49	b47	310	170	180	315	151	59	46	42
16	38	42	50	b47	410	187	177	280	148	57	46	43
17	38	40	50	b48	350	782	226	258	167	56	46	43
18	38	39	50	b50	261	728	218	218	170	54	46	43
19	38	39	49	b55	236	616	202	177	160	56	45	43
20	39	39	49	b60	206	430	214	167	151	54	45	43
21	38	39	49	*164	164	320	242	183	142	52	45	43
22	38	48	55	*544	148	330	222	234	131	51	45	43
23	38	65	119	340	458	280	198	230	118	51	46	43
24	38	78	142	213	1,310	246	187	202	110	51	43	43
25	38	74	106	b100	746	210	183	187	103	49	46	46
26	38	71	89	b70	773	177	183	190	96	49	46	72
27	38	85	83	b55	567	164	157	206	94	49	45	46
28	72	78	89	b50	360	145	a150	190	92	51	45	45
29	52	69	103	b50	-	134	a140	177	90	51	43	45
30	44	85	108	b48	-	134	a140	160	88	49	43	45
31	42	-	94	b45	-	167	-	157	-	49	43	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,265	72	35	40.8	2,510
November.....	1,545	85	39	51.5	3,060
December.....	2,136	142	48	68.9	4,240
Calendar year 1949.....	40,050	574	35	110	79,440
January.....	2,612	544	45	90.7	5,580
February.....	7,485	1,310	43	267	14,850
March.....	9,837	782	134	317	19,510
April.....	6,789	484	140	226	13,470
May.....	6,994	365	140	226	13,870
June.....	4,905	355	88	164	9,730
July.....	1,866	85	49	60.2	3,700
August.....	1,445	51	43	46.6	2,870
September.....	1,332	72	42	44.4	2,640
Water year 1949-50.....	48,411	1,310	35	133	96,070

Peak discharge (base, 700 sec.-ft.).--Feb. 24 (6:30 p.m.) 1,920 sec.-ft.; Mar. 5 (6:30 p.m.) 773 sec.-ft.; Mar. 17 (6 p.m.) 1,220 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for nearby stations.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed on basis of records for nearby stations.

WALLA WALLA RIVER BASIN

Mill Creek at Walla Walla, Wash.

Location.--Water-stage recorder, lat. 46°04'40", long. 118°17'00", in NE $\frac{1}{4}$ sec. 22, T. 7 N., R. 36 E., at bridge 0.9 mile downstream from diversion dam and 1.0 mile east of Walla Walla.

Drainage area.--90 square miles.

Records available.--April 1941 to September 1950.

Extremes.--Maximum discharge during year, 1,730 second-feet Jan. 22, 1950 (gage height, 5.04 feet, from high-water mark on outside gage), but may have been higher Feb. 25 during period of faulty intake action; minimum not determined, occurred during period of leakage under control.

1941-50: Maximum discharge, 2,760 second-feet Dec. 28, 1945 (gage height, 4.0 feet); minimum, 0.5 second-foot May 10, 1947, July 23, 24, 1949.

Remarks.--Records fair above 50 second-feet and poor below. Some regulation at diversion dam, 0.9 mile above station where water is diverted into Yellowhawk Creek and Garrison Creek for stock and irrigation. Possible diversions at high stages into flood-control reservoir. City of Walla Walla diverts water for municipal supply. Other small diversions above station for irrigation. Monthly discharge adjusted for Yellowhawk Creek and Garrison Creek diversions.

Revisions.--W 1014: Drainage area.

Rating table, water year 1949-50, except periods of ice effect and leakage under control (gage height, in feet, and discharge, in second-feet)

1.9	0.1	2.8	92	4.2	870
2.0	.7	5.0	152	4.5	1,130
2.2	7.0	3.3	280	4.8	1,430
2.4	22	3.6	440		
2.6	50	3.9	640		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.8	6.2	*22	55	20	320	398	18	39	12	2	1
2	6.2	6.2	20	45	20	266	482	20	39	11	2	1
3	6.2	6.2	25	45	20	325	360	20	37	7	2	1
4	6.6	6.2	20	40	20	514	295	34	39	5	2	1
5	7.6	6.2	15	40	30	619	262	171	42	5	2	1
6	8.2	6.2	15	40	253	605	266	190	42	5	2	1
7	8.8	6.2	15	35	271	452	248	156	95	5	1	1
8	8.8	6.2	10	35	226	360	248	136	360	4	1	1
9	9.4	6.2	9	30	194	305	235	92	375	5	1	1
10	9.4	6.6	7	30	165	271	212	69	285	5	1	1
11	8.8	6.6	7	25	152	244	204	85	244	4	1	1
12	7.6	7.6	6	25	139	235	244	132	222	3	1	1
13	7.6	7.6	7	25	208	136	285	240	171	3	2	1
14	7.6	7.6	9	25	315	90	248	244	146	3	1	1
15	7.0	7.6	8	25	440	80	212	222	135	3	1	1
16	6.2	8.2	6	25	556	126	204	190	116	3	1	1
17	6.2	7.6	4	25	482	605	204	182	141	2	1	2
18	5.8	7.6	3	25	370	726	167	165	145	2	1	1
19	6.2	7.6	3	25	325	675	145	132	132	3	1	1
20	6.2	7.6	5	25	271	521	145	85	119	2	1	1
21	6.2	6.2	7	50	212	410	163	74	111	2	1	1
22	5.4	6.2	10	700	186	392	149	95	100	2	1	1
23	5.4	18	90	*535	266	350	119	100	92	2	1	1
24	5.4	30	135	325	gl,030	325	85	85	87	2	2	1
25	6.6	25	110	200	gl,260	280	39	100	65	2	1	2
26	6.2	25	90	100	782	258	20	54	47	2	1	7
27	5.8	25	70	50	598	235	18	60	42	2	1	6
28	8.8	25	65	30	416	208	16	54	27	2	1	5
29	8.2	20	70	20	-	171	18	48	23	2	1	4
30	6.6	20	75	20	-	160	18	44	16	2	1	3
31	6.2	-	65	20	-	179	-	40	-	2	1	-

Month	Observed				Yellowhawk Creek and Garrison Creek diversions (acre-feet)	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
October.....	9.4	5.4	7.00	430	2,920	3,550	54.5		
November.....	30	6.2	11.3	671	5,420	4,090	68.7		
December.....	135	3	32.7	2,010	2,960	4,970	80.8		
Calendar year 1949	790	2.2	88.0	63,740	30,900	94,640	131		
January.....	700	25	86.9	5,350	686	6,040	98.2		
February.....	1,260	129	329	18,300	1,850	20,150	363		
March.....	726	80	337	20,710	3,650	24,360	396		
April.....	482	16	190	11,320	3,150	14,470	245		
May.....	244	18	108	6,610	5,030	11,640	189		
June.....	375	16	118	7,010	5,310	10,320	173		
July.....	12	2	3.68	226	2,670	2,900	47.2		
August.....	2	1	1.26	77	1,850	2,030	35.0		
September.....	7	1	1.73	103	1,830	1,930	32.4		
Water year 1949-50	1,260	1	101	72,820	33,430	106,200	147		

* Winter discharge measurement made on this day.

g Computed from graph based on gage readings.

Note.--Stage-discharge relation affected by ice Jan. 26 to Feb. 5; no gage-height record Nov. 23-30, Dec. 2 to Jan. 22; gage-height affected by leakage under control July 3 to Sept. 30; discharge computed on basis of 4 discharge measurements, weather records, and records for nearby streams.

Blue Creek near Walla, Walla, Wash.

Location.--Water-stage recorder, lat. 46°03'40", long. 118°07'50", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 25, T. 7 N., R. 37 E., 1 mile upstream from mouth and 10 miles east of Walla Walla. Datum of gage is at mean sea level, unadjusted.

Drainage area.--17.0 square miles.

Records available.--October 1939 to September 1950.

Average discharge.--11 years, 15.7 second-feet.

Extremes.--Maximum discharge during year, 550 second-feet Feb. 24; maximum elevation, 1,743.83 feet Feb. 6 (ice jam); minimum discharge, 0.5 second-foot Sept. 2, 3 (elevation, 1,740.28 feet).

1939-50: Maximum discharge, 725 second-feet Dec. 28, 1945 (elevation, 1,743.35 feet); minimum observed, 0.1 second-foot Oct. 14, 193, but may have been less during period of no gage-height record Oct. 1-11, 1939.

Remarks.--Records good except those for periods of shifting control and discharges below 10 second-feet, which are fair, and periods of ice effect or no gage-height record, which are poor. No known diversion or regulation.

Revisions (water years).--W 984: 1942.

Rating table, water year 1949-50, except periods of ice effect or shifting control (elevation, in feet, and discharge, in second-feet)

40.3	0.7	40.8	18.5	42.0	200
40.4	1.9	41.0	36	42.3	280
40.5	4.2	41.2	57	42.7	410
40.6	7.7	41.4	83		
40.7	12.5	41.7	135		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0.8	al.5	5.4	11.5	b5.0	53	94	19.5	3.4	3.9	1.0
2		.7	1.4	5.1	9.8	a3.0	44	89	21	3.1	3.6	1.0
3		.7	1.4	4.5	b9.0	a3.0	*56	68	22	2.7	3.4	1.0
4		.7	1.4	3.9	b7.5	a3.0	75	57	29	2.4	3.1	1.2
5		1.2	1.4	3.6	b6.5	a3.0	88	52	57	2.2	2.7	1.2
6		1.2	1.4	3.4	b5.7	b5.0	70	52	56	2.8	2.4	1.2
7		1.4	1.4	3.1	5.4	b27	52	48	49	13	2.0	1.0
8		1.3	2.2	2.7	4.5	b26	44	47	45	116	2.0	1.0
9		1.0	2.2	2.7	4.2	26	40	45	40	83	2.0	1.0
10		1.2	3.6	2.7	4.2	24	37	40	36	50	2.0	1.0
11		1.0	2.7	2.2	3.9	22	29	37	37	36	2.0	.8
12		1.0	2.8	2.0	3.6	20	25	44	39	26	1.8	.8
13		1.0	2.7	2.0	b3.6	37	22	49	37	21	1.8	.8
14		1.0	2.2	2.0	b3.6	67	21	41	30	18.5	1.6	.8
15		.8	2.2	2.4	b3.7	109	18.5	34	26	16	1.6	.8
16		.8	2.0	3.6	a3.8	114	25	32	22	14	1.6	.8
17		1.0	2.0	3.4	a3.9	97	120	39	18.5	24	1.4	.8
18		1.2	1.9	3.6	a4.2	69	143	35	15	23	1.4	.8
19		1.2	1.9	3.6	a5.0	57	164	30	13	21	1.4	.8
20		1.0	1.8	3.4	a25	48	126	31	11.5	18	1.3	.8
21		al.0	1.8	3.4	*139	38	97	35	11	15	1.2	.7
22		al.0	1.8	5.1	164	33	89	30	11.5	13	1.2	.8
23		al.0	2.8	19.5	88	55	75	24	10.5	11	1.0	.8
24		al.0	4.5	26	49	292	70	20	8.5	9.8	1.0	1.2
25		al.0	4.5	16.5	b29	410	62	18	6.9	8.9	1.0	1.0
26		al.0	4.5	12.5	b17	220	56	16	6.5	7.3	1.0	.8
27		al.5	4.5	11.5	b9.0	126	50	18	6.1	6.1	1.0	.8
28		a5.8	4.5	16.5	b4.5	69	44	16.5	5.4	5.4	1.2	.8
29		a3.5	*3.9	18.5	b3.0	-	38	16.5	4.8	4.8	1.3	.8
30		a2.0	5.4	16.5	b3.0	-	37	17.5	4.2	4.2	1.3	.8
31		al.6	-	13.5	b3.0	-	44	-	5.6	-	1.2	.8

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	40.6	5.8	0.7	1.31	0.077	0.09	81
November	78.3	5.4	1.4	2.61	.154	.17	155
December	224.8	26	2.0	7.25	.426	.49	446
Calendar year 1949	5,878.7	200	.5	16.1	.947	12.86	11,670
January	637.1	164	3.0	20.6	1.21	1.39	1,260
February	2,006	410	3.0	71.6	4.21	4.39	3,980
March	1,914.5	164	18.5	61.8	3.64	4.19	3,800
April	1,175.5	94	16	39.2	2.31	2.57	2,330
May	702.5	57	3.6	22.7	1.34	1.54	1,390
June	581.6	116	2.2	19.4	1.14	1.27	1,150
July	55.4	3.9	1.0	1.79	.105	.12	110
August	27.9	1.2	.7	.80	.053	.06	55
September	24.6	1.2	.7	.82	.048	.05	49
Water year 1949-50	7,468.8	410	.7	20.5	1.21	16.33	14,810

Peak discharge (base, 200 sec.-ft.).--Jan. 22 (12:30 a.m.) 218 sec.-ft.; Feb. 24 (10:30 p.m.) 550 sec.-ft.; Mar. 17 (7:30 p.m.) 212 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage and records for stations on nearby streams.

b Stage-discharge relation affected by ice.

Note.--Shifting-control method used Feb. 26 to Mar. 17, May 5 to June 30.

WALLA WALLA RIVER BASIN

Yellowhawk Creek at Walla Walla, Wash.

Location.--Water-stage recorder, lat. 46°04'20", long. 118°16'55", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 23, T. 7 N., R. 36 E., 1 mile downstream from point of diversion from Mill Creek and 1 mile east of Walla Walla.

Records available.--April 1941 to September 1950.

Extremes.--Maximum discharge during year, 182 second-feet Feb. 24; maximum gage height, 2.21 feet Jan. 17; no flow part of Nov. 30, Dec. 1.

1941-50: Maximum discharge not determined, occurred June 7, 1941 (gage height, 4.00 feet); no flow part of Nov. 30, Dec. 1, 1949.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Regulation at Mill Creek diversion dam, 1 mile above station. Yellowhawk and Garrison Creeks diverts water from Mill Creek for stock and irrigation. Many small diversions above station for irrigation.

Revisions (water years).--W 1094: 1946.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	40	*d53	41	a1.2	34	103	38	73	52	31	23
2	24	41	75	37	a1.2	28	83	60	73	50	30	23
3	24	40	67	b25	a1.2	35	52	60	70	50	30	22
4	23	40	62	b14	a1.2	61	39	66	75	51	31	23
5	29	40	60	b15	a1.2	80	46	112	78	50	34	24
6	31	40	54	b15	a1.2	80	58	73	78	47	34	24
7	33	40	49	b15	a1.3	55	51	57	87	45	31	24
8	31	49	46	16	a1.4	41	51	49	99	45	30	23
9	30	47	47	15.5	a1.7	35	47	55	82	45	30	23
10	35	55	46	21	5.2	30	40	75	52	45	27	23
11	30	52	44	27	23	26	39	97	40	43	25	24
12	28	54	43	27	8.8	22	50	135	35	40	24	24
13	28	50	41	b6	12	57	62	106	39	39	24	24
14	26	46	41	b1.4	27	90	50	80	47	37	25	24
15	28	45	43	b1.3	46	85	41	73	43	37	25	24
16	29	44	47	b1.3	57	75	38	57	41	37	25	24
17	31	43	49	b1.3	47	112	46	54	46	37	25	27
18	33	41	50	b1.3	33	133	40	47	49	34	24	26
19	34	41	49	b1.3	28	121	37	37	44	35	24	25
20	34	41	45	b1.3	31	87	44	34	38	34	23	24
21	34	41	45	b5	36	62	54	60	36	33	22	24
22	34	44	51	b10	30	60	47	75	32	34	22	24
23	34	62	45	b20	46	51	36	80	29	32	25	24
24	35	73	29	a6	147	46	36	68	25	31	29	24
25	37	82	18	*a1.3	116	36	39	70	33	31	28	26
26	a39	78	13	a1.3	75	33	41	83	37	30	26	33
27	a42	90	24	a1.3	60	29	47	95	38	31	25	31
28	a60	88	41	a1.3	44	24	41	90	41	34	25	27
29	a65	78	47	a1.3	-	30	36	83	43	34	24	28
30	a50	d67	50	a1.2	-	36	34	75	51	33	24	29
31	a44	-	45	a1.2	-	43	-	70	-	32	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,059	65	23	34.2	2,100
November.....	1,592	90	40	53.1	3,160
December.....	1,419	75	13	45.8	2,810
Calendar year 1949.....	13,492.3	112	3.8	37.0	26,760
January.....	333.6	41	1.2	10.8	662
February.....	883.6	147	1.2	31.6	1,750
March.....	1,737	133	22	56.0	3,450
April.....	1,428	103	34	47.6	2,830
May.....	2,214	135	34	71.4	4,390
June.....	1,554	99	25	51.8	3,080
July.....	1,208	52	30	39.0	2,400
August.....	826	34	22	26.6	1,640
September.....	748	33	22	24.9	1,480
Water year 1949-50.....	15,002.2	147	1.2	41.1	29,750

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of 1 discharge measurement, weather records, and records for stations on nearby streams.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed on basis of 1 discharge measurement and records for nearby streams.

Garrison Creek at Walla Walla, Wash.

Location.--Water-stage recorder, lat. 46°04'25", long. 118°17'10", in NE $\frac{1}{4}$ sec. 22, T. 7 N., R. 36 E., 30 feet downstream from county bridge, 1 mile downstream from point of diversion from Mill Creek, and 0.9 mile east of Walla Walla.

Records available.--April 1941 to September 1950.

Extremes.--Maximum discharge during year, 35 second-feet May 13 (gage height, 2.94 feet); minimum not determined, occurred during period of leakage under control.

1941-50: Maximum discharge, 60 second-feet May 9, 1948; maximum gage height, 3.29 feet Dec. 28, 1948; no flow May 10, 1941.

Remarks.--Records good above 5 second-feet and fair below except those for periods of leakage under control or no gage-height record, which are poor. Regulation at Mill Creek diversion dam, 1 mile above station. Yellowhawk and Garrison Creeks divert water from Mill Creek for stock and irrigation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13.5	3.5	2.6	0.2	0.2	2.0	10	5.5	4.9	6.8	3.4	5.2
2	13.5	3.5	10.5	.2	.2	1.7	8.0	8.8	4.9	6.4	3.2	5.2
3	13.5	3.5	8.4	.2	.2	1.8	5.0	8.4	4.6	6.1	3.0	4.9
4	12.5	3.5	8.2	.2	.2	2.6	4.0	10	4.9	6.1	3.4	5.2
5	17	3.5	7.8	.2	.2	2.1	5.0	18.5	4.9	5.5	3.6	5.5
6	19	3.2	6.4	.2	.2	1.3	6.0	11.5	5.5	5.5	3.9	5.5
7	20	2.6	5.4	.2	.4	1.0	5.0	8.8	5.8	5.2	3.4	5.5
8	19	3.2	4.6	.2	.5	.7	5.0	7.2	6.4	4.6	3.4	5.5
9	18.5	3.5	3.8	.2	1.0	.5	5.0	8.8	4.9	4.4	3.4	5.5
10	21	5.4	3.2	.2	.6	.4	4.0	12.5	3.4	4.4	4.4	5.5
11	18	4.6	2.4	.2	2.8	.2	3.5	16.0	2.8	4.2	5.5	5.5
12	17.5	5.0	1.8	.2	.7	.2	5.0	24	2.6	3.9	5.5	5.5
13	17.5	4.6	1.8	.2	.6	7.6	8.0	21	2.6	4.2	5.5	5.5
14	17.5	4.4	1.4	.2	1.2	15	5.5	13	3.0	3.9	6.1	5.5
15	18	4.0	1.1	.2	2.0	14.5	4.9	10.5	2.8	3.9	5.8	5.5
16	18.5	3.8	1.1	.2	2.6	12	4.9	10	2.8	3.9	6.1	5.5
17	17	3.8	.7	.2	2.3	4.9	5.5	8.4	3.0	3.6	5.8	6.1
18	9.0	3.2	.6	.2	1.8	1.1	4.6	7.2	3.0	3.6	5.8	6.1
19	9.0	2.9	.4	.2	1.6	.7	4.6	4.9	2.8	3.9	5.8	5.8
20	9.4	2.9	.2	.2	1.7	.4	5.5	5.8	2.7	4.2	5.5	5.8
21	9.8	2.9	.2	.7	2.0	.4	6.4	10	2.6	4.2	5.5	5.5
22	9.0	3.2	.2	1.5	1.8	.4	5.5	13.5	2.3	4.2	5.5	5.5
23	9.0	5.0	.2	2.0	2.4	.4	4.4	15	2.3	3.9	6.1	5.5
24	7.4	6.4	.2	1.0	5.8	2.1	4.4	12.5	2.1	3.6	7.2	6.1
25	5.7	6.8	.2	1.0	6.8	4.4	5.2	13	2.4	3.6	6.4	6.4
26	6.0	6.4	.2	.7	5.2	3.9	6.4	9.3	3.6	3.4	6.1	8.4
27	6.4	8.6	.2	.4	3.9	3.4	6.4	7.2	4.4	3.6	5.8	7.6
28	13	6.8	.2	.2	2.6	3.0	6.1	6.4	5.2	3.9	5.5	7.2
29	14.5	5.7	.2	.2	-	3.5	4.9	5.8	5.2	3.6	5.2	7.2
30	7.1	2.9	.2	.2	-	4	4.9	5.2	6.8	3.6	5.2	7.2
31	4.0	-	.2	.2	-	5.0	-	4.9	-	3.6	5.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	410.8	21	4.0	13.3	815
November.....	129.3	8.6	2.6	4.31	256
December.....	75.6	10.5	.2	2.44	150
Calendar year 1949.....	2,085.8	21	.2	5.71	4,140
January.....	12.1	2.0	.2	.390	24
February.....	51.5	6.8	.2	1.84	102
March.....	101.2	15	.2	3.26	201
April.....	163.6	10	3.5	5.45	324
May.....	323.6	24	4.9	10.4	642
June.....	115.2	6.8	2.1	3.64	228
July.....	135.5	6.8	3.4	4.37	269
August.....	156.2	7.2	3.0	5.04	310
September.....	176.9	8.4	4.9	5.90	351
Water year 1949-50.....	1,851.5	24	.2	5.07	3,670

Note.--No gage-height record Jan. 14-23, Mar. 29 to Apr. 14; discharge computed on basis of weather records and records for nearby streams. Leakage under control Dec. 21 to Jan. 18, Jan. 24 to Feb. 9; discharge computed as explained for no gage-height record.

WALLA WALLA RIVER BASIN

Dry Creek near Walla Walla, Wash.

Location.--Water-stage recorder, lat. 46°07'20", long. 118°14'10", on south line of SW¹/₄ sec. 31, T. 8 N., R. 37 E., 1 mile downstream from Spring Creek and 6 miles northwest of Walla Walla.

Drainage area.--48.4 square miles.

Records available.--January 1949 to September 1950.

Extremes.--Maximum discharge during year, 752 second-feet Feb. 24 (gage height, 5.93 feet); minimum, 0.7 second-foot Sept. 4 (gage height, 3.06 feet).
1949-50: Maximum discharge, 3,340 second-feet Feb. 22, 1949 (gage height, 11.6 feet, from high-water mark in well), by contracted-opening method at bridge 100 feet below gage; minimum, 0.2 second-foot Aug. 4, 1949.

Remarks.--Records good except those for period of ice effect, which are poor. Several small diversions above station for irrigation.

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to June 8				June 9 to Sept. 30			
3.1	0.9	3.8	42	3.0	0.3	3.6	23
3.2	2.6	4.0	68	3.1	1.2	3.8	46
3.3	5.4	4.3	125	3.2	2.8	4.0	81
3.4	9.5	4.6	200	3.3	5.4	4.3	160
3.6	22	5.0	330	3.4	9.6		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	3.4	11	18.5	4.5	67	100	28	13	6.5	1.7	0.9
2	2.0	3.5	10	12.5	4.5	60	98	31	13	5.8	1.4	.9
3	2.0	3.6	8.6	11.5	4.2	71	76	31	12	5.4	1.4	.8
4	2.0	3.6	7.6	9	4	96	64	39	11.5	5.1	1.7	.9
5	3.4	3.4	7.2	11.5	4	131	60	50	11	4.6	2.2	1.4
6	3.6	3.4	6.8	18	4	114	68	49	12	4.3	2.0	1.3
7	4.2	3.4	6.4	14	20	90	58	43	25	4.0	1.7	1.3
8	3.6	4.8	6.1	11.5	145	78	58	42	125	4.0	1.4	1.3
9	3.1	4.5	5.8	11.5	185	70	55	41	120	4.0	1.5	1.4
10	3.6	7.2	6.1	11.5	117	70	50	40	69	3.7	1.5	1.4
11	2.8	5.8	5.8	10	150	55	48	48	48	3.7	1.4	1.2
12	2.6	6.8	5.4	9.5	104	50	52	55	38	3.2	1.3	1.3
13	2.6	5.4	5.8	4.5	102	48	61	60	31	2.8	1.3	1.2
14	2.6	5.1	5.8	4.5	78	46	54	54	27	2.6	1.4	1.2
15	2.6	4.2	6.1	4.0	84	44	48	47	24	2.6	1.4	1.2
16	2.6	4.2	10	4.0	106	64	44	41	21	2.6	1.4	1.4
17	2.4	3.9	8.1	4.0	108	218	49	38	31	2.6	1.3	1.7
18	2.6	3.9	4.6	4.0	96	191	48	32	29	2.6	1.2	1.4
19	2.6	3.9	6.8	4.0	98	182	44	26	27	3.0	1.2	1.4
20	2.6	3.6	8.1	15	79	112	43	22	23	2.8	.9	1.7
21	2.8	3.6	8.1	80	71	88	48	22	21	2.6	.9	1.7
22	3.1	3.6	9.0	100	42	88	46	26	19	2.4	.9	1.5
23	3.1	5.4	32	60	48	73	39	26	16	2.2	1.4	1.5
24	3.1	11	38	40	242	98	33	23	14	2.0	2.0	1.5
25	3.1	8.6	24	*26	257	88	30	20	12.5	1.8	1.7	1.7
26	3.4	7.6	20	20	155	78	28	19	10.5	1.8	1.5	2.2
27	2.8	8.6	19	10	117	68	28	21	10	1.8	1.4	2.4
28	5.8	8.1	25	8	86	61	26	20	8.2	2.0	1.3	2.4
29	5.1	7.2	26	5	-	53	25	18	7.7	2.4	1.3	2.4
30	3.9	13	25	4.5	-	48	25	15.5	7.3	2.2	1.0	2.6
31	3.6	-	21	4.5	-	55	-	14	-	2.0	.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	95.5	5.8	2.0	3.08	0.064	0.07	189
November	164.3	13	3.4	5.48	.113	.13	326
December	393.2	38	5.4	12.7	.262	.30	780
Calendar year							
January	551	100	4.0	17.8	.368	.42	1,090
February	2,495.2	257	4.0	89.1	1.84	1.92	4,950
March	2,655	218	44	85.6	1.77	2.04	5,270
April	1,506	100	25	50.2	1.04	1.16	2,990
May	1,041.5	60	14	33.6	.694	.80	2,070
June	836.7	125	7.3	27.9	.576	.64	1,660
July	99.1	6.5	1.8	3.20	.066	.08	197
August	43.6	2.2	.9	1.41	.029	.03	86
September	45.2	2.6	.8	1.51	.031	.03	90
Water year 1949-50	9,926.3	257	.8	27.2	.562	7.62	19,700

Peak discharge (base, 400 sec.-ft.).--Feb. 24 (7:30 p.m.) 752 sec.-ft.; Mar. 17 (10 a.m.) 525 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 14 to Feb. 7.

East Fork Touchet River near Dayton, Wash.

Location.--Water-stage recorder, lat. 46°16'45", long. 117°54'05", in NW¹ sec. 11, T. 9 N., R. 39 E., 250 feet upstream from city of Dayton's water-supply headworks, 1,000 feet upstream from Hatley Creek, three-quarters of a mile downstream from Wolf Creek, 3 miles upstream from confluence with South Fork, and 4 miles southeast of Dayton. Datum of gage is 1,868.3 feet (revised) above mean sea level (river-profile survey).

Drainage area.--102 square miles.

Records available.--April 1941 to September 1950.

Extremes.--Maximum discharge during year, 1,480 second-feet Feb. 24 (gage height, 4.37 feet); minimum not determined, occurred during period of ice effect.

1941-50: Maximum discharge, 1,530 second-feet about Jan. 7, 1948 (gage height, 5.28 feet, from recorded range in stage); minimum, 29 second-feet Sept. 9, 12, 13, 14, 1944.

Remarks.--Records good except those for periods of shifting control, which are fair, and those for period of ice effect or no gage-height record, which are poor. No regulation. Small diversions above station for irrigation during summer months.

Rating tables, water year 1949-50, except periods of ice effect or shifting control (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 13

May 14 to Sept. 30

1.4	38	2.6	238	1.7	42	2.6	191
1.6	57	2.9	340	1.9	64	2.9	280
1.8	80	3.2	475	2.1	91	3.3	440
2.0	108	3.6	730	2.3	125		
2.3	162	4.0	1,080				

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	56	81	89	43	344	470	213	199	114	69	51
2	48	55	81	86	42	*298	566	224	204	107	68	50
3	47	55	75	70	42	308	450	224	202	104	69	49
4	48	55	73	65	41	407	384	238	204	99	70	51
5	67	54	73	100	40	560	352	284	207	96	74	53
6	64	54	70	79	42	560	348	284	210	92	73	51
7	64	54	69	68	50	435	319	280	230	90	70	49
8	61	58	67	67	100	364	308	248	326	87	70	47
9	59	57	67	66	700	322	288	248	304	85	72	47
10	61	64	66	65	350	291	267	264	274	84	70	46
11	58	61	65	64	450	257	264	294	270	80	70	45
12	56	64	64	65	300	232	312	356	267	80	69	47
13	55	60	64	50	200	221	380	416	248	77	68	47
14	55	59	62	45	152	210	353	426	264	74	68	47
15	55	58	62	45	200	202	308	400	254	72	65	46
16	55	57	65	45	280	216	305	382	245	76	63	45
17	55	57	65	45	274	430	356	366	270	74	60	47
18	55	57	65	45	232	681	340	319	261	74	59	46
19	55	56	64	50	208	730	312	264	267	77	56	46
20	55	56	70	*105	183	542	319	239	230	74	54	46
21	54	56	62	150	160	430	364	251	215	73	53	46
22	54	56	66	400	148	412	348	294	199	72	52	47
23	54	64	89	200	180	352	308	298	191	70	54	47
24	54	90	105	150	786	330	260	261	172	69	57	48
25	54	80	100	100	1,020	288	241	239	154	69	54	52
26	54	73	92	60	834	264	221	242	143	68	53	68
27	55	86	89	50	667	238	224	258	135	69	53	58
28	70	79	92	48	455	208	202	251	127	72	53	54
29	90	*74	99	45	-	188	190	230	121	73	52	56
30	70	89	98	45	-	185	190	213	118	72	52	56
31	56	-	93	43	-	224	-	199	-	70	51	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,786	90	47	57.6	0.565	0.65	3,540
November	1,894	90	54	63.1	.619	.69	3,760
December	2,353	105	62	75.9	.744	.86	4,670
Calendar year 1949	50,481	1,000	43	158	1.35	18.41	100,100
January	2,605	400	43	84.0	.824	.95	5,170
February	8,179	1,020	40	292	2.86	2.98	16,220
March	10,729	730	185	346	3.39	3.91	21,280
April	9,529	566	190	318	3.12	3.47	18,900
May	8,685	426	199	280	2.75	3.17	17,230
June	6,511	326	118	217	2.13	2.37	12,910
July	2,493	114	68	80.4	.788	.91	4,940
August	1,921	74	51	62.0	.608	.70	3,810
September	1,488	68	45	49.6	.486	.54	2,950
Water year 1949-50	58,173	1,020	40	159	1.56	21.20	115,400

Peak discharge (base, 700 sec.-ft.).--Feb. 24 (7 p.m.) 1,480 sec.-ft.; Mar. 19 (2 s.m.) 834 sec.-ft.

* Winter discharge measurement made on this day.

Note.--No gage-height record Oct. 25-30, Jan. 30 to Feb. 1, Feb. 6-15; discharge computed on basis of recorded range in stage, weather records, and comparison with records for nearby streams. Stage-discharge relation affected by ice Jan. 3-5, 13-29, Feb. 2-5. Shifting-control method used Feb. 26 to Mar. 5, May 11-13, Sept. 16-30.

Touchet River near Touchet, Wash.

Location.--Water-stage recorder, lat. 46°05'25", long. 118°39'40", in NE $\frac{1}{4}$ sec. 15, T. 7 N., R. 33 E., 100 feet downstream from county road bridge, 3 $\frac{1}{2}$ miles north of Touchet, and 4 $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--736 square miles.

Records available.--April 1941 to September 1950.

Extremes.--Maximum discharge during year, 2,510 second-feet Mar. 19; maximum gage height, 10.35 feet Jan. 22 (ice jam); minimum discharge, 26 second-feet Sept. 3.

1941-50: Maximum discharge, 13,300 second-feet Feb. 10, 1949 (gage height, 14.7 feet, from high-water mark in gage house), by contracted-opening method at Johnson Bridge, 3 miles above; minimum, 6.4 second-feet Sept. 13, 14, 1944 (gage height, 1.45 feet).

Remarks.--Records good except those for periods of shifting control, which are fair, and periods of ice effect or doubtful gage-height record, which are poor. Many large diversions above station for irrigation. No regulation.

Revisions (water years).--W 1124: Drainage area. W 1154: 1946(M).

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 23 to Sept. 30)

Oct. 1 to Feb. 25

Feb. 26 to Sept. 30

2.7	13	4.0	294	6.0	1,360	1.1	25	2.3	132	4.5	780
3.0	55	4.5	470	6.5	1,800	1.3	35	2.5	163	5.0	1,060
3.3	111	5.0	700	7.0	2,300	1.5	48	3.0	265	6.0	1,780
3.6	179	5.5	990	8.0	3,440	1.7	63	3.5	395	6.7	2,410
						2.0	93	4.0	560		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	74	*148	182	d50	1,320	805	345	302	161	46	30
2	54	70	130	155	d50	1,120	1,090	380	298	150	40	30
3	54	69	126	121	d50	1,060	1,060	395	295	146	36	27
4	54	65	117	b110	d50	1,180	880	395	292	138	37	27
5	58	65	111	b110	d50	1,390	780	455	295	129	42	30
6	70	64	111	146	b60	1,390	755	525	300	124	48	34
7	80	64	107	248	357	1,120	755	525	355	119	47	32
8	76	64	99	208	600	940	705	472	435	117	40	32
9	74	65	97	182	685	780	660	455	680	121	40	31
10	69	74	89	192	640	680	600	440	580	117	40	32
11	70	85	89	177	1,100	620	560	d455	490	114	40	30
12	69	83	91	167	745	508	560	d508	455	105	38	30
13	65	85	87	162	294	472	660	d660	425	95	38	32
14	62	83	87	141	1,360	440	705	730	410	89	37	33
15	60	78	85	83	1,760	410	620	660	472	90	36	34
16	58	74	91	b55	1,620	410	560	620	425	82	36	33
17	58	72	101	b50	1,530	1,060	580	560	410	68	36	37
18	58	70	95	b50	1,280	d1,620	620	525	525	64	34	42
19	60	69	99	b50	1,060	d1,970	580	472	455	62	32	43
20	60	69	82	b50	740	d1,780	542	410	425	65	30	44
21	62	67	101	b100	595	d1,220	560	368	395	63	32	44
22	62	67	107	b300	506	d1,150	600	380	338	59	30	41
23	64	67	105	b1,000	502	1,000	580	425	305	56	31	42
24	64	74	225	b700	900	1,000	508	425	278	53	33	43
25	64	122	233	b500	1,660	910	440	377	253	52	37	45
26	62	124	202	*b340	2,310	755	410	348	226	47	37	50
27	62	111	179	d150	1,950	705	395	340	205	45	36	58
28	64	122	172	d60	1,580	600	395	352	188	44	36	59
29	72	128	192	d55	-	525	365	350	175	47	35	47
30	91	117	202	d50	-	490	345	342	168	49	34	46
31	76	-	197	d50	-	490	-	320	-	50	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	2,004	91	52	64.6	3,970
November.....	2,441	128	64	81.4	4,840
December.....	3,957	233	82	128	7,850
Calendar year 1949.....	151,183	9,000	22	359	260,200
January.....	5,944	1,000	50	192	11,790
February.....	24,084	2,310	50	860	47,770
March.....	29,115	1,970	410	939	57,750
April.....	18,675	1,090	345	622	37,040
May.....	14,014	730	320	452	27,800
June.....	10,855	680	168	362	21,530
July.....	2,721	161	44	87.8	5,400
August.....	1,145	48	30	36.9	2,270
September.....	1,138	59	27	37.9	2,260
Water year 1949-50.....	116,093	2,310	27	318	230,300

Peak discharge (base, 2,000 sec.-ft.).--Feb. 26 (6 a.m.) 2,410 sec.-ft.; Mar. 19 (about 1 p.m.)

2,510 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed on basis of doubtful gage-height record, weather records, and records for nearby streams.

Umatilla River above Meacham Creek, near Gibbon, Oreg.

Location.--Water-stage recorder, lat. 45°43', long. 118°20', in SW¹/₄ sec. 21, T. 3 N., R. 36 E., 0.8 mile downstream from Ryan Creek, 2¹/₂ miles upstream from Meacham Creek, and 2¹/₂ miles northeast of Gibbon. Datum of gage is 1,855.25 feet above mean sea level, datum of 1929.

Drainage area.--125 square miles.

Records available.--June 1939 to September 1950. April 1933 to June 1939 at site 1 mile downstream.

Average discharge.--17 years, 220 second-feet.

Extremes.--Maximum discharge during year, 2,460 second-feet June 8 (gage height, 6.1 feet); minimum, 39 second-feet Oct. 3, 4, 17, 18.

1933-50: Maximum discharge, 6,660 second-feet Dec. 12, 1946 (gage height, 8.84 feet), from rating curve extended above 2,000 second-feet by logarithmic plotting; minimum, 28 second-feet Sept. 27, 1935, Jan. 9, 1937.

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

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from debris Oct. 1 to Nov. 23)

Oct. 1 to Feb. 24

1.6	37	2.7	150	4.0	680
1.8	46	3.0	225	4.5	1,000
2.1	67	3.3	330	5.1	1,470
2.4	99	3.6	460		

Feb. 25 to Sept. 30

2.2	42	3.0	195	4.7	1,140
2.3	53	3.3	300	5.3	1,650
2.5	84	3.7	490	5.6	1,930
2.7	122	4.1	720		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	50	146	155	b120	506	804	381	390	198	59	48
2	40	50	142	139	b125	445	905	420	400	185	58	48
3	39	50	133	129	b130	636	672	405	390	172	58	45
4	40	49	119	122	b150	899	534	415	400	162	59	45
5	46	49	112	119	b180	955	485	485	400	152	62	48
6	45	48	100	110	272	941	470	470	386	140	62	48
7	47	48	94	96	237	684	455	425	518	129	59	48
8	44	50	90	94	198	540	465	400	1,900	122	58	48
9	46	50	87	*92	176	435	455	415	1,240	116	58	48
10	47	59	85	92	*166	376	415	501	808	114	56	48
11	44	61	80	91	159	322	425	648	678	104	56	48
12	42	62	78	90	148	280	578	850	624	97	54	48
13	41	57	77	87	186	260	666	990	550	93	54	48
14	41	55	75	a82	255	250	578	997	490	89	54	46
15	40	53	76	a75	410	242	490	927	450	86	54	46
16	40	52	82	a70	590	276	470	829	430	82	54	46
17	39	51	82	a65	560	1,020	562	762	435	81	53	46
18	39	50	84	a60	446	1,240	550	624	400	79	53	46
19	41	50	84	*b74	415	948	534	512	381	84	53	46
20	41	50	82	b100	346	726	a600	480	372	78	52	46
21	42	49	86	b300	280	567	738	545	376	73	52	46
22	43	49	99	1,390	249	534	702	654	336	71	51	46
23	44	76	236	716	336	475	562	630	309	68	52	45
24	44	148	298	*451	1,260	425	455	550	288	66	64	44
25	44	128	209	318	1,780	372	400	506	253	65	56	45
26	46	110	168	262	1,390	332	363	512	236	64	52	56
27	46	231	150	225	969	300	363	534	225	62	51	52
28	54	222	157	203	654	260	345	485	219	62	51	50
29	56	159	188	b160	-	232	314	450	213	64	50	48
30	53	150	198	b140	-	228	318	415	207	62	50	48
31	51	-	178	b130	-	311	-	390	-	60	49	-

Month	Second-foot-days	Maximum	Minimum	Mean	Psr square mile	Runoff Inches	Acres-foot
October	1,365	56	39	44.0	0.352	0.41	2,710
November	2,366	231	48	78.9	0.631	.70	4,890
December	3,875	298	75	125	1.00	1.15	7,690
Calendar year 1949	91,307	1,610	39	250	2.00	27.17	181,100
January	6,237	1,390	60	201	1.61	1.86	12,370
February	12,197	1,780	120	435	3.48	3.63	24,170
March	16,017	1,240	228	517	4.14	4.77	31,770
April	15,674	906	314	522	4.18	4.66	31,090
May	17,607	997	381	568	4.54	5.24	34,920
June	14,304	1,900	207	477	3.82	4.26	28,370
July	3,080	198	60	99.4	.795	.92	6,110
August	1,704	64	49	55.0	.440	.51	3,380
September	1,420	56	44	47.3	.378	.42	2,820
Water year 1949-50	95,836	1,900	39	263	2.10	28.53	190,100

Peak discharge (base, 1,400 sec.-ft.).--Jan. 22 (2 a.m.) 1,830 sec.-ft.; Feb. 25 (1 a.m.) 2,080 sec.-ft.; Mar. 17 (9 p.m.) 1,610 sec.-ft.; June 8 (12 m.) 2,460 sec.-ft.

* Winter discharge measurement was on this day.

a No gage-height record; discharge computed on basis of weather records and records for stations at Yakum and at Pendleton.

b Stage-discharge relation affected by ice.

UMATILLA RIVER BASIN

Umatilla River at Pendleton, Oreg.

Location.--Water-stage recorder, lat. 45°40', long. 118°48', in NE $\frac{1}{4}$ sec. 10, T. 2 N., R. 32 E., at Pendleton, 2 $\frac{1}{2}$ miles upstream from McKay Creek. Datum of gage is 1,062.52 feet above mean sea level, datum of 1929. Temporary water-stage recorder 600 feet upstream at different datum used in low-water periods.

Drainage area.--637 square miles.

Records available.--February 1891 to July 1892, May 1903 to June 1905, October 1934 to September 1950. May 1921 to September 1934 at site about 2 $\frac{1}{2}$ miles downstream.

Average discharge.--27 years (1923-50), 475 second-feet.

Extremes.--Maximum discharge during year, 5,080 second-feet Feb. 25 (gage height, 5.20 feet); minimum, 24 second-feet Sept. 2, 3, 4.

1891-92, 1903-5, 1921-50: Maximum discharge, 15,400 second-feet Feb. 22, 1949 (gage height, 9.01 feet); minimum, 7 second-feet Aug. 14, 1924.

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

Remarks.--Records good April to August, fair October to March and September except those for periods of ice effect or no gage-height record, which are poor. Records based on auxiliary water-stage recorder 600 feet upstream for periods Oct. 1 to Jan. 12, June 27 to Sept. 30. Small diversions above station for irrigation; no regulation.

Revisions (water years).--W 934: 1931 (maximum gage height only).

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a45	63	310	380	a350	1,650	1,460	928	628	280	53	33
2	a48	63	295	330	a300	1,400	2,360	1,130	635	256	51	28
3	a48	63	275	a310	a280	1,610	1,920	1,120	628	237	46	27
4	a49	59	245	a280	a330	2,270	1,540	1,090	620	214	48	24
5	50	59	225	a280	a400	2,410	1,370	1,200	612	202	55	32
6	58	61	208	265	b500	2,520	1,340	1,230	612	184	60	32
7	64	61	186	230	b800	2,030	1,310	1,140	732	169	55	32
8	71	63	166	212	*a700	1,660	1,330	1,060	2,790	157	48	33
9	66	66	157	*204	a660	1,340	1,340	1,020	2,360	146	51	37
10	70	73	153	195	a820	1,160	1,260	1,110	1,610	139	44	37
11	70	a75	143	191	a600	1,020	1,220	1,300	1,270	135	42	37
12	65	a80	137	178	a550	896	1,510	1,580	1,180	128	42	40
13	61	a85	134	a150	a1,500	916	1,860	1,840	1,010	119	42	37
14	61	a80	132	a150	a1,800	778	1,700	1,850	896	109	42	40
15	61	a75	132	a140	a1,500	755	1,460	1,750	800	103	42	40
16	59	75	143	a130	a1,600	755	1,340	1,550	732	97	40	37
17	59	73	146	a120	*h1,660	1,950	1,480	1,460	778	94	40	42
18	61	71	153	*a115	a1,500	3,160	1,470	1,250	816	92	37	44
19	64	70	157	a130	a1,250	2,820	1,400	1,050	695	89	37	46
20	64	70	150	a200	1,040	2,200	1,500	920	620	89	35	42
21	63	70	146	a450	864	1,780	1,690	936	590	83	33	30
22	63	68	157	*3,040	682	1,580	1,730	1,100	554	72	33	30
23	63	85	332	2,140	724	1,440	1,460	1,140	512	68	35	28
24	61	126	728	*1,360	1,490	1,330	1,190	1,000	479	65	44	32
25	59	186	565	h950	4,470	1,180	1,030	888	a430	62	55	37
26	59	186	452	a800	4,020	1,090	928	840	a380	60	46	55
27	59	251	374	a650	3,010	1,010	904	880	351	58	44	68
28	58	539	352	a550	2,120	920	888	816	320	58	42	62
29	64	398	398	a450	-	832	824	762	306	60	40	60
30	66	336	452	a400	-	785	800	702	295	62	37	60
31	64	-	410	a350	-	816	-	658	-	55	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,871	71	45	60.4	3,710
November.....	3,630	539	59	121	7,200
December.....	8,015	728	132	259	15,900
Calendar year 1949	212,797	7,440	30	583	422,100
January.....	15,340	3,040	115	495	30,430
February.....	35,300	4,470	280	1,261	70,020
March.....	45,963	3,160	755	1,483	91,170
April.....	41,594	2,360	800	1,386	82,500
May.....	35,300	1,850	658	1,139	70,020
June.....	24,220	2,790	295	807	48,040
July.....	3,743	280	55	121	7,420
August.....	1,354	60	33	43.7	2,690
September.....	1,182	88	24	39.4	2,340
Water year 1949-50	217,512	4,470	24	596	431,400

Peak discharge (base, 3,200 sec.-ft.)--Jan. 22 (9 a.m.) 3,600 sec.-ft.; Feb. 13 (7:30 p.m.) discharge unknown; Feb. 25 (11:30 a.m.) 5,080 sec.-ft.; Mar. 18 (6 a.m.) 3,340 sec.-ft.; June 8 (3 p.m.) 3,960 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for stations above Meacham Creek, near Gibbon, and at Toakum.

b Stage-discharge relation affected by ice.

h Computed from staff-gage reading.

UMATILLA RIVER BASIN

27

Umatilla River at Yoakum, Oreg.

Location.--Water-stage recorder, lat. 45°41', long. 119°02', in SW $\frac{1}{4}$ sec. 2, T. 2 N., R. 30 E., at highway bridge half a mile northeast of Yoakum station and 2 $\frac{1}{2}$ miles downstream from abandoned Furnish Reservoir. Datum of gage is 768.21 feet above mean sea level, datum of 1929, supplemental adjustment of 1947.

Drainage area.--1,280 square miles.

Records available.--May 1903 to August 1916 (flow slightly regulated by Furnish Reservoir, 1910-16), October 1934 to September 1950. June 1915 to September 1934 at site 5 miles upstream, above Furnish Reservoir.

Average discharge.--47 years, 673 second-feet.

Extremes.--Maximum discharge during year, 5,720 second-feet June 8 (gage height, 8.25 feet); minimum, 45 second-feet Oct. 1.

1903-50: Maximum discharge, 20,000 second-feet May 30, 1906 (gage height, about 15.0 feet, datum then in use, from floodmarks), from rating curve extended above 6,600 second-feet on basis of records for station near Umatilla; minimum, 12 second-feet Aug. 10-12, 1908.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation. Flow regulated to some extent since 1927 by McKay Reservoir.

Revisions (water years).--W 794: 1906(M).

Rating tables, water year 1949-50, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to June 8

June 9 to Sept. 30

1.6	40	2.7	290	5.4	2,060	1.5	39	2.1	139	3.0	430
1.7	53	3.1	445	6.4	3,150	1.7	65	2.3	188	3.5	660
1.9	84	3.6	680	7.6	4,730	1.9	98	2.6	280	4.1	1,000
2.1	122	4.1	1,000								
2.4	195	4.7	1,450								

Note.--Same as preceding table above 4.1 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	82	349	415	h341	1,740	1,400	1,030	665	406	386	312
2	53	81	329	369	a320	1,430	2,620	1,310	655	394	378	312
3	52	82	314	325	a300	1,520	2,280	1,350	635	398	386	315
4	52	78	294	283	a350	2,280	1,980	1,590	615	434	382	315
5	54	78	272	a280	a450	2,500	1,860	1,660	610	418	378	312
6	60	81	255	276	b600	2,810	1,900	1,840	620	434	382	312
7	66	78	240	258	b1,000	2,240	1,910	1,740	740	430	374	312
8	73	81	228	237	916	1,760	1,920	1,570	3,320	439	358	308
9	74	86	213	231	800	1,460	1,350	1,430	4,390	430	358	308
10	74	91	204	228	770	1,250	1,840	1,360	3,050	426	346	308
11	74	97	192	225	752	1,120	1,770	1,530	2,540	418	343	301
12	73	98	182	219	670	951	2,050	1,810	2,600	410	343	301
13	71	102	175	207	2,000	887	2,500	2,210	2,010	402	346	301
14	70	100	172	168	2,220	830	2,450	2,300	1,460	406	343	301
15	70	98	170	155	1,840	800	2,120	2,190	1,280	426	340	301
16	68	97	178	b130	a1,950	782	1,960	1,990	1,230	426	332	301
17	70	95	188	b120	*2,090	1,680	2,040	1,850	1,350	422	332	185
18	73	97	188	*b110	1,810	3,690	2,030	1,600	1,310	422	332	170
19	76	97	190	b130	1,440	3,440	1,860	1,360	1,080	418	336	167
20	78	95	188	204	1,280	2,620	1,890	1,200	886	410	343	170
21	79	95	185	480	1,090	2,020	2,050	1,150	820	406	340	157
22	78	95	190	*3,270	916	1,750	2,130	1,230	760	394	336	68
23	78	106	255	2,610	895	1,580	1,850	1,310	695	398	332	51
24	78	129	680	1,700	1,740	1,460	1,520	1,160	640	398	366	49
25	74	192	595	1,120	4,600	1,290	1,310	993	a560	390	386	47
26	76	a250	476	a900	4,270	1,160	1,160	930	h498	386	358	52
27	78	a230	401	a700	3,310	1,080	1,100	944	a420	394	343	59
28	79	552	369	a600	2,320	1,000	1,080	902	394	398	340	62
29	78	472	397	a500	-	867	951	848	382	406	326	61
30	84	385	454	463	-	794	908	770	394	410	318	59
31	84	-	445	a400	-	606	-	710	-	406	312	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	2,195	84	78	70.8	4,350
November.....	4,300	552	143	143	8,530
December.....	8,968	680	170	289	17,790
Calendar year 1949	274,073	8,320	44	751	543,600
January.....	17,311	3,270	110	558	34,340
February.....	41,040	4,600	300	1,466	81,400
March.....	49,597	3,690	782	1,600	98,370
April.....	54,370	2,620	909	1,812	107,800
May.....	43,687	2,300	710	1,409	86,610
June.....	36,599	4,393	382	1,220	72,590
July.....	12,755	439	386	411	25,300
August.....	10,875	386	312	351	21,570
September.....	6,277	315	47	209	12,450
Water year 1949-50	287,954	4,600	47	789	571,100

Peak discharge (base, 3,600 sec.-ft.).--Jan. 22 (10 a.m.) 4,100 sec.-ft.; Feb. 25 (4 p.m.) 5,160 sec.-ft.; Mar. 16 (8 a.m.) 5,940 sec.-ft.; June 8 (7:30 p.m.) 5,720 sec.-ft.

* Winter discharge measurement made on this day.

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

b Stage-discharge relation affected by ice.

c Computed from staff-gage reading.

UMATILLA RIVER BASIN

Umatilla River near Umatilla, Oreg.

Location.--Water-stage recorder, lat. 45°54', long. 119°20', in NW¼ sec. 21, T. 5 N., R. 28 E., 1½ miles downstream from West Division main canal of Umatilla project and 2 miles upstream from Umatilla and mouth of river. Datum of gage is 330.57 feet above mean sea level, datum of 1929.

Drainage area.--2,290 square miles.

Records available.--October 1903 to September 1950.

Average discharge.--47 years, 505 second-feet.

Extremes.--Maximum discharge during year, 5,040 second-feet Feb. 14 (gage height, 5.94 feet); minimum, 6 second-feet Oct. 20.

1903-50: Maximum discharge observed, 19,600 second-feet May 31, 1906 (gage height, 11.0 feet), from rating curve extended above 11,000 second-feet by logarithmic plotting; no flow at times.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Many diversions above station for irrigation; Brownell Canal diverts below station. Flow regulated by McKay and Cold Springs Reservoirs.

Revisions.--W 794: Drainage area.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge in second-feet)
(Backwater from aquatic vegetation Oct. 1 to Jan. 4,
Jan. 8-13, 15, Sept. 22-30)

Oct. 1 to Jan. 22

Jan. 23 to Sept. 30

2.0	7	2.6	89	3.4	600	1.9	6.5	2.5	70	3.8	920
2.1	11	2.7	122	3.6	810	2.0	9.5	2.6	100	4.1	1,310
2.2	17	2.8	164	3.9	1,160	2.1	14	2.8	175	4.4	1,800
2.3	26	2.9	215	4.2	1,560	2.2	21	3.0	270	5.0	3,010
2.4	41	3.0	275	4.5	2,050	2.3	32	3.2	395	5.6	4,290
2.5	62	3.2	425			2.4	48	3.5	620		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7	143	245	537	b420	1,780	730	416	151	a9	28	63
2	7	143	210	519	b400	1,420	2,000	638	110	a9	80	66
3	7	143	190	450	b380	1,340	2,280	790	104	a9	174	63
4	7	139	179	401	b420	1,900	1,800	854	82	a9	38	61
5	7	139	169	b380	b460	2,300	1,590	1,100	91	9	40	a60
6	7	139	151	b360	580	2,660	1,490	1,340	76	8	50	a60
7	7	135	143	b350	865	2,320	1,540	1,280	149	9	63	a60
8	7	135	139	324	1,130	1,780	1,520	1,120	1,070	9	55	a60
9	8	135	135	303	1,080	1,430	1,590	920	3,850	9	48	a66
10	14	135	135	257	1,070	1,180	1,590	750	2,780	9	43	a66
11	24	130	130	210	992	1,050	1,460	790	2,160	8	42	79
12	16	130	130	156	1,280	909	1,510	992	2,220	8	37	73
13	9	130	130	151	1,740	832	1,960	1,280	1,900	8	42	61
14	8	126	130	b160	3,030	770	2,220	1,560	1,300	9	40	61
15	7	126	126	221	2,660	720	1,940	1,510	1,000	9	42	59
16	7	126	126	*b210	2,440	629	1,690	1,310	944	8	38	57
17	7	126	126	b170	2,380	830	1,600	1,140	932	8	43	57
18	7	126	126	b160	1,940	3,030	1,590	1,000	1,140	8	43	57
19	7	128	130	b150	1,490	3,370	1,510	790	909	12	45	55
20	90	126	130	b170	1,310	2,740	1,230	629	683	13	45	48
21	169	126	130	b230	1,070	2,320	1,510	580	588	18	43	52
22	169	122	130	b2,000	887	1,860	1,420	572	564	16	37	57
23	164	130	135	3,140	800	1,620	1,500	588	480	16	35	46
24	164	135	282	2,160	1,160	1,370	958	362	190	15	35	40
25	160	130	591	1,370	2,860	1,360	720	444	255	18	42	35
26	156	126	442	b1,000	4,180	1,180	638	343	147	14	57	40
27	156	135	345	b800	*3,580	992	548	312	69	14	55	42
28	151	165	289	b640	2,500	980	540	318	16	17	59	43
29	147	434	269	b560	-	832	444	294	12	25	a60	45
30	147	324	310	b490	-	656	382	255	10	21	63	40
31	147	-	345	b440	-	588	-	216	-	23	61	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,990	169	7	64.2	3,950
November.....	4,485	434	122	150	8,900
December.....	6,248	591	126	202	12,390
Calendar year 1949	207,974	7,490	7	570	412,500
January.....	18,469	3,140	150	596	36,630
February.....	43,024	4,180	389	1,537	85,340
March.....	46,748	4,370	1,508	1,508	92,720
April.....	40,898	2,280	382	1,363	81,120
May.....	24,695	1,560	216	797	48,980
June.....	24,154	3,850	10	805	47,910
July.....	377	25	8	12.1	748
August.....	1,583	174	28	51.1	3,140
September.....	1,692	86	35	56.4	3,360
Water year 1949-50	214,363	4,180	7	587	425,200

Peak discharge (base, 2,800 sec.-ft.)--Jan. 22 (6 p.m.) 4,290 sec.-ft.; Feb. 14 (3:30 a.m.) 5,040 sec.-ft.; Feb. 26 (2 p.m.) 4,200 sec.-ft.; Mar. 19 (12 m.) 3,490 sec.-ft.; June 9 (6 a.m.) 4,140 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, records for station at Yoakum, and records for diversions between Yoakum and Umatilla.

b Stage-discharge relation affected by ice.

McKay Creek near Pilot Rock, Oreg.

Location.--Water-stage recorder, lat. 45°33', long. 118°46', in NE $\frac{1}{4}$ sec. 23, T. 1 N., R. 32 E., 400 feet downstream from county road bridge, three-quarters of a mile upstream from maximum flow line (altitude, 1,322 feet) of McKay Reservoir, and 6 miles northeast of Pilot Rock. Datum of gage is 1,335.85 feet above mean sea level, datum of 1929 (Pacific Power & Light Co. bench mark).

Drainage area.--178 square miles.

Records available.--May to August 1921, October 1926 to September 1950 (1927-29 incomplete).

Average discharge.--22 years (1926-27, 1929-50), 95.1 second-feet.

Extremes.--Maximum discharge during year, 2,140 second-feet June 8 (gage height, 5.20 feet); minimum, 0.1 second-foot Sept. 2, 3, 4.

1921, 1926-50: Maximum discharge, 6,000 second-feet Apr. 1, 1931 (gage height, 10.4 feet, site and datum then in use); no flow at times.

Remarks.--Records good March to July, fair balance of year except those below 1 second-foot, and those for periods of ice effect or no gage-height record, which are poor. Many small diversions above station for irrigation; none between station and McKay Reservoir.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from moss or weeds Oct. 6 to Dec. 23.
Shifting-control method used Feb. 7 to Mar. 5)

Oct. 1 to Mar. 5

Mar. 6 to Sept. 30

1.0	0.5	1.6	29	2.9	335	1.1	0.1	1.7	24	3.1	360
1.1	2.0	1.7	40	3.2	480	1.2	1.0	1.8	34	3.4	500
1.2	4.5	1.9	67	3.6	720	1.3	3.0	2.0	60	3.8	730
1.3	8.5	2.1	101	4.0	980	1.4	6.5	2.2	94	4.2	1,050
1.4	14	2.3	145			1.5	11	2.5	160	4.7	1,540
1.5	21	2.6	225			1.6	16	2.8	245		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	7.7	69	109	a50	344	284	185	36	18	1.6	0.3
2	1.1	7.7	66	94	a50	288	376	242	32	17	1.6	.3
3	1.2	8.1	64	a70	b60	510	324	259	29	16	1.4	.2
4	1.4	8.1	59	a60	b80	694	280	332	22	9.6	1.4	.3
5	1.6	8.1	*54	a50	b120	744	266	445	16	5.4	1.4	a.3
6	1.7	8.1	50	b60	b200	634	300	425	17	4.4	1.4	a.4
7	2.0	8.5	45	64	295	480	308	372	108	4.0	1.4	a.4
8	2.8	9.0	40	63	270	392	340	328	1,480	4.0	1.2	h.5
9	3.0	10	37	61	256	328	332	292	694	4.0	1.0	h.5
10	3.2	11	34	60	207	292	308	273	388	4.0	1.0	a.4
11	3.5	12	31	61	155	266	300	270	288	4.0	.9	a.3
12	3.2	12	30	59	140	242	340	276	266	3.4	.9	a.2
13	3.2	13	29	61	201	233	410	300	221	3.0	.8	a.2
14	3.2	13	29	a45	362	227	368	292	182	2.8	.8	a.4
15	3.0	13	31	b35	630	227	340	262	155	3.0	.8	a.4
16	3.0	13	43	b30	708	256	328	233	148	2.8	.7	a.4
17	3.2	13	45	b30	*642	430	332	215	142	2.8	.7	a.3
18	4.0	13	53	*b35	498	475	304	185	128	2.8	.6	a.3
19	5.7	12	54	b40	415	495	280	160	113	2.6	.5	a.3
20	6.5	12	52	b50	327	420	284	139	100	2.6	.4	a.4
21	6.1	11	53	b300	264	364	292	128	89	2.4	.4	a.4
22	6.9	11	66	774	225	344	284	124	76	2.4	.3	a.4
23	6.9	15	232	588	323	300	248	117	66	2.2	.3	a.3
24	6.9	37	260	405	690	280	209	100	60	2.2	.8	a.2
25	6.9	43	172	281	945	256	191	83	56	2.0	.5	h.2
26	7.3	38	150	a250	840	239	170	71	49	2.0	.4	a.4
27	7.7	81	123	a200	654	224	160	68	45	2.0	.3	a.4
28	7.7	117	143	a150	450	203	168	63	40	2.0	.3	a.4
29	7.7	87	162	a100	-	182	162	62	36	1.8	.4	a.5
30	8.1	73	148	a80	-	175	155	54	26	1.8	.4	a.5
31	8.1	-	126	a60	-	191	-	47	-	1.8	.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	137.8	8.1	1.0	4.45	273
November.....	725.3	117	7.7	24.2	1,440
December.....	2,550	260	29	82.3	5,060
Calendar year 1949	35,297.2	1,160	0	96.7	70,010
January.....	4,325	774	30	140	8,580
February.....	10,057	945	50	359	19,950
March.....	10,725	744	175	346	21,270
April.....	8,443	410	155	281	16,750
May.....	6,402	445	47	207	12,700
June.....	5,108	1,480	16	170	10,130
July.....	138.8	18	1.8	4.48	275
August.....	25.0	1.6	.3	.81	50
September.....	10.5	.5	.2	.35	21
Water year 1949-50	48,647.4	1,480	.2	133	96,500

Peak discharge (base, 700 sec.-ft.).--Jan. 22 (2:30 a.m.) 938 sec.-ft.; Feb. 16 (7:30 p.m.) 774 sec.-ft.; Feb. 25 (12:30 a.m.) 1,000 sec.-ft.; Mar. 5 (8:30 p.m.) 896 sec.-ft.; June 8 (8 a.m.) 2,140 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Birch Creek at Rieth and Butte Creek near Pine City.

b Stage-discharge relation affected by ice.

c Computed from staff-gage reading.

UMATILLA RIVER BASIN

McKay Reservoir near Pendleton, Oreg.

Location.--Staff gage, lat. 45°36', long. 118°48', at dam on McKay Creek in SE $\frac{1}{4}$ sec. 34, T. 2 N., R. 32 E., 4 miles south of Pendleton. Datum of gage is at mean sea level (surveys by Bureau of Reclamation).

Drainage area.--186 square miles.

Records available.--October 1930 to September 1950 in reports of Geological Survey. December 1927 to September 1941 in reports of State engineer.

Extremes.--Maximum contents observed during year, 73,840 acre-feet June 9 (elevation, 1,322.0 feet); minimum observed, 10,260 acre-feet Oct. 1, 5, 8, 12, 15, 19, 22 (elevation, 1,238.1 feet).

1930-50: Maximum contents, that of June 9, 1950; minimum observed, 3,051 acre-feet Oct. 1, Nov. 1, Dec. 1, 1935 (elevation, 1,217.6 feet).

Remarks.--Reservoir is formed by gravel-fill dam with concrete facing completed in 1926; storage began in 1927. Usable capacity, 73,830 acre-feet between elevations 1,182 feet (floor of trash-rack structure) and 1,322 feet (top of spillway gates). Dead storage about 6 acre-feet, included in contents given herein. Water is used for irrigation of lands along Umatilla River near Echo, Stanfield, and Hermiston. Gage read to tenths of a foot 2 or 3 times a week October to February, August and September, daily to tenths of a foot March to July.

Cooperation.--Gage readings and capacity table furnished by Bureau of Reclamation.

Revisions.--W 1154: Drainage area.

Monthly elevation and contents, water year October 1949 to September 1950

Date	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30.....	-	a10,260	-
Oct. 31.....	-	a10,430	+170
Nov. 30.....	1,241.8	11,820	+1,390
Dec. 31.....	1,252.9	17,050	+5,230
Calendar year 1949.....	-	-	-8,050
Jan. 31.....	-	a24,980	+7,930
Feb. 28.....	1,295.4	45,680	+20,700
Mar. 31.....	1,315.3	65,740	+20,060
Apr. 30.....	1,316.4	66,990	+1,250
May 31.....	1,320.0	71,300	+4,310
June 30.....	1,319.5	70,700	-600
July 31.....	1,302.3	51,990	-18,710
Aug. 31.....	1,278.3	32,350	-19,640
Sept. 30.....	1,262.1	22,070	-10,280
Water year 1949-50.....	-	-	+11,810

a No gage reading; contents interpolated.

McKay Creek near Pendleton, Oreg.

Location.--Water-stage recorder, lat. 45°37', long. 118°48', in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 34, T. 2 N., R. 32 E., just upstream from irrigation diversion dam, a quarter of a mile downstream from McKay Dam, and 4 miles south of Pendleton.

Drainage area.--186 square miles.

Records available.--November 1918 to September 1923, October 1924 to September 1950 (diversions by irrigation canal at gage not included since 1932).

Average discharge.--24 years (1919-23, 1924-27, 1928-43, 1948-50), 92.3 second-feet (unadjusted).

Extremes.--Maximum discharge during year, 1,590 second-feet June 9 (gage height, 2.80 feet); practically no flow during period Oct. 1 to Jan. 31.

1918-50: Maximum discharge observed, 3,250 second-feet Feb. 10, 1921 (gage height, 4.4 feet, site and datum then in use), from rating curve extended above 1,200 second-feet; no flow at times.

Remarks.--Records good except those below 10 second-feet, which are poor. Diversions above station for irrigation. Also one diversion around station during irrigation season which may at times amount to about 10 second-feet. Flow completely regulated since 1927 by McKay Reservoir.

Revisions.--W 1154: Drainage area.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to June 9

June 10 to Sept. 30

-0.03	0	0.5	51	1.2	230	0	0.2	0.5	50	1.4	320
.1	4	.6	69	1.4	305	.1	2.5	.6	69	1.7	490
.2	12	.7	91	1.6	415	.2	8	.8	115	2.1	790
.3	25	.8	115	1.9	630	.3	20	.9	143		
.4	56	1.0	165	2.4	1,090	.4	33	1.1	210		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					a1	5	9	39	38	108	330	288
2					a1	6	10	45	38	126	330	284
3					a1	6	129	45	23	182	340	284
4					a2	6	281	128	16	206	330	280
5					a2	6	385	289	15	210	320	280
6					a2	7	434	385	14	245	320	280
7					a3	8	441	384	14	262	312	276
8					a3	8	441	315	313	273	304	276
9					a4	8	434	187	1,040	276	304	276
10					h4	8	428	120	646	276	304	273
11					h4	7	428	96	742	273	308	273
12					a4	7	434	50	766	273	304	270
13					a4	7	434	50	342	273	304	270
14					a4	7	434	48	118	300	304	a268
15					h4	6	434	74	163	316	304	266
16					4	6	434	105	203	316	304	224
17					4	6	434	108	203	316	300	129
18					4	6	296	125	203	316	300	132
19					4	6	212	145	106	316	304	132
20					4	6	177	145	50	316	312	132
21					4	7	110	108	31	312	308	67
22					4	7	87	84	50	320	304	1
23					4	7	87	84	50	330	308	2
24					4	7	89	59	42	330	335	5
25					4	8	89	36	7	325	330	4
26					5	9	89	36	6	a330	304	4
27					5	8	76	36	6	335	304	5
28					5	10	40	36	44	340	296	5
29					-	8	14	36	69	340	288	4
30					-	9	9	38	91	340	288	4
31					-	9	-	38	-	340	288	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	0	0	0	0	0
November.....	0	0	0	0	0
December.....	0	0	0	0	0
Calendar year 1949	37,646	391	0	103	74,680
January.....	0	0	0	0	0
February.....	98	5	1	3.5	194
March.....	221	10	5	7.1	438
April.....	7,399	441	9	247	14,680
May.....	3,475	385	36	112	6,890
June.....	5,449	1,040	6	182	10,810
July.....	8,821	340	108	285	17,500
August.....	9,691	340	288	309	19,020
September.....	4,994	288	1	166	9,910
Water year 1949-50	40,048	1,040	0	110	79,440

a No gage-height record; discharge interpolated.

h Computed from staff-gage reading.

Birch Creek at Rieth, Oreg.

Location.--Water-stage recorder, lat. 45°39', long. 118°53', in SE $\frac{1}{4}$ sec. 13, T. 2 N., R. 31 E., a quarter of a mile upstream from mouth and half a mile southwest of Rieth.

Drainage area.--291 square miles.

Records available.--May 1921 to September 1923 and April 1927 to September 1950.

Average discharge.--21 years (1929-50), 43.3 second-feet.

Extremes.--Maximum discharge during year, 1,860 second-feet June 17 (gage height, 7.2 feet), from rating curve extended above 400 second-feet; minimum, 0.1 second-foot Oct. 3-14, July 19-21.

1921-23, 1927-50: Maximum discharge, that of June 17, 1950; no flow at times.

Remarks.--Records good except those below 5 second-feet, which are fair, and those for periods of no gage-height record or ice effect, which are poor. Several small diversions above station for irrigation.

Revisions (water years).--W 984: 1939.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from debris Oct. 21 to Nov. 2)

(Shifting-control method used May 15 to June 17, Aug. 13-16)

Oct. 1 to June 17

June 18 to Sept. 30

0.1	0.1	0.7	9	1.4	75	0.1	0.05	0.6	5.5	1.2	40
.2	.5	.8	14	1.6	105	.2	.3	.7	8.3	1.4	62
.3	1.3	.9	19	1.9	155	.3	.9	.8	12	1.6	89
.4	2.5	1.0	26	2.3	230	.4	1.9	.9	18	1.9	137
.5	4	1.1	36	2.8	335	.5	3.4	1.0	24	2.2	191
.6	6	1.2	48	3.2	435						

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	9.0	32	38	b15	200	121	133	20	8.3	0.2	0.2
2	.2	8.7	31	32	a15	175	177	178	11	4.9	.2	.2
3	.1	6.9	30	21	a15	177	169	187	8.7	4.2	.2	.2
4	.1	4.6	a28	20	a25	208	162	216	8.7	5.7	.2	.2
5	.1	7.2	a27	b15	b40	240	146	228	10	1.5	.2	.2
6	.1	6.9	*h26	b20	b70	248	171	220	20	1.3	.2	.2
7	.1	5.0	25	32	b100	218	184	206	43	1.1	.2	.2
8	.1	9.0	24	28	162	193	193	189	413	1.1	.2	.2
9	.1	8.7	22	*27	130	168	187	180	420	1.5	.2	.2
10	.1	8.7	22	26	118	152	177	186	390	2.6	.2	.2
11	.1	9.0	19	27	124	145	166	193	372	1.9	.2	.2
12	.1	9.0	18	25	111	119	184	222	432	.5	.2	.2
13	.1	9.0	19	24	194	118	266	272	375	.7	.2	.2
14	.1	10	18	14	159	113	262	290	302	a.6	.2	.2
15	.2	10	18	5.2	232	108	232	256	260	a.5	.2	.2
16	.7	10	19	7.2	264	107	218	220	220	a.4	.2	.2
17	1.7	12	19	*h7.8	*258	138	230	206	339	a.3	.2	.2
18	2.1	13	20	9.0	224	202	236	175	187	a.2	.2	.2
19	3.8	13	20	12	197	208	222	143	163	.1	.2	.2
20	a5.0	13	18	15	177	195	234	136	142	.1	.2	.2
21	6.0	12	19	b80	157	178	246	102	134	.1	.2	.2
22	7.2	12	20	b200	141	169	260	100	110	.2	.2	.2
23	7.5	14	23	187	136	153	230	92	96	.2	.2	.2
24	7.2	16	46	150	148	143	189	80	86	.2	.2	.2
25	6.6	17	48	100	232	131	166	72	79	.2	.2	.2
26	9.0	16	44	94	294	123	146	65	66	.2	.2	.2
27	9.0	20	40	84	290	116	140	56	50	.2	.2	.2
28	8.4	38	37	57	*248	104	131	52	30	.2	.2	.2
29	8.4	35	40	37	-	96	118	48	20	.2	.2	.2
30	9.0	33	43	a25	-	90	113	42	11	.2	.2	.3
31	8.4	-	40	a15	-	86	-	31	-	.2	.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	101.8	9.0	0.1	3.28	202
November.....	395.7	38	4.6	13.2	785
December.....	855	48	18	27.6	1,700
Calendar year 1949.....	19,205.1	689	.1	52.6	38,100
January.....	1,434.2	200	5.2	46.3	2,840
February.....	4,276	294	15	153	8,480
March.....	4,821	248	86	156	9,560
April.....	5,676	266	113	189	11,280
May.....	4,776	290	31	154	9,470
June.....	4,818.4	432	8.7	161	9,560
July.....	39.6	6.3	.1	1.28	79
August.....	6.2	.2	.2	.20	12
September.....	6.1	.3	.2	.20	12
Water year 1949-50.....	27,206.0	432	.1	74.5	53,960

Peak discharge (base, 300 sec.-ft.).--Feb. 13 (12 m.) 340 sec.-ft.; Feb. 26 (1 p.m.) 304 sec.-ft.; May 14 (10 a.m.) 306 sec.-ft.; June 8 (4 p.m.) 585 sec.-ft.; June 17 (4:30 p.m.) 1,860 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge interpolated or computed on basis of records for Butter Creek near Pine City and McKay Creek near Pilot Rock.

b Stage-discharge relation affected by ice.

c Computed from staff-gage reading.

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

Location.--Water-stage recorder, lat. 45°33', long. 119°18', in S $\frac{1}{2}$ sec. 22, T. 1 N., R. 28 E., half a mile below Mattlock Canyon, 6 miles southeast of settlement of Pine City, and 20 miles south of Hermiston.

Drainage area.--291 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey. March 1921 to April 1928 at site half a mile south of Pine City, and May 1928 to September 1941 at present site (incomplete) in reports of State engineer; October 1941 to September 1945 (unpublished) in files of State engineer.

Average discharge.--18 years (1929-30, 1931-32, 1933-41, 1942-50), 21.5 second-feet.

Extremes.--Maximum discharge during year, 317 second-feet Feb. 16 (gage height, 3.90 feet); minimum, 0.4 second-foot Aug. 21, 22, 28.

1921-50: Maximum gage height, 12.4 feet present datum Feb. 21, 1949 (discharge not determined); no flow at times.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. No regulation. Small diversions above station for irrigation; for about 20 days each year not over 30 second-feet may be diverted into headwaters of Butter Creek from Fivemile Creek, a tributary of Camas Creek in John Day River Basin.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.6	0.1	1.1	9	2.1	77
.7	.5	1.2	13	2.4	110
.8	1.5	1.3	18	2.9	172
.9	3.5	1.5	30	3.6	270
1.0	6	1.8	50		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	5.2	9.4	b9.0	a10	105	99	61	23	16	3.1	0.8
2	1.9	5.2	9.0	b8.5	a10	94	138	79	20	14	2.5	.8
3	2.1	5.2	8.7	8.4	a10	105	115	75	20	12	2.3	.7
4	2.3	5.2	8.4	8.7	a15	130	98	78	23	10	2.1	.6
5	2.5	5.2	*8.4	8.7	a20	132	91	79	23	11	1.9	.7
6	2.7	5.2	7.8	9.0	a30	140	102	76	21	10	1.9	.7
7	3.1	5.5	7.5	9.0	a70	114	114	71	28	9.4	1.7	.7
8	3.5	5.8	7.5	9.4	b120	100	112	68	40	9.0	1.7	.8
9	3.8	6.0	7.5	9.4	104	87	102	64	40	8.4	1.5	.9
10	3.8	6.3	b7.2	9.0	75	82	92	63	34	6.9	1.3	.9
11	3.8	6.0	b7.0	9.0	70	75	88	69	32	7.2	1.2	.8
12	3.5	6.0	6.9	b8.5	56	66	92	78	35	6.3	1.1	.6
13	3.5	6.0	7.2	b8.0	74	65	128	87	40	5.8	1.2	.7
14	5.0	6.0	7.5	a7.5	109	62	118	97	35	5.2	1.2	.9
15	3.8	6.0	7.5	a7.0	205	60	104	98	33	5.0	1.2	.9
16	3.8	6.0	8.1	b7.0	268	62	98	91	31	4.5	1.2	.9
17	3.8	6.0	8.1	a7.0	197	132	99	87	48	4.0	1.3	.8
18	4.5	6.0	8.4	*b7.5	152	145	97	84	50	4.0	1.2	.9
19	4.8	6.0	b8.5	b8.0	133	122	91	75	34	4.2	1.0	1.0
20	4.8	6.0	8.1	b10	114	115	94	68	29	4.5	.7	1.0
21	4.8	6.0	7.8	b20	95	104	96	63	34	3.8	.4	1.1
22	4.8	6.0	8.4	b120	86	112	98	63	40	3.5	.4	1.0
23	4.8	7.2	9.0	*105	84	108	88	62	35	3.1	.5	.9
24	4.8	8.4	10	62	111	96	78	59	34	3.1	.6	1.0
25	4.8	9.0	11	a40	168	86	71	52	31	3.1	.6	1.1
26	5.0	8.4	11	a30	184	81	64	48	28	3.3	.4	.9
27	5.0	8.4	10	a25	159	75	62	42	24	3.1	1.3	1.2
28	5.0	13	9.4	a20	127	73	62	41	22	2.9	1.1	1.2
29	4.8	12	9.8	a15	-	69	60	40	20	3.1	1.1	1.4
30	4.8	11	9.8	a12	-	70	55	35	18	3.5	1.0	1.4
31	5.0	-	9.4	a10	-	70	-	32	-	3.3	1.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	122.3	5.0	1.7	3.95	243
November.....	204.2	13	5.2	6.81	405
December.....	264.3	11	6.9	8.53	524
Calendar year 1949.....	11,669.4	1,000	.2	32.0	23,140
January.....	627.6	120	7.0	20.2	1,240
February.....	2,856	268	10	102	5,660
March.....	2,933	145	60	94.6	5,820
April.....	2,806	138	55	93.5	5,570
May.....	2,085	98	32	67.3	4,140
June.....	923	50	18	30.8	1,830
July.....	193.2	16	2	6.23	383
August.....	39.7	3.1	.4	1.28	79
September.....	27.3	1.4	.6	.91	54
Water year 1949-50.....	13,081.6	268	.4	35.8	25,950

Peak discharge (base, 200 sec.-ft.).--Feb. 16 (6 a.m.) 317 sec.-ft.; June 17 (10 p.m.) 218 sec.-ft.
* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for Birch Creek at Rieth and McKay Creek near Pilot Rock.

b Stage-discharge relation affected by ice.

UMATILLA RIVER BASIN

Principal diversions from Umatilla River between Pendleton and Umatilla, Oreg.

The following canals divert water from Umatilla River between Pendleton and Umatilla: 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 SW $\frac{1}{4}$ 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 NE $\frac{1}{4}$ 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 head gate of that canal. Maxwell Canal, from right bank of Umatilla River in SW $\frac{1}{4}$ 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 SW $\frac{1}{4}$ sec. 28, T. 5 N., R. 28 E. Brownell Canal, from right bank of Umatilla River 2 miles below West Division main canal diversion and $1\frac{1}{2}$ miles above mouth of Umatilla River (no record of monthly diversion during 1950).

Water diverted by all 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 1950; records for some of the canals published separately prior to 1926.

Diversions, in acre-feet, water year October 1949 to September 1950

Month	Furnish Canal	Umatilla project feed canal	Western Land Canal	Allen Canal	Maxwell Canal	West Division main canal
October.....	0	1,670	-	771	af516	5,920
November.....	0	5,820	-	b25	-	0
December.....	0	11,080	-	-	-	0
January.....	0	1,570	-	-	-	0
February.....	0	5,570	-	-	-	0
March.....	179	10,850	c787	d9.3	-	2,730
April.....	5,530	12,200	8,530	489	e2,350	8,890
May.....	8,480	12,170	12,020	1,220	4,510	11,210
June.....	6,660	9,140	11,380	587	3,680	10,100
July.....	9,300	0	14,020	800	2,960	10,890
August.....	8,260	0	11,740	640	2,310	11,180
September.....	4,190	0	7,450	715	2,140	10,050
Water year 1949-50.....	42,600	70,070	-	-	-	70,950

a Oct. 1-5.

b Nov. 1, 2.

c Mar. 27-31.

d Mar. 29-31.

e Apr. 15-30.

f Not used for irrigation.

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.

John Day River at Prairie City, Oreg.

Location.--Water-stage recorder, lat. 44°27', long. 118°43', in NE $\frac{1}{4}$ sec. 10, T. 13 S., R. 33 E., 600 feet upstream from power plant and outlet of Prairie power canal, a third of a mile below Dixie Creek, and three-quarters of a mile southwest of Prairie City. Datum of gage is 3,496.99 feet above mean sea level, datum of 1929.

Drainage area.--231 square miles.

Records available.--October 1925 to September 1950. October 1916 to September 1917 (gage heights only) and March 1925 to September 1926 at site below outlet of Prairie power canal.

Average discharge.--25 years (1925-50), 111 second-feet; including flow of Prairie power canal.

Extremes.--Maximum discharge during year, 315 second-feet Feb. 15 (gage height, 2.92 feet); minimum, 6.9 second-feet Aug. 21.

1925-50: Maximum discharge observed, 1,550 second-feet Mar. 19, 1932, from rating curve extended above 500 second-feet; maximum gage height, 5.4 feet Mar. 20, 21, 1939, at former site and datum, from floodmark; minimum discharge, 2 second-feet Dec. 8, 21, 22, 1932, Aug. 10, 1934.

Remarks.--Records good except those for periods of ice effect, which are fair. Diversions above station for irrigation and for power. (See p. 39 for records for Prairie power canal at Prairie City.)

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from leaves Nov. 8-22)

Oct. 1 to Jan. 22

Jan. 23 to Sept. 30

1.4	14	1.8	46	1.3	6.5	1.8	50
1.5	19	1.9	61	1.4	10	1.9	66
1.6	26	2.0	79	1.5	17	2.2	128
1.7	35	2.3	148	1.6	26	2.6	226
				1.7	37	2.9	309

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	24	34	b25	b40	89	124	115	195	56	18	10
2	30	23	33	b21	b55	91	151	115	178	58	16	9.3
3	25	23	29	b18	b65	117	144	104	175	63	15	10
4	23	22	29	b16	b70	106	128	98	175	55	18	10
5	33	24	30	b14	83	108	124	87	185	53	34	10
6												
7	34	63	30	b31	156	98	140	77	242	37	37	12
8	35	34	30	36	117	85	137	72	281	34	28	12
9	50	25	30	32	79	85	133	56	237	33	29	13
10	72	29	29	28	63	83	128	37	190	33	26	14
11	53	29	25	26	61	91	121	35	170	37	23	15
12												
13	35	29	23	26	58	76	124	37	182	34	22	16
14	32	29	26	24	53	77	137	49	195	27	24	17
15	29	27	33	30	60	81	163	89	203	22	24	26
16	29	26	31	b50	93	85	158	130	195	20	23	18
17	50	25	31	b43	214	85	144	168	203	22	21	19
18												
19	61	24	*32	55	115	117	140	168	218	19	15	19
20	38	23	31	50	153	192	149	180	223	19	12	21
21	27	23	30	45	130	170	156	163	221	19	10	22
22	26	22	26	42	126	185	161	137	226	22	8.9	22
23	25	22	b21	48	110	146	173	126	205	25	8.9	20
24												
25	25	22	b28	79	96	128	190	128	267	26	8.1	18
26	22	22	32	138	87	185	195	149	234	23	7.3	18
27	36	36	30	130	96	151	178	165	216	22	8.5	17
28	25	37	29	108	*108	135	153	175	195	22	9.3	27
29	25	31	27	87	121	121	140	165	175	22	12	18
30												
31	25	31	28	87	121	128	137	161	146	23	12	27
2	25	44	28	*96	116	135	137	165	124	25	10	37
3	25	45	27	81	96	119	124	180	115	27	10	42
4	25	35	27	b65	-	102	110	188	96	25	9.3	42
5	24	59	26	b45	-	102	104	188	60	25	8.9	45
6	24	-	25	b55	-	106	-	188	-	22	9.3	-

Month	Observed				Diversions by Prairie power canal at Prairie City, Oreg. in acre-feet	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
October.....	72	23	32.8	2,020	3,020	5,040	82.0		
November.....	63	22	29.6	1,760	2,660	4,420	74.3		
December.....	34	21	28.7	1,770	2,770	4,540	74.1		
Calendar year 1949	415	13	75.1	54,400	31,210	85,610	118		
January.....	138	14	52.0	5,200	1,730	4,930	80.0		
February.....	214	40	97.9	5,440	2,270	7,710	139		
March.....	192	76	115	7,100	2,830	9,930	161		
April.....	195	104	143	8,530	2,590	11,120	187		
May.....	188	35	126	7,730	2,650	10,380	169		
June.....	287	60	191	11,370	1,970	13,340	224		
July.....	63	19	30.6	1,880	2,200	4,080	66.4		
August.....	37	7.3	16.7	1,030	1,140	2,170	35.3		
September.....	45	9.3	20.2	1,200	843	2,040	34.4		
Water year 1949-50	287	7.3	73.2	53,030	26,670	79,700	110		

Peak discharge (base, 240 sec.-ft.),--Feb. 15 (7 p.m.) 315 sec.-ft.; June 7 (1 to 2 p.m.) 309 sec.-ft.; June 19 (1 to 2 a.m.) 270 sec.-ft.; June 21 (4 a.m.) 289 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

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

Location.--Water-stage recorder and concrete control, lat. 44°31'20", long. 119°37'30", in sec. 20, T. 12 S., R. 26 E., on John Day Highway, 0.7 mile upstream from Rock Creek bridge and 7 miles northwest of Dayville. Datum of gage is 2,232.10 feet above mean sea level, datum of 1929.

Drainage area.--1,640 square miles.

Records available.--April 1926 to September 1950.

Average discharge.--24 years, 416 second-feet.

Extremes.--Maximum discharge during year, 1,810 second-feet Mar. 17 (gage height, 7.62 feet); minimum, 25 second-feet Sept. 7, 8.

1926-50: Maximum discharge, 6,520 second-feet May 22, 1948; maximum gage height, 14.0 feet Mar. 19, 1932; minimum discharge, 1 second-foot on several days in August and September 1930 and on Aug. 8, 9, 1936.

Remarks.--Records excellent except those for periods of ice effect, which are fair. Many diversions above station for irrigation.

Revisions (water years).--W 794: 1932(M).

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 22

Jan. 23 to Sept. 30

2.3	84	3.9	335	1.5	21	2.4	120	4.5	580
2.7	133	4.5	490	1.7	36	2.7	168	5.5	860
3.3	220	5.3	740	1.9	55	3.0	225	6.5	1,250
				2.1	78	3.5	330	7.5	1,750

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	153	157	217	168	b170	815	996	948	764	370	87	30
2	147	157	210	168	b200	761	1,380	996	734	340	78	30
3	144	155	199	141	b230	854	1,350	940	722	299	68	30
4	139	153	190	123	b290	972	1,200	908	710	277	64	29
5	137	153	190	b110	362	996	1,160	887	713	275	66	27
6	144	153	187	b160	600	988	1,220	854	725	271	65	27
7	158	154	187	178	652	848	1,300	812	887	241	56	27
8	165	158	182	198	525	797	1,260	782	1,010	223	56	25
9	164	168	180	193	458	746	1,190	752	881	203	51	27
10	167	172	176	184	428	725	1,140	713	785	184	55	27
11	169	172	158	176	412	683	1,120	713	764	166	55	27
12	167	174	157	168	388	640	1,240	761	836	154	57	27
13	161	174	162	167	372	640	1,480	857	809	140	62	28
14	161	172	175	146	445	650	1,500	1,000	794	122	58	28
15	158	167	172	132	672	658	1,380	1,100	788	104	54	27
16	154	165	176	151	1,030	680	1,340	1,120	854	91	51	29
17	154	164	181	172	1,010	1,280	1,370	1,120	960	84	49	31
18	158	165	184	190	836	1,420	1,440	1,110	878	77	50	31
19	157	164	176	205	830	1,300	1,460	1,010	854	73	45	29
20	158	162	158	224	794	1,190	1,540	917	803	79	42	29
21	158	157	155	342	692	1,050	1,650	890	893	94	40	30
22	160	162	174	688	638	1,060	1,690	905	908	97	38	30
23	162	169	180	803	625	1,090	1,560	944	830	91	34	31
24	157	188	182	625	866	1,010	1,380	976	776	90	37	33
25	154	198	180	442	*1,280	936	1,240	920	719	82	35	30
26	157	198	174	390	1,260	902	1,140	863	652	117	35	31
27	155	200	176	405	1,160	917	1,110	827	585	122	36	34
28	157	220	180	*372	914	875	1,100	830	530	105	34	38
29	137	228	176	312	-	794	1,030	836	475	95	32	55
30	158	217	192	b250	-	788	948	812	425	84	30	81
31	158	-	167	b190	-	800	-	800	-	84	30	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	4,848	169	137	156	9,620
November.....	5,196	228	153	173	10,310
December.....	5,543	217	155	179	10,990
Calendar year 1949	172,394	2,150	22	472	341,900
January.....	8,173	803	110	264	16,210
February.....	18,139	1,280	170	548	55,980
March.....	27,865	1,420	640	899	55,270
April.....	38,914	1,690	948	1,297	77,180
May.....	27,903	1,120	713	900	55,340
June.....	23,064	1,010	425	769	45,750
July.....	4,840	370	73	156	9,600
August.....	1,550	87	30	50.0	3,070
September.....	958	81	25	31.9	1,900
Water year 1949-50	166,993	1,690	25	458	331,200

Peak discharge (base, 1,000 sec.-ft.)--Feb. 16 (11 p.m.) 1,170 sec.-ft.; Feb. 26 (3 a.m.) 1,410 sec.-ft.; Mar. 6 (1 to 2 a.m.) 1,080 sec.-ft.; Mar. 17 (9 p.m.) 1,810 sec.-ft.; Apr. 22 (10 a.m.) 1,720 sec.-ft.; May 18 (2 a.m.) 1,140 sec.-ft.; June 8 (5 a.m.) 1,040 sec.-ft.; June 17 (12:30 a.m.) 1,290 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

John Day River at Service Creek, Oreg.

Location.--Water-stage recorder, lat. 44°48', long. 120°00', in NE $\frac{1}{4}$ sec. 18, T. 9 S., R. 23 E., a quarter of a mile downstream from Service Creek and three-quarters of a mile south-west of Service Creek post office. Datum of gage is 1,635.83 feet above mean sea level, datum of 1929.

Drainage area.--5,090 square miles.

Records available.--October 1929 to September 1950 in reports of Geological Survey. March 1925 to September 1926 and October 1929 to September 1941 in reports of State engineer.

Average discharge.--22 years (1925-26, 1929-50), 1,646 second-feet.

Extremes.--Maximum discharge during year, 8,440 second-feet Mar. 18 (gage height, 9.58 feet); minimum, 116 second-feet Sept. 17.

1929-50: Maximum discharge, 28,900 second-feet Mar. 19, 1932 (gage height, 16.75 feet), from rating curve extended above 11,000 second-feet; minimum, 20 second-feet Sept. 6, 1931.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Many diversions above station for irrigation.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 25

Feb. 26 to Sept. 30

2.5	305	5.8	2,280	1.7	116	3.5	780	7.0	3,850
3.0	480	6.5	3,070	2.0	185	4.0	1,050	8.0	5,290
3.5	705	7.5	4,470	2.3	270	4.5	1,560	9.3	7,790
4.3	1,100	8.7	6,530	2.6	375	5.0	1,730		
5.0	1,570			3.0	540	6.0	2,650		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	312	589	692	478	*466	4,150	4,150	3,800	4,100	1,820	361	147
2	392	375	687	492	480	3,800	7,420	4,380	4,020	1,710	340	145
3	354	372	620	396	a600	3,840	6,550	4,360	3,870	1,550	316	138
4	333	372	566	358	a750	4,990	5,390	4,130	840	1,420	302	131
5	333	364	518	305	a1,000	4,970	4,940	4,040	3,790	1,270	298	131
6	356	361	456	308	1,370	5,600	5,460	3,840	3,700	1,190	305	129
7	358	361	534	470	b2,100	4,630	6,020	3,560	3,780	1,120	302	123
8	392	364	526	530	1,840	4,010	5,700	3,350	3,930	1,020	330	120
9	392	372	506	554	1,600	3,550	5,260	3,260	3,800	951	319	120
10	400	396	494	574	1,420	3,150	5,020	3,270	3,390	896	291	123
11	403	426	446	554	1,360	2,920	5,030	3,620	3,280	880	264	123
12	406	434	344	530	1,300	2,590	5,700	4,100	4,580	815	261	123
13	410	426	375	498	1,310	2,430	7,440	5,150	5,230	760	258	125
14	396	426	403	466	1,490	2,250	7,570	6,490	4,690	685	248	120
15	389	410	458	426	2,100	2,370	6,470	7,270	4,520	630	233	118
16	375	406	518	434	3,470	2,550	6,270	7,240	4,380	585	228	118
17	364	400	*526	442	4,460	3,930	6,530	7,180	4,380	554	228	118
18	372	396	534	458	3,710	7,180	6,790	6,690	4,410	540	214	118
19	375	400	534	502	3,340	5,850	6,650	5,780	4,260	518	206	127
20	372	389	450	606	3,210	5,660	7,040	5,310	4,130	491	188	125
21	364	364	446	795	2,820	4,950	7,550	5,240	4,500	467	175	125
22	354	344	466	b2,300	2,380	4,720	7,780	5,610	4,680	475	159	127
23	368	372	530	2,950	2,230	4,750	6,950	6,250	4,060	455	154	127
24	378	498	566	2,340	2,990	4,220	5,720	6,230	3,570	439	161	125
25	375	620	558	1,520	*6,450	4,090	5,100	5,580	3,250	411	163	131
26	372	664	542	1,140	6,850	3,620	4,780	5,240	2,860	395	166	140
27	372	656	538	1,120	6,030	3,530	4,580	5,150	2,550	399	180	143
28	372	710	538	980	4,970	3,450	4,500	5,240	2,500	395	178	156
29	a375	920	530	692	-	3,160	4,200	4,630	2,090	379	163	185
30	375	785	546	550	-	3,040	3,840	4,510	1,940	375	159	195
31	386	-	514	478	-	3,150	-	4,330	-	375	150	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	11,555	410	312	375	22,920
November	13,772	920	344	459	27,320
December	15,991	692	344	516	31,720
Calendar year 1949	770,305	12,100	99	2,110	1,528,000
January	24,256	2,950	305	782	48,110
February	72,106	6,850	466	2,575	143,000
March	122,900	7,180	2,250	3,965	243,800
April	176,350	7,790	3,840	5,678	349,700
May	154,810	7,270	3,260	4,994	307,100
June	113,960	5,230	1,940	3,799	226,000
July	23,990	1,620	375	774	47,580
August	7,500	361	150	235	14,480
September	3,976	195	118	133	7,890
Water year 1949-50	740,676	7,790	118	2,030	1,470,000

Peak discharge (base, 5,200 sec.-ft.).--Feb. 26 (10:30 a.m.) 7,550 sec.-ft.; Mar. 6 (9:30 a.m.) 6,250 sec.-ft.; Mar. 18 (6:30 a.m.) 8,440 sec.-ft.; Apr. 2 (11:50 a.m.) 8,110 sec.-ft.; Apr. 13 (9 to 10 p.m.) 8,420 sec.-ft.; May 15 (1 p.m.) 7,640 sec.-ft.; June 12 (8 p.m.) 6,030 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage when available, weather records, and records for other stations in basin.

b Stage-discharge relation affected by ice.

John Day River at McDonald Ferry, Oreg.

Location.--Water-stage recorder, lat. 45°35', long. 120°25', in NW $\frac{1}{4}$ sec. 11, T. 1 N., R. 19 E., at McDonald Ferry, half a mile downstream from Rock Creek and 10 miles east of Klondike. Datum of gage is 392.27 feet above mean sea level, datum of 1929.

Drainage area.--7,580 square miles.

Records available.--December 1904 to September 1950.

Average discharge.--45 years (1905-50), 1,954 second-feet.

Extremes.--Maximum discharge during year, 8,310 second-feet Mar. 19; maximum gage height, 13.2 feet Feb. 8 (ice jam), from floodmark; minimum discharge, 134 second-feet Sept. 12, 13 (gage height, 1.31 feet).

1904-50: Maximum discharge, 27,800 second-feet Feb. 6, 1907; maximum gage height, that of Feb. 8, 1950; minimum discharge, 4 second-feet Aug. 31, 1931 (gage height, 0.68 foot).

Maximum discharge known, 39,100 second-feet, from rating curve extended above 22,000 second-feet, probably occurred in 1894 (gage height, 12.8 feet).

Remarks.--Records excellent except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for irrigation.

Revisions (water years).--W 1904: 1894(M), 1907, 1932(M).

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.3	130	2.3	720	4.5	4,140
1.4	165	2.6	1,020	5.0	5,300
1.6	250	3.0	1,500	6.0	8,070
1.8	355	3.5	2,240		
2.0	485	4.0	3,130		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	185	361	932	552	600	5,380	3,460	4,100	4,480	2,180	367	177
2	311	367	792	540	500	4,450	4,480	4,010	4,250	2,050	355	169
3	250	379	704	500	600	4,040	7,590	4,640	4,210	1,890	358	165
4	306	379	696	460	750	*4,320	7,210	4,640	4,160	1,740	322	162
5	350	373	664	390	920	5,760	5,730	4,410	3,990	1,560	316	158
6	333	367	616	350	1,150	5,970	5,350	4,250	3,930	1,420	300	154
7	322	367	552	320	1,550	6,480	5,710	4,080	3,970	1,270	306	151
8	322	361	515	370	a2,500	5,250	6,040	3,800	4,040	1,200	306	151
9	333	*367	545	460	a2,100	4,430	5,990	3,560	4,230	1,110	300	148
10	355	373	545	560	a1,800	4,010	5,730	3,420	4,140	1,030	338	148
11	379	373	530	600	a1,600	3,660	5,380	3,420	3,640	954	344	144
12	379	379	515	540	a1,500	3,420	5,200	3,700	3,850	900	322	140
13	379	405	471	400	a1,500	3,050	5,840	4,210	6,020	890	295	144
14	379	436	379	300	a1,600	2,900	7,410	5,130	6,260	801	275	146
15	391	436	397	310	a1,900	2,850	7,530	6,420	5,480	747	280	151
16	373	429	403	350	a2,500	2,940	6,610	7,150	4,990	680	260	154
17	373	429	464	430	a4,000	3,090	6,310	7,180	4,870	640	255	158
18	367	415	522	450	a5,000	4,450	6,480	7,060	5,230	608	250	162
19	355	403	538	470	h4,820	7,560	5,720	6,830	5,110	560	228	154
20	350	403	560	500	a4,000	6,450	6,670	5,970	4,770	538	228	158
21	361	403	560	700	a3,650	6,180	6,860	5,320	4,890	538	218	158
22	361	397	515	850	a3,200	5,350	7,320	5,180	4,890	500	210	154
23	355	409	471	1,700	a2,750	5,110	7,560	5,650	5,160	478	197	158
24	350	429	478	2,700	a2,500	5,230	7,010	6,370	4,380	478	193	154
25	344	403	530	3,150	a3,500	4,640	6,120	6,290	3,930	457	181	158
26	361	450	584	2,220	a7,000	4,410	5,400	5,710	3,580	422	185	162
27	367	616	592	1,350	*7,400	4,100	5,060	5,280	3,240	397	185	158
28	367	688	560	1,100	6,640	3,970	4,800	5,250	2,890	379	185	158
29	361	704	560	1,100	-	3,820	4,700	5,350	2,620	367	177	162
30	361	747	560	1,000	-	3,520	4,430	5,060	2,580	373	181	165
31	361	-	560	730	-	3,260	-	4,750	-	367	181	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	10,741	391	185	346	21,300
November.....	13,046	747	367	435	25,880
December.....	17,310	932	379	558	34,330
Calendar year 1949	790,261	11,800	111	2,165	1,567,000
January.....	25,432	3,150	300	820	50,440
February.....	77,530	7,400	500	2,769	153,800
March.....	140,030	7,590	2,850	4,517	277,700
April.....	180,700	7,590	3,460	6,023	358,400
May.....	158,190	7,180	3,420	5,103	313,800
June.....	129,580	6,260	2,580	4,319	257,000
July.....	27,524	2,180	567	888	54,590
August.....	8,078	567	177	261	16,020
September.....	4,683	177	140	156	9,290
Water year 1949-50	792,844	7,590	140	2,172	1,573,000

Peak discharge (base, 6,300 sec.-ft.)--Feb. 27 (time unknown) 8,070 sec.-ft.; Mar. 7 (8 to 9 a.m.) 7,040 sec.-ft.; Mar. 19 (7 a.m.) 8,310 sec.-ft.; Apr. 3 (12 m) 8,010 sec.-ft.; Apr. 14 (7 to 11 p.m.) 8,070 sec.-ft.; May 16 (5 to 6 p.m.) 7,410 sec.-ft.; June 13 (8 to 9 p.m.) 6,890 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for station at Service Creek.

b Computed from staff-gage reading.

Note.--Stage-discharge relation affected by ice Jan. 2-24, Jan. 28 to Feb. 7.

Prairie power canal at Prairie City, Oreg.

Location.--Staff gage, lat. 44°27', long. 118°42', in sec. 11, T. 13 S., R. 33 E., upstream from county road bridge over canal and 1 mile south of Prairie City.

Records available.--May 1925 to September 1950.

Average discharge.--25 years, 47.9 second-feet.

Extremes.--Maximum daily discharge observed during year, 52 second-feet Jan. 22, Feb. 6; no flow Jan. 14-18.

1925-50: Maximum daily discharge, 86 second-feet May 5, 1939; no flow at times.

Remarks.--Records fair. Staff gage read twice daily. Canal diverts from John Day River in SE $\frac{1}{4}$ sec. 7, T. 13 S., R. 34 E. Water is used by power plant at Prairie City and is returned to river below station on John Day River at Prairie City.

Cooperation.--Gage read by employee of California-Pacific Utilities Co.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51	48	46	45	7.5	44	45	42	7.0	42	28	7.9
2	50	47	46	46	9.5	45	44	43	20	44	28	7.9
3	50	48	46	46	12	46	46	44	40	46	28	7.5
4	50	47	46	45	32	46	45	43	39	44	28	7.5
5	50	21	46	27	44	46	45	43	39	34	34	7.5
6	49	11	46	39	52	46	44	44	42	44	34	7.5
7	49	48	46	46	44	47	44	45	42	44	34	7.5
8	49	49	46	46	43	47	44	43	35	38	34	7.5
9	50	47	46	46	43	47	44	43	34	38	34	7.5
10	50	46	47	46	44	47	44	42	33	38	34	13
11	50	46	27	46	44	47	43	43	33	35	34	13
12	50	46	39	46	44	47	43	45	32	38	34	12
13	50	45	46	36	47	47	44	45	33	38	34	12
14	50	45	44	0	50	47	43	43	33	28	7.5	12
15	50	46	44	0	51	47	43	43	34	26	7.5	12
16	49	48	46	0	48	48	43	43	37	28	7.9	9.5
17	49	47	46	0	42	46	43	43	32	30	7.9	10
18	49	47	46	0	42	47	43	43	35	30	7.9	14
19	49	46	46	39	42	41	43	43	36	30	7.9	15
20	49	46	46	47	46	43	43	43	37	30	7.5	15
21	49	46	46	49	46	46	43	43	38	30	7.5	15
22	48	47	46	52	46	46	43	43	36	30	7.5	16
23	48	48	46	44	47	46	43	43	34	38	11	16
24	48	47	46	a12	44	46	43	43	32	40	15	10
25	50	47	46	a12	44	46	43	43	26	36	10	26
26	48	47	46	12	44	46	43	43	30	35	10	31
27	48	47	46	12	44	46	44	42	30	35	9.1	26
28	48	46	46	9.1	43	46	42	42	28	35	9.1	26
29	48	46	46	7.5	-	46	43	42	25	35	8.3	26
30	48	46	46	7.5	-	46	43	42	42	35	8.3	27
31	48	-	45	7.5	-	46	-	42	-	35	7.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,524	51	48	49.2	3,020
November.....	1,341	49	11	44.7	2,660
December.....	1,396	47	27	45.0	2,770
Calendar year 1949	15,733.7	75	8	43.1	31,210
January.....	870.6	52	0	28.1	1,730
February.....	1,145	52	7.5	40.9	2,270
March.....	1,425	49	41	46.0	2,830
April.....	1,306	46	42	43.5	2,690
May.....	1,334	45	42	43.0	2,650
June.....	994	42	7.0	33.1	1,970
July.....	1,109	46	26	35.8	2,200
August.....	575.8	34	7.5	18.6	1,140
September.....	424.8	31	7.5	14.2	843
Water year 1949-50	13,445.2	52	0	36.8	26,670

a No gage-height record; discharge computed on basis of comparison of combined canal and river flow with records for other stations in John Day River Basin.

JOHN DAY RIVER BASIN

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

Location.--Water-stage recorder, lat. 44°20', long. 118°39', in SW¹/₄ sec. 20, T. 14 S., R. 34 E., 100 feet upstream from Slide Creek and 8¹/₂ miles south of Prairie City.

Records available.--October 1930 to September 1950.

Average discharge.--20 years, 11.9 second-feet.

Extremes.--Maximum discharge during year, 84 second-feet June 22 (gage height, 2.04 feet); minimum, 1.9 second-feet Nov. 20, Mar. 30, 31, Apr. 1.
1930-50: Maximum discharge, 172 second-feet June 8, 1948; maximum gage height, 2.44 feet June 9, 1933; minimum discharge, 1.4 second-feet on several days in 1931, 1934, 1935, 1937, and on Nov. 19, 1939.

Remarks.--Records good. No diversion above station; some natural regulation by Strawberry Lake.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 17 to May 12)

1.1	0.6	1.6	24
1.2	3.0	1.7	33
1.3	7.0	1.8	45
1.4	12	1.9	59
1.5	18	2.1	95

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	2.5	3.4	2.7	b3.0	2.5	2.5	6.5	61	52	12	4.9
2	3.0	2.5	3.4	b3.0	b3.0	2.5	2.7	6.5	62	52	11	4.9
3	3.0	2.2	3.0	b3.0	b3.0	2.7	2.5	6.5	62	48	11	4.5
4	3.0	2.2	3.0	b3.0	b3.0	2.7	2.5	6.5	62	43	11	4.5
5	3.0	2.2	3.0	b3.0	3.0	2.7	2.5	6.1	64	40	11	4.1
6	3.0	2.2	3.0	3.0	2.7	2.7	2.7	5.7	69	36	11	4.1
7	3.0	2.5	3.0	2.7	2.5	2.5	2.7	5.7	62	35	10	4.1
8	3.0	2.5	3.0	3.0	2.5	2.5	2.7	5.3	56	33	10	3.7
9	3.0	2.5	3.0	3.0	2.2	*2.5	2.7	4.9	49	31	9.8	3.7
10	2.7	2.5	3.0	3.0	2.2	2.5	2.5	4.9	44	29	9.3	3.4
11	2.7	2.5	b3.0	3.0	2.2	2.5	2.5	5.7	43	28	9.3	3.4
12	2.7	2.2	b3.0	3.0	2.2	b2.5	2.7	7.4	41	26	9.3	3.4
13	2.5	2.2	3.0	3.0	2.2	2.5	3.4	14	41	25	8.8	3.0
14	2.7	2.2	3.0	2.7	2.2	2.5	3.4	18	41	23	8.3	3.0
15	2.7	2.2	3.0	2.7	2.2	2.5	3.4	21	45	22	8.3	3.0
16	2.7	2.2	*3.0	2.7	2.2	2.5	3.4	22	48	21	7.8	3.0
17	2.5	2.2	3.0	2.7	2.2	3.4	3.7	23	53	20	7.4	3.0
18	2.5	2.2	3.0	2.7	2.5	3.0	4.1	22	56	19	7.4	3.0
19	2.5	2.2	3.0	3.0	2.5	3.0	4.5	21	59	18	7.0	3.0
20	2.5	2.2	b3.0	3.0	2.5	2.7	5.3	21	66	18	7.0	2.7
21	2.5	2.2	3.0	3.4	2.5	2.7	6.5	24	78	17	6.5	2.7
22	2.5	2.2	3.0	3.4	2.5	2.7	7.8	28	80	16	6.5	2.7
23	2.5	3.0	3.0	3.0	2.5	2.7	7.8	32	68	16	6.1	2.7
24	2.5	3.0	3.0	b3.0	2.5	2.7	7.4	33	58	15	6.1	2.5
25	2.5	3.0	3.0	b3.0	2.5	2.5	7.0	35	52	15	6.1	2.7
26	2.5	3.0	3.0	3.0	2.7	2.5	6.5	39	45	14	5.7	3.0
27	2.5	3.7	3.0	3.0	2.7	2.5	6.5	45	43	14	5.7	2.7
28	2.5	3.7	3.0	2.7	2.7	2.5	6.5	51	43	14	5.3	2.7
29	2.7	3.4	3.0	b2.5	-	b2.5	6.5	53	46	13	5.3	2.7
30	2.5	3.4	3.0	*b2.5	-	1.9	6.5	56	51	13	4.9	2.5
31	2.5	-	2.7	b2.7	-	2.2	-	59	-	12	4.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-ft.
October.....	83.4	3.0	2.5	2.69	165
November.....	76.7	3.7	2.2	2.56	152
December.....	93.5	3.4	2.7	3.02	185
Calendar year 1949.....	4,690.1	104	2.5	12.8	9,300
January.....	90.1	3.4	2.5	2.91	179
February.....	70.6	3.0	2.2	2.52	140
March.....	80.3	3.4	1.9	2.59	159
April.....	131.4	7.8	2.5	4.38	261
May.....	688.7	59	4.9	22.2	1,370
June.....	1,649	80	41	55.0	3,270
July.....	780	52	12	25.2	1,550
August.....	249.8	12	4.9	8.06	495
September.....	99.3	4.9	2.5	3.31	197
Water year 1949-50.....	4,092.8	80	1.9	11.2	8,120

Peak discharge (base, 50 sec.-ft.)--June 6 (2 to 6 p.m.) 71 sec.-ft.; June 22 (7 a.m.) 84 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

North Fork John Day River near Dale, Oreg.

Location.--Water-stage recorder, lat. 45°00', long. 118°57', in SE $\frac{1}{4}$ sec. 35, T. 6 S., R. 31 E., three-eighths of a mile downstream from Desolation Creek and 1 $\frac{1}{2}$ miles north-east of Dale. Datum of gage is 2,775.85 feet above mean sea level, datum of 1929.

Drainage area.--525 square miles.

Records available.--October 1929 to September 1950.

Average discharge.--21 years, 371 second-feet.

Extremes.--Maximum discharge during year, 3,350 second-feet May 23 (gage height, 7.201 feet); minimum daily, 40 second-feet Jan. 5.

1929-50: Maximum discharge, 8,170 second-feet May 26, 1948 (gage height, 10.48 feet); minimum, 6 second-feet Nov. 3, 1936 (gage height, 1.40 feet).

Remarks.--Records excellent except those for periods of ice effect or no gage-height record, which are fair. Several small diversions above station for irrigation and mining cause diurnal fluctuation at low flow.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

2.1	40	3.1	242	5.0	1,230
2.3	64	3.5	387	5.5	1,620
2.5	96	4.0	620	6.0	2,060
2.8	159	4.5	900	7.0	3,110

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	68	a145	70	90	252	255	726	2,010	912	123	61
2	64	67	a125	60	105	245	430	750	2,050	816	117	61
3	60	67	a105	55	120	274	413	705	1,930	738	111	60
4	59	66	a80	45	150	292	351	690	1,930	665	107	55
5	70	66	a90	40	190	309	367	655	1,960	610	132	55
6												
7	84	63	allo	70	250	298	391	61Q	1,920	560	134	58
8	84	60	*96	100	240	248	379	570	1,710	502	121	58
9	82	68	81	120	220	242	391	560	1,560	457	113	58
10	74	76	64	110	200	224	383	570	1,380	434	107	59
11	84	81	55	100	160	212	371	670	1,300	434	107	60
12												
13	96	74	45	95	130	182	379	810	1,520	379	107	56
14	86	76	50	95	115	172	484	1,200	2,150	347	100	55
15	84	76	60	90	105	166	710	1,760	2,050	320	94	55
16	76	74	70	90	115	169	700	2,340	1,880	298	93	55
17	70	76	90	90	150	159	640	2,630	1,810	278	93	54
18												
19	72	72	90	100	215	169	630	2,660	1,870	258	86	55
20	70	76	90	95	201	300	715	2,720	1,660	239	82	55
21	64	67	90	90	172	320	774	2,240	1,650	230	79	55
22	60	65	80	100	154	356	810	1,920	1,560	221	76	56
23	55	60	65	120	148	292	948	1,300	1,520	218	73	59
24												
25	67	65	90	175	136	261	1,100	2,230	1,970	201	72	58
26	74	70	100	225	132	271	1,160	2,770	1,600	187	72	58
27	73	150	100	275	*143	230	1,000	3,060	1,370	176	70	58
28	72	190	96	200	204	230	846	2,660	1,240	166	76	56
29	72	187	104	140	278	215	786	2,410	1,100	157	91	55
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Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	2,287	96	55	73.8	4,540
November.....	2,873	200	60	95.8	5,700
December.....	2,704	145	45	87.2	5,360
Calendar year 1949	170,980	4,010	45	468	339,100
January.....	3,410	275	40	110	6,760
February.....	5,043	328	90	180	10,000
March.....	7,184	336	159	232	14,250
April.....	18,807	1,160	255	627	37,300
May.....	53,516	3,060	560	1,726	106,100
June.....	47,330	2,150	960	1,578	93,880
July.....	10,657	912	132	344	21,140
August.....	2,857	134	64	92.2	5,670
September.....	1,810	93	54	60.3	3,590
Water year 1949-50	158,478	3,060	40	434	314,300

Peak discharge (base, 1,200 sec.-ft.).--Apr. 22 (4 a.m.) 1,220 sec.-ft.; May 17 (12:30 a.m.) 3,040 sec.-ft.; May 23 (1 a.m.) 3,350 sec.-ft.; June 12 (1:30 a.m.) 2,480 sec.-ft.; June 21 (6:30 a.m.) 2,310 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for other stations in John Day River Basin.

Note.--Stage-discharge relation affected by ice Nov. 19-23, Dec. 10-23, Dec. 30 to Feb. 13.

JOHN DAY RIVER BASIN

North Fork John Day River at Monument, Oreg.

Location--Water-stage recorder, lat. 44°49', long. 119°26', in E½ sec. 1, T. 9 S., R. 27 E., just downstream from entrance to canyon, three-quarters of a mile west of Monument.

Drainage area--2,520 square miles.

Records available--March 1925 to September 1950.

Average discharge--24 years (1925-27, 1928-50), 1,105 second-feet.

Extremes--Maximum discharge during year, 5,620 second-feet May 15 (gage height, 7.58 feet); minimum, 88 second-feet Sept. 5, 15-17 (gage height, 2.68 feet).

1925-50: Maximum discharge, 22,000 second-feet Mar. 18, 1932 (gage height, 14.8 feet), from rating curve extended above 12,000 second-feet by logarithmic plotting; minimum, 6 second-feet sometime during period Nov. 2-13, 1936, when recorder was not operating.

Remarks--Records fair. Many small diversions above station for irrigation.

Revisions (water years)--W 754: 1932(M).

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	145	170	360	220	*b310	3,000	2,100	2,820	3,300	1,430	221	101
2	165	164	380	210	b350	2,500	3,500	3,240	3,300	1,290	209	99
3	145	164	320	200	b375	2,200	4,800	2,840	3,000	1,170	198	94
4	135	160	270	175	b425	3,500	4,000	2,860	2,900	1,050	188	94
5	135	160	230	145	b450	3,750	3,300	2,770	2,900	951	191	90
6	150	160	260	125	b550	3,750	3,500	2,590	2,850	888	233	90
7	160	155	290	200	bl,000	3,300	4,000	2,380	2,700	789	245	90
8	175	155	270	275	950	2,800	3,800	2,350	2,650	724	245	90
9	180	170	255	330	900	2,400	3,900	2,300	h2,560	652	209	92
10	170	190	240	300	850	2,000	3,500	2,350	2,410	644	198	92
11	180	210	190	280	800	hl,690	3,500	2,600	2,520	644	188	96
12	190	205	150	260	780	1,500	4,000	3,000	3,820	540	184	94
13	180	205	165	260	750	1,450	4,500	4,000	3,920	484	167	92
14	170	200	185	260	800	1,450	5,200	4,500	3,560	428	161	90
15	161	195	200	250	1,300	1,500	5,000	5,000	3,300	407	158	90
16	155	190	220	250	2,000	1,500	4,500	5,000	h3,100	376	155	88
17	164	185	*h245	250	3,000	2,000	4,500	5,000	3,000	358	146	88
18	164	185	275	250	2,200	3,500	4,800	4,500	3,000	330	143	90
19	158	185	275	250	2,100	4,200	4,900	4,000	2,900	320	137	90
20	143	170	230	350	1,900	3,700	5,000	3,600	2,700	315	132	90
21	140	160	220	900	1,800	3,200	5,200	4,000	3,300	310	127	92
22	146	155	250	1,200	1,500	2,800	5,000	4,700	h3,140	286	124	94
23	164	180	280	1,400	1,400	3,000	4,500	5,000	2,580	272	124	92
24	164	300	280	1,200	1,800	2,500	4,000	4,700	2,400	254	127	94
25	161	400	265	950	*h4,250	2,300	3,400	4,200	2,150	250	132	94
26	161	380	250	750	4,420	2,200	3,200	4,000	1,890	245	146	107
27	164	370	260	530	4,200	2,000	h3,050	4,000	1,750	241	140	122
28	167	450	250	530	4,000	1,900	2,900	4,000	1,630	237	124	152
29	167	540	245	450	-	1,800	2,630	3,800	1,560	229	114	149
30	180	420	240	380	-	1,600	2,510	3,600	1,490	237	107	137
31	184	-	230	300	-	1,800	-	3,200	-	233	103	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	5,023	190	135	162	9,960
November.....	6,953	540	155	231	13,750
December.....	7,780	380	150	251	15,430
Calendar year 1949	528,466	8,000	80	1,448	1,048,000
January.....	13,430	1,400	125	433	26,640
February.....	45,160	4,420	310	1,613	89,570
March.....	76,790	4,200	1,450	2,477	152,300
April.....	118,690	5,200	2,100	3,956	235,400
May.....	112,900	5,000	2,300	3,642	223,900
June.....	82,280	3,920	1,490	2,743	163,200
July.....	16,584	1,430	229	535	32,890
August.....	5,076	245	103	164	10,070
September.....	2,973	152	88	99.1	5,900
Water year 1949-50.....	493,619	5,200	88	1,352	979,000

Peak discharge (base, 4,900 sec.-ft.).--Apr. 2 (time and discharge unknown); Apr. 13 (about 8 p.m.) 5,490 sec.-ft.; May 15 (about 1 p.m.) 5,620 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

h Computed from staff-gage reading.

Note.--No gage-height record Oct. 1-14, Nov. 4 to Dec. 16, Dec. 18 to Jan. 31, Feb. 8-24, Mar.

1-10, Mar. 12 to Apr. 26, May 9 to June 8, June 17-21, discharge computed on basis of recorded range in stage when available, weather records, and records for stations upstream and downstream.

JOHN DAY RIVER BASIN

43

Desolation Creek near Dale, Oreg.

Location.--Water-stage recorder, lat. 44°59', long. 118°55', in SE $\frac{1}{4}$ sec. 1, T. 7 S., R. 31 E., 1 mile above mouth and 2 miles east of Dale.

Drainage area.--106 square miles.

Records available.--September 1949 to September 1950. July 1915 to September 1917 (fragmentary) at site three-quarters of a mile downstream, gage heights and discharge measurements only.

Extremes.--Maximum discharge during period September 1949 to September 1950, 616 second-feet June 11 (gage height, 2.78 feet); minimum, 4.8 second-feet Oct. 20.

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

Discharge, in second-feet, 1949-50

1949

Day	Discharge	Day	Discharge	Day	Discharge
Sept. 14	8.2	Sept. 20	9.0	Sept. 26	7.9
15	8.4	21	8.7	27	7.9
16	9.4	22	8.4	28	7.9
17	d12	23	8.4	29	d9.4
18	10	24	8.2	30	d14
19	9.7	25	7.9		

d Doubtful gage-height record; discharge computed on basis of records for North Fork John Day River near Dale.

Note.--Discharge measurements were made prior to Sept. 14 as follows: May 9, 600 sec.-ft.; July 21, 17 sec.-ft.; Aug. 13, 10 sec.-ft.

1949-50

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	12	26	b12	b16	58	96	170	418	192	24	10
2	10	12	22	b11	b17	54	122	167	418	160	22	10
3	9.4	11	14	b10	b19	72	95	148	424	146	21	9.7
4	9.0	11	14	b9	b22	78	78	140	418	129	21	9.4
5	d12	11	24	b8	24	86	88	131	413	118	28	9.4
6	14	11	17	b17	31	78	105	118	402	105	28	9.0
7	14	11	*16	b16	26	60	100	107	370	95	24	9.0
8	14	11	14	14	22	58	98	104	345	83	21	8.7
9	12	13	12	13	20	51	86	105	320	83	20	8.7
10	16	d15	b11	12	18	49	81	122	370	80	19	8.7
11	17	12	b10	12	18	41	85	143	424	69	18	8.4
12	14	12	b9	12	17	41	118	253	521	62	18	8.2
13	14	13	b10	12	17	40	181	402	483	58	17	8.2
14	12	13	b12	12	20	40	146	477	453	53	16	7.9
15	11	13	b15	12	37	38	131	402	424	49	16	7.9
16	11	12	b16	12	60	47	134	402	402	48	15	7.9
17	11	12	15	12	53	146	151	435	418	44	15	7.9
18	11	11	14	12	37	111	151	370	396	42	14	8.2
19	9.4	12	14	13	33	98	167	345	386	41	14	8.2
20	9.0	14	b12	b18	30	78	219	380	370	38	14	8.2
21	13	20	15	b70	26	69	271	391	447	36	13	7.9
22	13	24	14	120	26	71	271	477	370	33	13	7.9
23	13	26	14	88	*30	61	219	502	330	33	13	7.6
24	12	d32	13	b70	65	60	170	435	280	32	14	7.6
25	13	32	b12	b45	104	54	154	424	231	32	15	7.9
26	d13	24	14	b32	104	53	143	430	215	32	13	11
27	d14	29	13	b30	83	51	145	447	211	29	13	15
28	d15	53	13	b24	58	46	131	441	215	29	12	12
29	d16	30	14	b20	-	40	120	424	215	28	11	10
30	15	26	b12	b17	-	47	118	424	211	26	11	10
31	12	-	b13	*b15	-	51	-	408	-	25	11	-

Peak discharge (base, 200 sec.-ft.).--Mar. 17 (12:30 p.m.) 207 sec.-ft.; Apr. 21 (11:30 p.m.) 300 sec.-ft.; June 11 (11 p.m.) 616 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed on basis of records for North Fork John Day River near Dale.

Monthly discharge, in second-feet, 1949-50

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acres-feet
September 14-30, 1949.....	155.4	14	7.9	9.14	0.086	0.05	308
October 1949.....	390.8	17	9.0	12.6	.119	.14	775
November.....	548	53	11	18.3	.175	.19	1,080
December.....	444	28	9	14.3	.135	.16	881
Calendar year.....	-	-	-	-	-	-	-
January 1950.....	780	120	8	25.2	.238	.27	1,550
February.....	1,033	104	16	36.9	.348	.36	2,050
March.....	1,927	146	38	62.2	.587	.68	3,820
April.....	4,170	271	78	139	1.31	1.46	8,270
May.....	9,724	502	104	314	2.96	3.41	19,290
June.....	10,930	521	211	363	3.42	3.82	21,620
July.....	2,030	192	25	65.5	.618	.71	4,030
August.....	524	28	11	16.9	.159	.18	1,040
September.....	270.5	15	7.6	9.02	.085	.09	537
Water year 1949-50.....	32,741.3	521	7.6	89.7	.846	11.47	64,950

JOHN DAY RIVER BASIN

Camas Creek near Ukiah, Oreg.

Location.--Water-stage recorder, lat. 45°09', long. 118°49', in SE¹ sec. 3, T. 5 S., R. 32 E., 1.2 miles upstream from Cable Creek and 6 miles east of Ukiah.

Drainage area.--121 square miles.

Records available.--May 1914 to September 1917, November 1919 to June 1924 and October 1945 to September 1950 in reports of Geological Survey. May 1914 to September 1917, November 1919 to June 1924, March 1932 to September 1941 (incomplete) in reports of State engineer; October 1941 to September 1945 (incomplete) in files of State engineer.

Average discharge.--16 years (1914-17, 1919-23, 1940-44, 1945-50), 111 second-feet.

Extremes.--Maximum discharge during year, 771 second-feet Apr. 13 (gage height, 3.32 feet); minimum, 3.4 second-feet Sept. 4, 5.

1914-17, 1919-24, 1932-50: Maximum discharge, 2,350 second-feet Dec. 12, 1946, from rating curve extended above 810 second-feet by logarithmic plotting; minimum observed, 1 second-foot Aug. 1-9, 1932, June 24 to July 2, 1940.

Remarks.--Records good except those for periods of ice effect or doubtful or no gage-height record, which are fair. Small diversions above station for irrigation; no regulation.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 7 to Sept. 30)

1.0	2.3	1.5	29	2.3	188
1.1	4.1	1.6	41	2.5	263
1.2	7.5	1.7	55	2.8	413
1.3	12	1.9	89	3.2	680
1.4	20	2.1	132		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.1	5.8	25	a13	b60	202	461	155	190	69	9.0	3.9
2	4.8	5.8	23	a12	b70	192	552	195	200	61	8.5	3.7
3	4.4	5.5	b20	a10	b90	461	358	173	190	55	7.5	3.7
4	4.1	5.8	b15	a9	b160	455	272	167	190	49	8.0	3.7
5	a4.5	5.5	25	a8	b170	396	290	182	180	45	10	3.6
6	a5	5.5	17	a15	b180	343	396	167	180	41	10	3.7
7	a5.5	5.5	*14	h20	b170	255	343	150	170	36	9.0	3.7
8	a6.5	6.1	a12	a25	164	212	358	140	167	34	8.0	3.7
9	a7	6.8	a11	a21	145	176	319	147	145	30	7.2	3.6
10	a7.5	7.5	a10	a19	b140	153	294	145	145	31	7.2	3.6
11	a8	7.2	b9	a18	b135	132	328	158	207	27	6.5	3.6
12	a7.5	7.2	a10	a18	b130	118	473	182	413	25	6.5	3.6
13	a7	7.2	a14	a17	b120	109	680	231	425	23	6.5	3.6
14	a6.5	7.2	a17	a17	b150	105	473	276	358	22	6.1	3.6
15	6.5	6.8	a19	a17	b200	105	386	263	276	20	6.1	3.6
16	6.1	6.5	h20	a18	b350	118	380	260	247	19	6.5	3.7
17	5.5	6.5	a18	a17	b180	255	425	250	251	18	5.1	3.7
18	6.1	b6.5	a15	a17	161	294	h425	230	255	18	4.8	3.7
19	b6	b6	a14	a25	161	259	386	170	216	20	4.8	3.7
20	b5.5	b6	a13	a35	145	216	413	170	198	18	4.4	3.7
21	b5.5	b7	a17	a45	123	185	402	210	255	16	4.4	3.6
22	5.8	b11	a20	b55	109	182	374	250	202	15	4.4	3.6
23	6.1	19	a18	a60	*114	155	281	310	173	14	4.4	3.6
24	6.1	26	a17	a66	356	145	212	260	158	14	4.4	3.6
25	6.5	17	a15	a60	512	132	188	220	145	12	4.8	3.7
26	6.5	15	a17	a52	473	120	164	210	125	11	5.1	4.8
27	6.5	41	a19	a54	380	109	153	260	111	10	4.8	5.5
28	*6.5	45	a20	a52	255	103	142	240	97	10	4.1	5.5
29	6.8	27	a19	a50	-	91	127	220	85	12	3.9	5.1
30	6.1	27	a18	a45	-	99	123	200	78	11	3.9	4.8
31	5.8	-	a15	b50	-	135	-	180	-	10	3.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	187.3	8	4.1	6.04	372
November.....	361.9	45	5.5	12.1	718
December.....	516	25	9	16.6	1,020
Calendar year 1949	34,713.4	886	2.2	95.1	68,840
January.....	940	66	8	30.3	1,860
February.....	5,383	512	60	192	10,680
March.....	6,010	461	91	194	11,920
April.....	10,177	680	123	339	20,190
May.....	6,361	310	137	205	12,620
June.....	6,012	425	78	200	11,920
July.....	798	63	10	25.7	1,580
August.....	189.8	10	3.9	6.12	376
September.....	117.2	5.5	3.6	3.91	232
Water year 1949-50	37,051.2	680	3.6	102	73,490

Peak discharge (base, 550 sec.-ft.)--Mar. 3 (9 p.m.) 579 sec.-ft.; Apr. 1 (8 p.m.) 763 sec.-ft.; Apr. 13 (4 a.m.) 771 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for North Fork John Day River near Dale.

b Stage-discharge relation affected by ice.

c Computed from staff-gage reading.

Note.--Doubtful gage-height record May 16 to June 7 because of faulty inlet action; discharge computed as explained in footnote a.

Middle Fork John Day River at Ritter, Oreg.

Location.--Water-stage recorder, lat. 44°53', long. 119°08', in NW $\frac{1}{4}$ sec. 8, T. 8 S., R. 30 E., at bridge half a mile south of Ritter. Datum of gage is 2,544.56 feet above mean sea level, datum of 1929, supplemental adjustment of 1947.

Drainage area.--526 square miles.

Records available.--October 1929 to September 1950.

Average discharge.--21 years, 222 second-feet.

Extremes.--Maximum discharge during year, 1,140 second-feet Apr. 13 (gage height, 5.00 feet); minimum, 15 second-feet Sept. 19 (gage height, 1.81 feet).
1929-50: Maximum discharge, 4,000 second-feet Mar. 19, 1932, from rating curve extended above 2,200 second-feet; maximum gage height, 8.50 feet Feb. 18, 1949 (ice jam); minimum discharge, 1.0 second-foot Dec. 10, 1932.

Remarks.--Records good except those for periods of ice effect, which are fair. Several small diversions above station for irrigation.

Revisions (water years).--W 739: 1931.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.8	15	2.3	51	4.0	540
1.9	19	2.5	79	4.5	800
2.0	24	2.8	134	5.0	1,140
2.1	31	3.1	206		
2.2	40	3.5	330		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	41	86	42	80	360	513	615	620	217	39	20
2	39	41	73	35	100	323	896	640	635	198	37	20
3	36	40	63	30	130	482	756	590	610	183	37	20
4	36	40	41	25	180	570	620	565	615	163	37	19
5	38	40	50	20	210	575	605	565	615	156	47	20
6	42	40	64	30	250	545	706	526	600	143	54	19
7	48	40	58	60	230	424	701	482	600	132	51	19
8	52	43	55	70	210	387	734	459	580	120	46	19
9	51	49	50	65	180	337	723	454	495	118	40	19
10	52	58	40	65	150	*323	701	477	464	118	37	20
11	60	55	31	80	120	277	712	526	526	110	36	20
12	52	56	32	60	105	264	860	625	635	96	34	20
13	49	54	40	60	100	249	1,050	767	625	89	32	17
14	46	50	50	60	115	274	872	878	580	82	32	17
15	43	48	60	60	200	277	812	908	560	76	31	17
16	48	47	65	65	320	323	794	878	540	74	30	18
17	49	47	65	60	240	495	854	890	536	72	28	18
18	49	47	*58	60	274	670	878	800	522	68	26	17
19	48	46	50	70	264	605	872	718	486	67	25	16
20	42	43	43	120	252	540	934	685	472	64	24	17
21	44	40	50	250	217	472	1,020	718	560	60	24	17
22	42	40	65	341	206	531	1,020	789	490	58	22	17
23	43	55	65	240	252	450	902	836	424	54	22	18
24	42	93	60	158	433	411	778	778	379	50	25	18
25	42	84	50	112	605	375	712	728	348	47	25	23
26	43	73	55	105	595	367	670	712	306	43	24	27
27	42	84	58	114	575	334	670	728	283	42	23	31
28	*43	126	56	103	424	330	645	701	264	42	24	31
29	46	96	50	85	-	286	580	665	246	42	23	29
30	47	84	48	80	-	310	550	645	231	43	22	29
31	43	-	46	65	-	313	-	615	-	42	22	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,404	60	36	45.3	2,780
November.....	1,700	128	40	56.7	3,370
December.....	1,677	86	31	54.1	3,530
Calendar year 1949	96,796	1,340	17	265	192,000
January.....	2,770	341	20	89.4	5,490
February.....	7,017	605	80	251	13,920
March.....	12,479	670	249	403	24,750
April.....	23,140	1,050	513	771	45,900
May.....	20,963	908	454	676	41,580
June.....	14,847	635	231	495	29,450
July.....	2,869	217	42	92.5	5,690
August.....	979	54	22	31.6	1,940
September.....	612	31	16	20.4	1,210
Water year 1949-50	90,457	1,050	16	248	179,400

Peak discharge (base, 760 sec.-ft.),--Apr. 2 (8 a.m.) 948 sec.-ft.; Apr. 13 (12 m.) 1,140 sec.-ft.; May 15 (8 a.m.) 934 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 21, 22, Dec. 5, 10-30, Jan. 1-21, Jan. 29 to Feb. 17.

JOHN DAY RIVER BASIN

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

Location.--Water-stage recorder, lat. 44°37', long. 119°16', in NW¼ sec. 17, T. 11 S., R. 29 E., at head of gorge, 6 miles southwest of Fox.

Drainage area.--90.2 square miles (revised).

Records available.--October 1930 to September 1950.

Average discharge.--20 years, 22.6 second-feet.

Extremes.--Maximum discharge during year, 180 second-feet Mar. 17; maximum gage height, 2.87 feet Feb. 25 (ice jam); practically no flow Aug. 1 to Sept. 30.
1930-50: Maximum discharge, 1,850 second-feet May 22, 1948 (gage height, 5.84 feet), by slope area-method; no flow at times.

Remarks.--Records good except those for periods of ice effect, which are poor. Several diversions above station for irrigation.

Revisions (water years).--W 754: 1932(M).

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.4	0	0.9	6.0	1.4	37
.5	0.2	1.0	10	1.5	48
.6	.8	1.1	15	1.7	74
.7	1.9	1.2	21	2.0	117
.8	3.6	1.3	28	2.3	169

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.1	2.4	1.3	2.1	56	89	70	20	7.2	0	0
2	.1	.1	2.1	1.1	2.2	60	88	74	18	5.8	0	0
3	.1	.1	1.5	.8	3.0	85	73	66	16	5.0	0	0
4	.1	.1	1.4	.9	5.0	80	65	73	15	4.3	0	0
5	.2	.1	1.7	.8	6.0	87	65	70	14	3.4	0	0
6	.2	.1	1.7	.9	9.0	60	94	62	14	3.1	0	0
7	.2	.2	1.8	1.0	8.0	54	94	56	22	2.9	0	0
8	.2	.2	1.5	1.0	8.0	49	81	54	26	2.6	0	0
9	.2	.7	1.5	.9	7.0	45	68	53	21	2.4	0	0
10	.3	1.0	1.4	1.0	6.0	48	61	49	20	2.8	0	0
11	.2	1.0	1.1	1.1	6.0	*34	61	57	26	2.4	0	0
12	.2	.9	1.1	1.1	5.5	66	71	65	46	2.1	0	0
13	.1	.8	1.3	1.1	5.5	38	99	80	35	1.8	0	0
14	.1	.9	1.4	1.1	7.0	46	89	96	30	1.6	0	0
15	.1	.9	1.5	1.1	12	61	78	99	28	1.2	0	0
16	.1	1.0	1.6	1.1	20	87	75	95	32	1.1	0	0
17	.1	.9	1.0	1.1	18	152	75	94	34	1.1	0	0
18	.1	.9	.8	1.2	16	114	74	85	30	.9	0	0
19	.1	.9	.8	1.4	15	105	81	74	23	.8	0	0
20	.1	.9	.8	2.0	14	94	92	66	26	.6	0	0
21	.1	1.0	.8	5.0	13	68	99	62	35	.6	0	0
22	.1	1.0	.8	4.0	12	96	101	61	24	.6	0	0
23	.1	2.1	.8	3.5	17	78	89	58	22	.5	0	0
24	.1	2.2	.8	3.0	70	66	75	53	20	.2	0	0
25	.1	1.9	.9	3.0	100	60	70	46	18	.2	0	0
26	.1	1.9	.9	2.8	80	68	68	40	17	.1	0	0
27	.1	3.8	1.9	2.6	70	75	71	36	14	.1	0	0
28	.1	5.3	1.1	2.5	64	58	78	35	15	.1	0	0
29	.1	2.6	1.4	*2.3	-	45	70	32	11	.1	0	0
30	.1	2.9	1.4	2.1	-	45	61	28	8.8	.1	0	0
31	.1	-	1.4	2.0	-	57	-	24	-	.1	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	4.0	0.3	0.1	0.13	7.9
November.....	34.5	3.8	.1	1.15	68
December.....	39.6	2.4	.8	1.28	79
Calendar year 1949	8,272.8	238	0	22.7	16,410
January.....	54.9	5.0	.8	1.77	109
February.....	601.3	102	2.1	21.5	1,190
March.....	2,107	152	34	68.0	4,180
April.....	2,355	101	61	78.5	4,670
May.....	1,913	99	24	61.7	3,790
June.....	678.8	46	8.8	22.6	1,350
July.....	55.8	7.2	.1	1.80	111
August.....	0	0	0	0	0
September.....	0	0	0	0	0
Water year 1949-50	7,843.9	152	0	21.5	15,550

Peak discharge (base, 150 sec.-ft.).--Mar. 17 (5 p.m.) 180 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 6, 9, 11-17, 19, 20, Jan. 1 to Feb. 27.

DESCHUTES RIVER BASIN

47

Deschutes River below Snow Creek, near Lapine, Oreg.

Location.--Water-stage recorder, lat. 43°49', long. 121°46', in NW¼ sec. 28, T. 20 S., R. 8 E., 50 feet downstream from Snow Creek, upstream from flowline of Crane Prairie Reservoir, and 17 miles northwest of Lapine. Altitude of gage, about 4,445 feet.

Records available.--November 1937 to September 1950.

Average discharge.--12 years (1938-50), 131 second-feet

Extremes.--Maximum discharge during year, 331 second-feet Aug. 24; maximum gage height, 3.54 feet sometime between Dec. 11 to Feb. 4 (ice jam); minimum discharge, 83 second-feet Mar. 12-16 (gage height, 1.16 feet).

1937-50: Maximum discharge, 362 second-feet Aug. 31, Sept. 1, 1943; maximum gage height, 4.12 feet Jan. 21, 1943 (ice jam); minimum discharge, 43 second-feet Dec. 27, 1941 (gage height, 1.12 feet).

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

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from moss or debris July 28 to Sept. 30)

1.1	70	1.6	188
1.2	91	2.0	272
1.4	138	2.4	330

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	211	168	148	130	105	89	93	100	202	229	288	312
2	209	168	148	130	105	89	89	100	204	229	292	311
3	206	166	146	130	105	91	87	100	204	229	293	311
4	209	166	146	130	105	89	87	98	206	229	296	309
5	215	163	146	130	100	91	89	98	206	229	298	307
6	213	163	146	120	98	89	89	98	213	229	301	306
7	211	160	146	120	96	87	89	100	215	229	303	306
8	206	163	146	120	96	87	89	102	215	229	304	304
9	206	166	146	120	96	87	87	105	215	231	309	303
10	204	163	146	120	96	87	87	107	222	231	314	300
11	204	166	140	120	96	85	89	112	262	229	315	301
12	200	160	140	120	96	b83	91	116	251	229	318	300
13	195	160	140	*120	96	85	91	121	235	231	319	296
14	190	158	140	120	100	83	89	126	233	231	321	285
15	188	156	140	120	98	83	91	131	233	233	322	293
16	188	156	140	120	96	87	93	140	235	235	322	292
17	188	153	140	120	96	*91	96	146	235	237	322	292
18	186	150	140	120	96	91	96	148	233	239	323	290
19	183	150	140	120	96	89	96	150	233	241	324	288
20	180	148	140	120	93	87	98	156	233	243	324	283
21	178	148	130	110	91	89	100	163	233	247	324	281
22	178	146	130	110	91	87	98	170	231	251	327	279
23	178	150	130	110	93	87	96	176	233	255	329	277
24	178	150	130	110	98	85	98	180	235	259	329	274
25	176	148	130	110	96	85	98	183	233	262	327	274
26	173	148	130	110	93	85	98	188	233	266	320	276
27	173	160	130	110	91	85	100	193	233	272	315	270
28	173	150	130	110	89	85	98	195	231	276	315	266
29	170	148	130	110	-	85	98	197	231	279	315	266
30	168	150	130	110	-	85	100	200	231	281	315	262
31	168	-	130	110	-	87	-	200	-	286	314	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	5,905	215	168	190	11,710
November.....	4,701	168	146	157	9,320
December.....	4,294	148	130	139	8,520
Calendar year 1949.....	63,087	295	85	173	125,100
January.....	3,660	130	110	118	7,260
February.....	2,707	105	89	96.7	5,370
March.....	2,695	91	83	86.9	5,350
April.....	2,800	100	87	93.3	5,550
May.....	4,399	200	98	142	8,730
June.....	6,809	262	202	227	13,510
July.....	7,576	286	229	244	15,030
August.....	9,738	329	288	314	19,320
September.....	8,724	312	262	291	17,300
Water year 1949-50.....	64,008	329	83	175	127,000

^a Winter discharge measurement made on this day.

^b Stage-discharge relation affected by ice.

Note.--No gage-height record Dec. 11 to Feb. 3; discharge computed on basis of records for Cultus River above Cultus Creek, near Lapine.

DESCHUTES RIVER BASIN

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

Location.--Water-stage recorder, lat. 43°45', long. 121°47', in NW¹ sec. 16, T. 21 S., R. 8 E., 200 yards downstream from Crane Prairie Dam and 15 miles northwest of Lapine.

Drainage area.--244 square miles.

Records available.--January 1914 to June 1917, February 1922 to September 1950.

Average discharge.--29 years (1914-15, 1922-50), 190 second-feet.

Extremes.--Maximum discharge during year, 919 second-feet May 24, June 4 (gage height, 2.95 feet); minimum, 29 second-feet Apr. 19-25 (gage height, 0.54 foot).
1914-17, 1922-50: Maximum discharge, 1,170 second-feet July 28, 1947 (gage height, 3.34 feet); minimum, 2 second-feet Dec. 21, 1940, Nov. 1, 1942, June 13-25, 1948.

Remarks.--Records good. No diversions above station; flow partly regulated since Nov. 4, 1922, by Crane Prairie Reservoir (see p. 56).

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

0.5	24	1.3	181
.6	37	1.6	280
.7	52	2.0	435
.9	85	2.4	610
1.1	126	3.0	945

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	632	447	155	115	122	37	30	320	893	772	435	43
2	632	147	155	115	122	37	30	610	900	754	443	43
3	628	147	155	115	122	37	30	606	900	738	447	43
4	624	147	155	115	122	37	30	601	906	722	451	44
5	650	147	155	115	122	37	30	596	906	732	451	44
6	738	147	155	115	122	37	32	592	906	766	443	44
7	738	149	155	115	122	37	32	588	893	766	447	44
8	732	149	155	115	122	37	32	588	880	738	451	44
9	727	149	158	115	122	37	30	578	868	716	451	44
10	722	149	136	115	122	36	30	578	850	695	423	44
11	722	149	115	117	122	36	30	574	838	675	221	44
12	722	152	115	117	122	34	30	574	832	a660	34	44
13	716	152	115	117	122	34	30	690	826	a650	34	44
14	705	152	115	117	122	34	30	814	814	a610	36	44
15	700	152	115	117	122	33	30	808	796	a590	36	44
16	695	152	115	117	73	33	30	802	784	a570	36	46
17	690	152	115	117	34	32	30	832	766	552	36	46
18	685	152	115	117	34	32	30	906	749	542	37	46
19	675	152	115	117	34	32	30	900	754	529	37	46
20	670	152	115	117	36	32	29	886	744	502	37	46
21	665	152	115	117	36	32	29	880	700	484	37	48
22	665	152	115	117	36	32	30	880	670	475	38	48
23	665	152	115	119	37	32	30	893	655	467	38	48
24	655	152	115	119	37	30	30	900	646	455	40	48
25	655	152	115	119	37	30	30	906	637	455	40	48
26	646	152	115	119	37	30	30	893	632	455	40	48
27	642	152	115	119	37	30	30	900	632	451	42	49
28	637	152	115	119	37	30	68	893	632	455	42	49
29	632	155	115	119	-	30	119	886	680	443	42	49
30	628	155	115	119	-	30	119	880	778	435	42	49
31	619	-	115	119	-	30	-	893	-	431	42	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	20,912	738	619	675	41,480
November.....	4,821	147	147	161	9,560
December.....	3,949	158	115	127	7,830
Calendar year 1949	79,340	738	48	217	157,400
January.....	3,625	119	115	117	7,190
February.....	2,335	122	34	83.4	4,630
March.....	1,037	37	30	33.5	2,060
April.....	1,120	119	29	37.3	2,220
May.....	23,247	906	320	750	46,110
June.....	23,467	906	632	782	46,550
July.....	18,265	772	431	589	36,230
August.....	5,429	451	34	175	10,770
September.....	1,371	49	43	45.7	2,720
Water year 1949-50	109,578	906	29	300	217,400

a No gage-height record; discharge interpolated.

Deschutes River below Wickiup Reservoir, near Lapine, Oreg.

Location.--Water-stage recorder, lat. 43°41', long. 121°41', in NE $\frac{1}{4}$ sec. 7, T. 22 S., R. 9 E., about 2,000 feet downstream from Wickiup Dam and 9 miles west of Lapine.
Datum of gage is 4,257.41 feet above mean sea level (levels by Bureau of Reclamation).

Records available.--June 1938 to September 1950.

Average discharge.--12 years, 678 second-feet.

Extremes.--Maximum discharge during year, 2,020 second-feet Aug. 22 (gage height, 7.43 feet); minimum, 13 second-feet Dec. 1 (gage height, 0.88 foot).
1938-50: Maximum discharge, that of Aug. 22, 1950; no flow Oct. 20, 1948.

Remarks.--Records good. Flow regulated by Crane Prairie Reservoir and since Dec. 24, 1942, by Wickiup Reservoir (see p. 56).

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

1.2	34	2.2	189	4.6	865
1.4	55	2.6	281	5.8	1,310
1.6	81	3.1	405	7.4	2,010
1.9	130	3.8	610		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,210	63	52	47	52	170	405	858	1,210	1,480	1,980	2,000
2	1,220	66	46	47	52	198	405	858	1,220	1,540	1,980	1,980
3	1,150	54	47	52	52	236	408	862	1,210	1,650	1,970	1,970
4	1,100	50	43	48	53	234	408	862	1,210	1,710	1,970	1,990
5	1,060	47	39	48	54	225	408	865	1,210	1,740	1,960	1,980
6	942	47	40	48	55	234	408	865	1,210	1,790	1,960	1,990
7	900	48	40	48	55	269	408	872	1,210	1,780	1,960	1,980
8	914	48	40	48	81	286	410	879	1,210	1,780	1,950	1,990
9	924	48	40	50	137	332	410	882	1,170	1,780	1,940	2,000
10	854	50	41	50	168	360	410	882	1,140	1,780	1,940	1,990
11	658	50	41	48	168	360	410	879	1,150	1,780	1,930	2,000
12	460	51	42	48	168	362	410	949	1,110	1,780	1,930	1,770
13	430	51	39	50	168	362	410	1,090	1,030	1,780	1,920	1,650
14	420	51	37	50	170	362	410	1,190	1,030	1,780	1,920	1,640
15	422	51	41	50	170	362	410	1,230	1,030	1,780	1,910	1,610
16	430	52	41	50	172	365	408	1,240	1,030	1,880	1,910	1,640
17	300	52	42	50	172	365	408	1,280	1,030	1,880	1,900	1,630
18	243	45	43	51	172	365	514	1,300	1,030	1,890	1,900	1,650
19	255	47	39	52	172	375	634	1,310	1,030	1,960	1,890	1,670
20	252	48	38	53	170	380	634	1,310	1,030	1,960	1,890	1,630
21	241	50	42	53	176	380	634	1,310	1,030	1,950	1,880	1,610
22	246	51	45	55	146	380	634	1,310	1,030	1,920	1,970	1,600
23	250	47	42	55	152	385	667	1,310	1,030	1,940	2,010	1,590
24	250	45	41	54	170	400	757	1,310	1,030	1,950	1,990	1,450
25	220	44	42	53	170	405	788	1,310	1,030	1,960	1,980	1,380
26	187	46	41	53	170	405	840	1,310	1,040	1,960	2,000	1,370
27	196	51	45	54	170	405	865	1,250	1,040	2,000	1,990	1,370
28	187	52	48	54	170	405	862	1,200	1,040	2,000	1,990	1,290
29	189	52	47	53	-	405	858	1,210	1,090	1,990	1,990	1,250
30	191	54	47	53	-	405	854	1,210	1,380	1,990	1,980	1,260
31	115	-	47	52	-	405	-	1,210	-	1,980	1,980	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	16,396	1,220	115	529	32,520
November.....	1,511	66	44	50.4	3,000
December.....	1,318	52	37	42.5	2,610
Calendar year 1949	248,602	1,850	37	681	493,100
January.....	1,572	55	47	50.7	3,120
February.....	3,785	176	52	135	7,510
March.....	10,582	405	170	341	20,990
April.....	16,487	865	405	550	32,700
May.....	34,403	1,310	858	1,110	68,240
June.....	33,240	1,380	1,030	1,108	65,930
July.....	57,150	2,000	1,480	1,844	113,400
August.....	60,470	2,010	1,880	1,951	119,900
September.....	50,930	2,000	1,250	1,698	101,000
Water year 1949-50	287,844	2,010	37	789	570,900

DESCHUTES RIVER BASIN

Deschutes River at Pringle Falls, near Lapine, Oreg.

Location.--Water-stage recorder, lat. 43°44', long. 121°37', in SW¹/₄ sec. 23, T. 21 S., R. 9 E., half a mile upstream from bridge at Pringle Falls and 7 miles northwest of Lapine.

Records available.--December 1915 to June 1917, June 1922 to September 1950.

Average discharge.--27 years (1923-50), 702 second-feet.

Extremes.--Maximum discharge during year, 2,040 second-feet Aug. 31 (gage height, 5.72 feet); minimum, 41 second-feet Nov. 1 (gage height, 1.36 feet).

1915-17, 1922-50: Maximum discharge, that of Aug. 31, 1950; minimum, 30 second-feet Mar. 3, Nov. 2, 1948.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. No diversion above station. Flow regulated since 1922 by Crane Prairie Reservoir, and since Dec. 24, 1942, by Wickiup Reservoir (see p. 56).

Revisions (water years).--W 1014: 1943(m).

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.5	52	2.4	206	4.3	1,010
1.7	72	2.8	323	5.0	1,480
1.9	100	3.2	470	5.8	2,100
2.1	136	3.7	690		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,140	63	55	57	60	163	404	850	1,200	1,440	1,980	2,050
2	1,160	80	61	b57	60	184	404	850	1,200	1,490	1,970	2,010
3	1,110	59	60	b58	60	222	404	850	1,200	1,610	1,970	1,970
4	1,050	58	59	b60	62	229	404	850	1,200	1,670	1,950	1,960
5	1,030	54	55	b60	65	216	404	850	1,210	1,690	1,960	1,970
6	912	54	55	b60	65	216	404	850	1,210	1,750	1,960	1,980
7	862	54	55	b60	65	262	404	870	1,210	1,760	1,950	1,990
8	873	55	53	b60	100	269	404	870	1,210	1,780	1,960	1,990
9	884	56	55	b60	150	310	404	880	1,160	1,750	1,850	2,000
10	830	56	55	b60	170	350	404	880	1,130	1,750	1,850	1,990
11	670	56	b55	b60	170	350	408	880	1,150	1,750	1,940	1,990
12	454	56	56	b60	170	350	408	950	1,120	1,740	1,940	1,830
13	423	56	55	b60	170	350	408	1,050	1,020	1,740	1,930	1,650
14	408	56	50	b60	170	350	408	1,150	1,020	1,740	1,920	1,650
15	412	56	56	b60	170	350	408	1,240	1,020	1,740	1,920	1,640
16	419	56	57	b60	170	350	408	1,250	1,020	1,840	1,920	1,650
17	324	*56	58	b60	170	350	408	1,280	1,020	1,860	1,920	1,660
18	227	56	60	b60	170	350	486	1,310	1,020	1,840	1,910	1,870
19	229	56	b55	b60	170	354	645	1,300	1,020	1,920	1,910	1,890
20	238	56	b55	b60	170	364	645	1,310	1,020	1,920	1,910	1,660
21	224	56	59	b65	*172	368	645	1,310	1,010	1,920	1,900	1,640
22	224	57	61	b55	149	368	645	1,310	1,010	1,920	1,950	1,620
23	227	59	59	b65	138	371	670	1,310	1,010	1,920	2,010	1,610
24	229	54	56	b65	165	386	780	1,310	1,010	1,930	2,000	1,510
25	224	54	b57	b65	165	400	815	1,310	1,010	1,940	2,000	1,410
26	160	55	b57	b65	165	400	815	1,310	1,010	1,940	2,010	1,400
27	188	59	56	b65	155	400	850	1,260	1,010	1,990	2,000	1,400
28	172	55	b56	b65	163	400	850	1,200	1,010	1,990	2,000	1,340
29	174	55	b57	b65	-	400	840	1,200	1,040	1,990	2,020	1,270
30	174	55	b57	b62	-	400	840	1,200	1,300	1,990	2,010	1,280
31	137	-	b57	60	-	404	-	1,200	-	1,980	2,010	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	15,788	1,160	137	509	31,320
November.....	1,708	80	54	56.9	3,390
December.....	1,752	61	50	56.5	3,480
Calendar year 1949	248,664	1,850	50	681	493,200
January.....	1,899	65	57	61.3	3,770
February.....	3,839	172	60	137	7,610
March.....	10,226	404	163	330	20,280
April.....	16,422	850	404	547	32,570
May.....	34,290	1,310	850	1,106	68,010
June.....	32,780	1,300	1,010	1,093	65,020
July.....	56,280	1,990	1,440	1,815	111,600
August.....	60,750	2,020	1,900	1,960	120,500
September.....	51,460	2,030	1,270	1,715	102,100
Water year 1949-50	287,194	2,030	50	787	569,600

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Jan. 1 to Feb. 20, Apr. 27 to May 14; discharge computed on basis of weather records and records for station below Wickiup Reservoir.

Deschutes River at Benham Falls, near Bend, Oreg.

Location.--Water-stage recorder, lat. 43°56', long. 121°25', in SE $\frac{1}{4}$ sec. 9, T. 19 S., R. 11 E., 50 yards upstream from head of Benham Falls, $\frac{1}{2}$ miles downstream from dam site for proposed Benham Falls Reservoir, and 10 miles southwest of Bend. Altitude of gage, 4,143 feet (from river-profile map).

Records available.--March 1909 to September 1913, August 1920 to September 1921, February 1924 to September 1950. July 1906 to February 1909 and April to September 1914 at West Ranch, 7 miles upstream.

Average discharge.--33 years (1906-13, 1924-50), 1,311 second-feet.

Extremes.--Maximum discharge during year, 2,710 second-feet July 21 (gage height, 4.60 feet); minimum, 448 second-feet sometime during period of no gage-height record Jan. 11 to Feb. 3 (computed from recorded range in stage); minimum daily, 520 second-feet Jan. 14.

1906-13, 1920-21, 1924-50: Maximum discharge, 5,000 second-feet (estimated) Nov. 27, 1909 (gage height not determined); minimum 448 second-feet sometime during period Jan. 11 to Feb. 3, 1950; minimum daily, 480 second-feet Feb. 12, 1948.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Small diversions above station for irrigation. Flow regulated since 1922 by Crane Prairie and Crescent Lake Reservoirs, and since December 1942 by Wickiup Reservoir (see p. 56).

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.4	495	2.6	1,390
1.1	725	3.5	1,920
1.8	1,000	4.6	2,710

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,670	666	725	585	620	1,020	1,180	1,960	2,430	2,370	2,680	2,500
2	1,680	602	704	570	630	1,050	1,200	1,960	2,420	2,430	2,670	2,500
3	1,690	588	683	525	630	1,130	1,220	1,960	2,440	2,470	2,660	2,500
4	1,660	573	662	576	627	1,160	1,240	1,940	2,440	2,540	2,650	2,500
5	1,610	567	662	588	644	1,120	1,260	1,940	2,440	2,610	2,630	h2,480
6	1,580	561	648	579	666	1,090	1,260	1,940	2,450	2,630	2,620	2,500
7	1,470	561	644	579	662	1,090	1,260	1,930	2,450	2,680	2,620	2,500
8	1,420	564	641	576	658	1,100	1,260	1,900	2,440	2,690	2,620	2,500
9	1,430	576	634	576	662	1,080	1,260	1,870	2,440	2,690	2,620	2,500
10	1,440	582	620	576	711	1,100	1,240	1,850	2,400	2,680	2,610	2,500
11	1,370	588	549	560	772	1,110	1,220	1,840	2,430	2,670	2,570	2,500
12	1,200	592	573	560	776	1,090	1,220	1,820	2,530	2,650	2,560	2,500
13	1,020	585	596	560	776	1,070	1,220	1,900	2,490	2,640	2,540	2,500
14	976	588	606	520	788	1,070	1,230	2,030	2,420	2,620	2,520	2,350
15	956	588	596	560	808	1,060	1,240	2,140	2,490	2,620	2,520	h2,190
16	948	588	610	570	820	1,070	1,240	2,210	2,450	2,600	2,490	2,200
17	948	585	613	580	824	1,110	1,240	2,260	2,400	2,630	2,490	2,200
18	840	582	606	560	828	1,140	1,240	2,300	2,360	2,660	2,480	2,200
19	753	582	579	580	832	1,170	1,400	2,360	2,320	2,650	2,470	2,190
20	750	579	537	620	840	1,200	1,520	2,400	2,280	2,690	2,460	2,200
21	753	576	588	610	840	1,200	1,540	2,430	2,260	2,700	2,450	2,190
22	742	576	592	610	848	1,200	1,570	2,460	2,230	2,700	2,440	2,170
23	739	582	596	610	844	1,190	1,580	2,470	2,210	2,690	2,450	2,150
24	742	602	599	610	872	1,180	1,660	2,460	2,190	2,690	2,510	2,140
25	742	592	585	600	928	1,180	1,780	2,470	2,160	2,690	2,520	2,080
26	732	624	588	600	956	1,180	1,820	2,470	2,150	2,690	2,520	1,970
27	686	658	588	600	984	1,160	1,890	2,470	2,140	2,690	2,530	1,930
28	708	662	582	560	1,000	1,160	1,910	2,460	2,140	2,690	2,530	1,910
29	694	658	582	580	-	1,140	1,920	2,430	2,120	2,700	2,520	1,850
30	690	714	582	590	-	1,140	1,930	2,440	2,140	2,700	2,520	1,770
31	697	-	579	600	-	1,140	-	2,440	-	2,690	2,500	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	33,336	1,690	686	1,075	66,120
November.....	17,951	714	561	598	35,610
December.....	18,949	725	537	611	37,580
Calendar year 1949.....	491,595	2,520	520	1,347	975,100
January.....	17,970	620	520	580	35,640
February.....	21,846	1,000	620	780	43,330
March.....	34,900	1,200	1,020	1,126	69,220
April.....	42,750	1,930	1,180	1,425	84,790
May.....	67,510	2,470	1,820	2,178	135,900
June.....	70,260	2,530	2,120	2,342	139,400
July.....	81,850	2,700	2,370	2,640	162,300
August.....	78,970	2,680	2,440	2,547	156,600
September.....	68,170	2,500	1,770	2,272	135,200
Water year 1949-50.....	554,462	2,700	520	1,519	1,100,000

h Computed from staff-gage reading.

Note.--No gage-height record Jan. 11 to Feb. 3, Aug. 29 to Sept. 18, except Sept. 5, 15, when staff gage was read; discharge computed on basis of records for station below Lava Island, adjusted for flow in Arnold Canal, and unpublished records for stations below Benham Falls and at Ryan Ranch.

Deschutes River below Lava Island, near Bend, Oreg.

Location.--Water-stage recorder, lat. 44°00', long. 121°22', in SW¹/₄ sec. 23, T. 18 S., R. 11 E., three-quarters of a mile downstream from Lava Island, 1 mile downstream from intake of Arnold Canal, and 6 miles southwest of Bend.

Records available.--March 1926 to September 1950.

Average discharge.--24 years, 1,081 second-feet.

Extremes.--Maximum discharge during year, 2,510 second-feet July 8 (gage height, 3.33 feet); minimum, 416 second-feet Jan. 18 (gage height, 0.79 foot).

1926-50: Maximum discharge, that of July 8, 1950; minimum, that of Jan. 18, 1950.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Arnold Canal diverts water above station for irrigation (see p. 67). Flow regulated by Crescent Lake and Crane Prairie and Wickiup Reservoirs (see p. 56).

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.9	460	2.1	1,280
1.2	610	2.6	1,750
1.6	870	3.3	2,480

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,480	628	652	525	580	*940	1,040	1,770	2,180	1,950	2,450	2,290
2	1,490	566	634	530	590	980	1,110	1,780	2,160	2,120	2,450	2,300
3	1,500	550	616	b500	580	1,040	1,130	1,780	2,170	2,170	2,440	2,300
4	1,490	540	599	535	590	1,080	1,140	1,770	2,180	2,250	2,420	2,290
5	1,490	530	599	550	600	1,050	1,160	1,760	2,180	2,320	2,420	2,270
6	1,500	520	577	540	590	1,020	1,040	1,770	2,180	2,350	2,410	2,280
7	1,410	520	582	540	590	1,010	1,120	1,760	2,190	2,380	2,410	2,280
8	1,530	520	577	545	590	1,020	1,130	1,750	2,180	2,420	2,410	2,280
9	1,350	535	572	545	590	1,010	1,150	1,700	2,180	2,420	2,420	2,290
10	1,360	540	572	540	620	1,030	1,110	1,660	2,160	2,410	2,400	2,290
11	1,310	550	515	525	670	1,040	1,090	1,690	2,170	2,410	2,380	2,290
12	1,140	550	520	540	690	1,010	1,080	1,670	2,270	2,390	2,360	2,290
13	948	545	545	530	710	996	1,070	1,710	2,270	2,390	2,350	2,260
14	905	545	560	469	710	988	1,080	1,710	2,190	2,380	2,340	2,100
15	884	545	545	540	710	988	1,080	1,690	2,230	2,360	2,330	2,000
16	870	545	540	540	740	988	1,090	1,960	2,260	2,350	2,320	1,980
17	870	545	545	550	750	1,030	1,090	1,980	2,200	2,360	2,300	1,980
18	794	545	540	515	770	1,050	1,080	2,020	2,140	2,390	2,290	2,020
19	696	545	530	b580	760	1,080	1,200	2,090	2,080	2,390	2,280	2,100
20	696	540	496	594	760	1,110	1,340	2,120	2,040	2,410	2,270	2,110
21	696	*540	535	582	750	1,120	1,380	2,150	2,000	2,440	2,260	2,110
22	683	535	545	572	750	1,120	1,410	2,170	1,980	2,440	2,250	2,070
23	683	545	535	577	750	1,100	1,420	2,180	2,020	2,440	2,250	1,980
24	690	555	545	572	750	1,090	1,460	2,180	1,950	2,440	2,290	2,000
25	690	545	540	550	770	1,100	1,570	2,180	1,930	2,440	2,320	2,000
26	683	560	535	572	810	1,090	1,620	2,180	1,910	2,440	2,320	1,880
27	634	594	535	572	850	1,080	1,700	2,180	1,890	2,420	2,300	1,810
28	652	594	530	b525	900	1,060	1,750	2,190	1,880	2,420	2,300	1,790
29	640	594	525	550	-	1,040	1,750	2,160	1,860	2,440	2,300	1,750
30	628	640	530	550	-	1,030	1,760	2,170	1,860	2,450	2,300	1,660
31	640	-	530	560	-	1,010	-	2,170	-	2,450	2,300	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	30,832	1,500	628	995	61,150
November.....	16,606	640	520	554	31,940
December.....	17,201	652	496	555	34,120
Calendar year 1949.....	442,015	2,260	460	1,211	876,700
January.....	16,925	594	469	546	33,570
February.....	19,520	900	580	697	38,720
March.....	32,300	1,120	940	1,042	64,070
April.....	38,230	1,760	1,040	1,274	75,630
May.....	60,290	2,190	1,660	1,945	119,600
June.....	62,670	2,270	1,860	2,096	124,700
July.....	73,440	2,450	1,950	2,369	145,700
August.....	72,640	2,450	2,250	2,343	144,100
September.....	63,060	2,300	1,660	2,102	125,100
Water year 1949-50.....	503,914	2,450	469	1,381	999,600

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Jan. 29 to Feb. 28, May 14, 15; discharge computed on basis of unpublished records for stations above Lava Island, near Bend, and above mill pond, near Bend adjusted for flow in intervening canals.

Deschutes River below Bend, Oreg.

Location.--Water-stage recorder, lat. 44°05', long. 121°18', in SE $\frac{1}{4}$ sec. 20, T. 17 S., R. 12 E., half a mile downstream from North Canal Dam and 2 miles north of Bend.

Records available.--October 1914 to September 1950.

Average discharge.--36 years, 595 second-feet.

Extremes.--Maximum discharge during year, 1,650 second-feet June 13 (gage height, 3.69 feet); minimum, 8 second-feet Apr. 22 (gage height, 0.81 foot).

1914-50: Maximum discharge, 2,500 second-feet Dec. 7, 1921 (gage height, 3.9 feet); minimum, 1 second-foot Aug. 25, 1930.

Maximum discharge known near this site since 1905, 4,820 second-feet Nov. 27, 1909.

Remarks.--Records good except those for periods of ice effect, which are poor. Six large canals divert water above station for irrigation (see p. 67). Flow regulated by hydroelectric plant at Bend, since 1922 by Crescent Lake and Crane Prairie Reservoirs, and since December 1942 by Wickiup Reservoir (see p. 56).

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 9 to June 11.
Backwater from moss June 27 to Sept. 30)

1.1	29	1.5	102	2.3	490
1.2	42	1.6	150	2.7	760
1.3	58	1.8	210	3.2	1,160
1.4	78	2.0	310	3.7	1,660

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	130	382	522	562	b620	974	768	113	192	105	196	424
2	127	310	600	555	b620	1,010	711	119	183	95	174	418
3	165	255	690	b540	b620	1,050	725	116	215	78	170	418
4	230	260	669	562	b620	1,120	746	116	220	85	178	412
5	235	250	655	594	b610	1,080	768	110	192	70	230	394
6	316	220	634	588	b580	1,050	753	140	170	72	250	412
7	334	265	641	588	522	1,030	697	154	192	95	275	448
8	280	300	620	581	478	1,050	460	188	230	113	300	472
9	310	300	620	581	448	1,020	300	151	260	90	406	484
10	346	300	634	581	460	998	310	127	275	80	442	466
11	352	316	588	562	490	1,020	300	119	412	74	448	478
12	240	346	588	574	484	990	275	95	1,040	70	406	496
13	100	346	614	581	460	998	201	80	1,570	80	388	478
14	310	346	627	548	*297	1,020	158	124	1,390	72	370	382
15	285	340	614	b580	304	1,010	127	124	1,220	72	352	290
16	275	340	600	b580	400	1,010	97	88	1,200	56	352	300
17	270	340	594	b600	496	1,030	68	92	1,160	56	382	322
18	250	340	594	b580	718	918	47	97	1,090	60	376	352
19	127	334	574	b620	746	790	90	122	990	50	406	436
20	137	322	529	b560	746	739	108	140	880	60	334	454
21	158	*328	522	b470	753	746	95	148	775	90	322	472
22	124	334	326	352	775	760	69	137	732	124	316	460
23	124	334	88	245	790	865	44	158	739	119	316	382
24	119	290	92	424	790	1,050	38	140	669	105	346	382
25	124	145	351	588	850	1,120	68	144	529	85	394	430
26	124	119	568	620	872	1,120	58	154	406	83	442	388
27	80	178	574	634	910	1,100	80	178	300	85	442	352
28	100	188	568	594	954	1,090	80	196	220	113	448	352
29	90	220	562	b600	-	1,050	92	215	127	140	442	328
30	95	328	562	b600	-	1,030	97	165	64	144	460	260
31	130	-	568	b610	-	1,010	-	170	-	158	454	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	6,087	352	80	196	12,070
November.....	8,676	382	119	289	17,210
December.....	16,988	690	88	548	33,700
Calendar year 1949	105,689	760	9	284	205,700
January.....	17,254	634	245	557	34,220
February.....	17,393	934	297	621	34,500
March.....	30,848	1,120	739	995	61,190
April.....	8,430	768	38	281	16,720
May.....	4,220	215	80	136	8,370
June.....	17,642	1,570	64	588	34,990
July.....	2,777	158	50	89.6	5,510
August.....	10,817	480	170	349	21,460
September.....	12,142	496	260	405	24,080
Water year 1949-50	153,274	1,570	38	420	304,000

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

DESCHUTES RIVER BASIN

Deschutes River near Madras, Oreg.

Location.--Water-stage recorder, lat. 44°43', long. 121°14', in NE¹ sec. 13, T. 10 S., R. 12 E., 1 mile downstream from Pelton dam site, 4 miles upstream from Shitike Creek, and 9 miles northwest of Madras. Altitude of gage, 1,404 feet (from river-profile map).

Records available.--October 1923 to September 1950.

Average discharge.--27 years, 4,205 second-feet.

Extremes.--Maximum discharge during year, 7,920 second-feet Apr. 3 (gage height, 4.42 feet); minimum, 3,570 second-feet Oct. 15 (gage height, 1.87 feet).
1923-50: Maximum discharge, 13,300 second-feet Jan. 1, 1943 (gage height, 6.89 feet); minimum, 2,940 second-feet Sept. 20, 1942 (gage height, 1.41 feet).

Remarks.--Records excellent except those for periods of no gage-height record, which are good. Large diversions in upper river basin for irrigation. Some winter and spring runoff stored in Crane Prairie, Wickiup Crescent Lake, and Ochoco Reservoirs. Slight fluctuations caused by power plants on Deschutes River near Redmond and Crooked River near Culver.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

1.9	3,610	3.5	6,210
2.5	4,530	4.0	7,120
3.0	5,350	4.3	7,690

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,640	3,610	4,320	4,140	a4,000	6,070	5,790	4,720	4,670	4,630	4,030	4,120
2	3,660	3,840	4,350	4,120	a3,900	5,860	6,430	4,740	4,720	4,630	4,030	4,100
3	3,640	3,780	4,390	4,020	a3,800	5,960	7,560	4,820	4,710	4,610	4,030	4,100
4	3,700	3,740	4,450	4,080	a4,000	6,340	7,310	4,720	4,690	4,500	4,020	4,120
5	3,840	3,740	4,450	4,080	4,430	6,680	6,700	4,660	4,740	4,510	4,030	4,100
6	3,820	3,730	4,400	4,160	4,560	6,790	6,710	4,610	4,720	4,470	4,030	4,080
7	3,880	3,730	4,350	4,200	4,560	6,800	6,860	4,580	4,580	4,420	4,090	4,090
8	3,880	3,760	4,370	4,180	4,430	6,370	6,730	4,510	4,450	4,390	4,120	4,120
9	3,840	3,820	4,340	4,200	4,350	6,050	6,100	4,450	4,430	4,470	4,210	4,150
10	3,960	3,820	4,320	4,230	4,340	5,780	5,810	4,390	4,480	4,470	4,240	4,160
11	3,940	3,840	4,260	4,180	4,310	5,570	5,760	4,390	4,930	4,290	4,210	4,160
12	3,920	3,860	4,200	4,140	4,320	5,440	5,720	4,500	6,000	4,180	4,180	4,150
13	3,780	3,860	4,240	4,160	4,350	5,320	6,140	4,710	7,560	4,160	4,140	4,150
14	3,640	3,860	4,210	4,100	4,660	5,280	6,550	4,900	7,600	4,210	4,120	4,140
15	3,600	3,860	4,210	4,000	4,610	5,250	6,100	5,110	6,790	4,210	4,100	4,060
16	3,600	3,880	4,240	4,100	4,850	5,300	5,630	5,160	6,500	4,210	4,080	4,030
17	3,900	3,900	4,240	4,150	4,880	5,720	5,840	5,030	6,640	4,140	4,090	4,040
18	3,790	3,900	4,230	a4,100	4,990	6,170	5,690	4,880	6,460	4,080	4,100	4,060
19	3,760	3,900	4,210	a4,000	5,100	6,790	5,930	4,770	6,430	4,090	4,150	4,080
20	3,670	3,900	4,150	4,340	5,060	6,170	5,910	4,660	6,300	4,090	4,150	4,140
21	3,670	3,880	4,100	4,420	4,930	6,120	6,170	4,670	6,260	4,040	4,060	4,140
22	3,670	3,880	4,120	4,660	4,980	5,960	6,100	4,710	6,160	4,030	4,040	4,140
23	3,660	4,210	3,920	4,450	4,910	5,790	5,960	4,740	5,890	4,090	4,080	4,120
24	3,640	4,530	3,760	4,240	5,490	5,930	5,570	4,720	5,550	4,090	4,160	4,060
25	3,640	4,210	3,740	4,310	6,120	5,930	5,230	4,640	5,250	4,060	4,150	4,090
26	3,640	4,020	4,060	4,390	6,790	5,840	5,060	4,630	5,030	4,030	4,180	4,210
27	3,640	4,590	4,210	4,470	7,020	5,760	4,980	4,630	4,850	4,020	4,200	4,120
28	3,680	4,740	4,180	4,510	6,530	5,640	4,950	4,640	4,740	4,000	4,150	4,020
29	3,680	4,240	4,180	4,200	-	5,520	4,900	4,630	4,740	3,980	4,140	4,000
30	3,640	4,320	4,160	4,230	-	5,470	4,790	4,720	4,750	4,000	4,140	4,020
31	3,620	-	4,150	a4,100	-	5,470	-	4,670	-	4,000	4,160	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	115,940	3,960	3,620	3,740	230,000
November.....	118,950	4,740	3,610	3,965	235,900
December.....	130,510	4,450	5,740	4,210	258,900
Calendar year 1949.....	1,636,110	8,380	3,580	4,482	3,245,000
January.....	130,460	4,660	4,000	4,208	258,800
February.....	136,250	7,020	3,800	4,866	270,200
March.....	183,140	6,800	5,250	5,908	363,300
April.....	179,380	7,560	4,790	5,979	355,800
May.....	145,690	5,160	4,390	4,700	289,000
June.....	164,620	7,600	4,430	5,487	326,500
July.....	131,100	4,630	3,980	4,229	260,000
August.....	127,610	4,240	4,020	4,116	253,100
September.....	123,070	4,210	4,000	4,102	244,100
Water year 1949-50.....	1,686,720	7,600	3,610	4,620	3,346,000

Peak discharge (base, 6,100 sec.-ft.),--Feb. 27 (6 to 8 a.m.) 7,180 sec.-ft.; Apr. 3 (11:30 p.m.) 7,920 sec.-ft.; June 13 (11 p.m.) 7,880 sec.-ft.

a No gage-height records; discharge computed on basis of weather records and records for station at Moody.

Deschutes River at Moody, near Biggs, Oreg.

Location.--Water-stage recorder, lat. 45°37', long. 120°54', in SE $\frac{1}{4}$ sec. 26, T. 2 N., R. 15 E., at Moody, $\frac{1}{2}$ miles upstream from mouth and 5 miles southwest of Biggs. Datum of gage is 167.43 feet above mean sea level, datum of 1929.

Drainage area.--10,500 square miles.

Records available.--July 1906 to September 1950. October 1897 to December 1899 at site near Moro, 10 miles above mouth.

Average discharge.--45 years (1898-99, 1906-50), 5,719 second-feet.

Extremes.--Maximum discharge during year, 15,200 second-feet Feb. 26 (gage height, 5.30 feet); minimum, 4,180 second-feet Nov. 2 (gage height, 2.39 feet).
1897-99, 1906-50: Maximum discharge, 43,600 second-feet Jan. 7, 1923 (gage height, 10.2 feet), from rating curve extended above 15,000 second-feet; minimum, 3,380 second-feet Sept. 16-19, 1931 (gage height, 2.06 feet).

Remarks.--Records excellent except those for period of ice effect, which are good. Many diversions in upper river basin for irrigation. Some winter and spring runoff stored in Crane Prairie, Wickiup, Crescent Lake, and Ochoco Reservoirs.

Cooperation.--Water-stage recorder inspected by agent of Eastern Oregon Land Co.

Revisions.--W 754: Drainage area.

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

2.4	4,210	4.0	9,530
3.0	6,030	4.5	11,600
3.5	7,720	5.2	14,700

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,290	4,240	5,510	4,870	64,700	9,640	7,400	6,520	7,440	6,520	4,870	4,810
2	4,290	4,270	5,410	4,840	64,800	8,900	8,540	6,490	7,480	6,290	4,870	4,780
3	4,290	4,430	5,380	4,720	64,500	8,980	9,810	6,520	7,820	6,290	4,870	4,780
4	4,290	4,350	5,350	4,640	64,800	*9,680	10,100	6,520	7,620	6,200	4,840	4,780
5	4,380	4,320	5,320	4,720	5,200	10,200	9,230	6,430	7,680	6,100	4,840	4,780
6	4,580	4,320	5,260	4,780	5,510	10,100	8,900	6,330	7,650	6,000	4,840	4,750
7	4,550	4,290	5,170	4,930	5,670	9,760	8,900	6,230	7,510	5,860	4,870	4,720
8	4,550	4,290	5,140	4,930	5,670	9,270	9,010	6,160	7,200	5,770	4,870	4,750
9	4,490	4,350	5,140	4,870	5,690	8,850	8,610	6,100	6,930	5,700	4,900	4,750
10	4,610	4,410	5,080	4,870	5,570	8,180	7,900	6,060	6,890	5,800	5,020	4,780
11	4,660	4,410	5,020	4,930	5,510	7,760	7,680	6,160	7,200	5,640	4,990	4,810
12	4,660	4,460	4,930	4,840	5,540	7,400	7,620	6,460	7,960	5,480	4,990	4,810
13	4,610	4,490	4,960	4,870	5,570	7,130	7,790	7,030	9,640	5,350	4,960	4,780
14	4,430	4,460	4,960	4,690	6,560	7,000	8,290	7,680	10,600	5,320	4,930	4,780
15	4,290	4,430	4,930	4,550	8,500	6,890	8,430	8,110	9,870	5,350	4,900	4,750
16	4,410	4,430	4,930	4,660	9,800	6,830	7,960	8,210	9,230	5,320	4,870	4,660
17	4,410	4,460	4,930	4,720	10,700	7,270	7,930	8,180	9,270	5,290	4,840	4,640
18	4,380	4,460	4,930	4,690	8,720	8,540	8,040	7,960	9,580	5,170	4,840	4,640
19	4,380	4,430	4,900	4,580	8,070	9,200	8,070	7,650	9,090	5,140	4,840	4,660
20	4,350	4,460	4,870	4,580	7,790	9,200	8,040	7,340	8,940	5,170	4,870	4,690
21	4,270	4,460	4,810	5,320	7,370	8,500	8,210	7,300	8,830	5,110	4,810	4,720
22	4,290	4,430	4,810	6,260	7,480	8,610	8,500	7,580	8,680	5,020	4,750	4,750
23	4,290	4,610	4,870	5,580	8,180	8,250	8,360	7,790	8,390	5,020	4,720	4,720
24	4,270	5,410	4,690	6,490	12,500	8,210	8,070	7,760	8,040	5,020	4,810	4,720
25	4,270	5,480	4,580	5,640	14,400	8,210	7,540	7,620	7,580	4,990	4,930	4,720
26	4,240	4,990	4,580	5,670	14,500	8,140	7,170	7,440	7,200	4,930	4,870	4,810
27	4,240	5,020	4,900	5,570	12,400	7,900	7,030	7,540	6,860	4,900	4,900	4,990
28	4,240	6,430	4,960	5,410	10,900	7,760	6,930	7,650	6,860	4,900	4,870	4,780
29	4,380	5,960	*4,930	5,200	-	7,400	6,830	7,540	6,560	4,900	4,840	4,720
30	4,320	5,480	4,900	5,080	-	7,200	6,620	7,480	6,590	4,900	4,810	4,720
31	4,240	-	4,870	64,900	-	7,130	-	7,540	-	4,870	4,780	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	135,950	4,660	4,240	4,385	269,700
November.....	140,030	6,430	4,240	4,668	277,700
December.....	155,020	5,510	4,580	5,001	307,500
Calendar year 1949	2,211,070	18,000	4,210	6,058	4,386,000
January.....	158,400	7,580	4,550	5,110	314,200
February.....	216,310	14,500	4,500	7,725	429,000
March.....	257,890	10,200	6,830	8,319	511,500
April.....	243,310	10,100	6,620	8,110	482,600
May.....	221,380	8,210	6,060	7,141	439,100
June.....	240,590	10,600	6,560	8,020	477,200
July.....	168,320	6,520	4,870	5,430	333,900
August.....	150,910	5,020	4,720	4,868	299,300
September.....	142,550	4,990	4,640	4,752	282,700
Water year 1949-50	2,230,860	14,500	4,240	6,111	4,424,000

Peak discharge (base, 8,800 sec.-ft.)--Feb. 17 (5:30 a.m.) 15,100 sec.-ft.; Feb. 26 (11:30 a.m.) 15,200 sec.-ft.; Mar. 19 (12 p.m.) 9,610 sec.-ft.; Apr. 4 (1 p.m.) 10,300 sec.-ft.; June 14 (1 to 3 p.m.) 10,700 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Reservoirs in Deschutes River Basin above Bend, Oreg.

Crane Prairie Reservoir.--Staff gage, lat. 43°45', long. 121°47', at dam on Deschutes River in NW 1/4 sec. 16, T. 21 S., R. 8 E., 15 miles northwest of Lapine. Datum of gage is 4,400.0 feet above mean sea level (Bureau of Reclamation bench mark). Drainage area, 244 square miles. Records available, November 1922 to September 1950. Maximum contents observed during year, 53,860 acre-feet Oct. 1 (elevation, 4,444.70 feet); minimum observed, 450 acre-feet July 28 to Aug. 8. Maximum contents observed during period 1922-50, 60,500 acre-feet June 5-7, 1943 (elevation, 4,446.0 feet); 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-feet between elevations 4,424 feet (lip of fish screen structure) and 4,445 feet (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. Gage read once daily except during winter when occasional readings are made.

Wickiup Reservoir.--Tape gage, lat. 43°41', long. 121°41', in gate chamber structure at dam on Deschutes River in NE 1/4 sec. 7, T. 22 S., R. 9 E., 9 miles west of Lapine. Gage reads elevation above mean sea level (levels by Bureau of Reclamation). Records available, December 1942, when storage began, to September 1950. Maximum contents observed during year, 185,900 acre-feet Mar. 24 (elevation, 4,336.37 feet); minimum observed, 14,140 acre-feet Oct. 1 (elevation, 4,290.02 feet). Maximum contents observed during period 1942-50, that of Mar. 24, 1950; minimum observed since reservoir first filled in March 1949, 13,720 acre-feet Sept. 29, 1949 (elevation, 4,289.67 feet).

Reservoir is formed by rock-faced earth-fill dam completed by Bureau of Reclamation August 1949. Timber removal practically complete. Capacity, 182,100 acre-feet between elevations 4,265.0 feet (no storage) to 4,336.0 feet (crest of spillway, with earth soft plug to elevation 4,339.0 feet). Natural flow passing through reservoir when outlet gates are open prevents withdrawal of storage below elevation 4,265.0 feet. Sill of trash rack structure elevation, 4,259.75 feet. Water stored is used for irrigation near Madras. Gage read once daily. Daily elevations and capacity table furnished by Bureau of Reclamation.

Crescent Lake Reservoir.--Staff gage, lat. 43°30', long. 121°58', at head of spillway on dam at lake outlet in sec. 11, T. 24 S., R. 6 E., and auxiliary staff gage at boat dock 100 yards south, 14 miles west of Crescent. Datum of gage is 4,826.0 feet above mean sea level (levels of Deschutes County Municipal Improvement District). Drainage area, 58 square miles. Records available, August 1922 to September 1950. Maximum contents observed during year, 54,860 acre-feet June 10, 12 (elevation, 4,841.00 feet); minimum observed, 41,540 acre-feet Sept. 24 (elevation, 4,837.50 feet). Maximum contents observed during period 1922-50, 72,460 acre-feet July 15, 1923 (elevation, 4,845.55 feet); minimum observed, 9,640 acre-feet Oct. 21, 1931 (elevation, 4,828.75 feet).

Reservoir is formed by dam of earth and logs, completed and storage begun in 1922. Capacity, 86,050 acre-feet between elevations 4,826 feet (sill of outlet gate), and 4,849 feet (crest of spillway). Dead storage 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. Gage read about once a week.

Revisions (water years).--W 739: 1923 (maximum contents).

Monthly elevations and contents, water year October 1949 to September 1950

Date	Crane Prairie Reservoir			Wickiup Reservoir			Crescent Lake 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)	Elevation (feet)*	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30....	4,444.94	55,040	-	4,289.71	13,770	-	-	441,990	-
Oct. 31....	4,438.58	26,190	-28,850	4,316.56	65,640	+51,870	-	444,040	+2,050
Nov. 30....	4,439.40	30,220	+4,030	4,326.26	103,300	+37,660	-	447,990	+3,950
Dec. 31....	-	433,900	+3,580	4,330.81	134,300	+31,000	4,839.80	50,270	+2,280
Calendar year 1949	-	-	+1,050	-	-	+5,400	-	-	-2,350
Jan. 31....	-	437,900	+4,100	4,334.54	167,300	+33,000	-	453,920	+3,650
Feb. 28....	-	441,900	+4,000	4,335.95	181,500	+14,200	-	452,790	-1,130
Mar. 31....	-	447,300	+5,400	4,336.31	185,300	+3,800	-	452,780	-10
Apr. 30....	-	450,700	+3,400	4,335.36	175,500	-9,800	-	451,780	-1,000
May 31....	4,437.48	22,780	-27,920	4,335.34	175,300	-200	-	454,050	+2,270
June 30....	4,435.62	9,810	-12,970	4,335.83	180,300	+5,000	-	453,090	-960
July 31....	4,429.20	450	-9,360	4,330.77	133,900	-46,400	-	447,270	-5,820
Aug. 31....	4,435.78	16,720	+16,270	4,319.18	73,550	-60,350	-	443,560	-3,710
Sept. 30....	4,440.50	34,750	+18,030	4,299.92	28,340	-45,210	-	442,100	-1,460
Water year 1949-50.	-	-	-20,290	-	-	+14,570	-	-	+110

* Time of day variable.

a No gage-height record; contents interpolated.

Cultus River above Cultus Creek, near Lapine, Oreg.

Location.--Water-stage recorder, lat. 43°49', long. 121°48', at road crossing in sec. 20 or 29, T. 20 S., R. 8 E., upstream from flow line of Crane Prairie Reservoir, 2 miles upstream from Cultus Creek, and 18 miles northwest of Lapine. Altitude of gage, 4,450 feet (from reservoir surveys by Bureau of Reclamation).

Records available.--June 1923 to September 1925, November 1937 to September 1950.

Average discharge.--14 years (1923-25, 1938-50), 58.6 second-feet.

Extremes.--Maximum discharge during year, 114 second-feet June 12 (gage height, 0.95 foot); minimum, 43 second-feet Feb. 27 to Mar. 5.
1923-25, 1937-50: Maximum discharge, 118 second-feet May 16, 1938, June 1, 1943; minimum, 28 second-feet Mar. 22, Apr. 5-10, 1941.

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

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Backwater from moss Oct. 1 to Jan. 11)

0.6	41
.7	58
.8	78
.9	101
1.0	126

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	70	68	64	62	43	53	56	108	92	99	90
2	76	72	68	64	62	43	53	56	108	90	99	87
3	76	74	68	64	62	43	53	56	106	90	99	87
4	76	74	68	64	62	43	55	56	104	90	99	85
5	76	74	68	64	62	43	55	56	104	90	101	87
6	76	74	70	64	62	44	56	56	101	90	101	87
7	76	74	70	64	60	46	56	58	99	90	101	87
8	76	72	70	64	60	46	56	58	96	90	101	90
9	74	72	70	64	60	46	56	58	96	90	101	90
10	72	72	70	64	58	46	58	60	96	90	101	90
11	70	72	70	64	56	46	58	60	106	90	99	92
12	70	70	68	64	56	48	58	62	111	90	99	92
13	68	70	68	64	58	50	58	64	104	87	99	92
14	68	68	68	64	56	51	58	64	96	85	96	90
15	66	68	68	64	56	51	58	66	94	85	99	90
16	66	68	68	64	55	53	58	80	94	85	101	90
17	66	68	68	66	55	53	56	80	94	85	101	90
18	64	68	68	64	55	53	56	83	94	85	101	90
19	64	68	68	64	53	53	56	85	94	85	101	90
20	64	68	68	64	53	53	56	87	94	87	101	90
21	64	68	68	64	51	53	55	92	94	87	101	90
22	64	68	66	64	51	53	55	94	94	87	101	90
23	64	68	66	64	50	53	53	99	94	87	101	90
24	64	68	64	64	50	53	53	101	92	87	101	90
25	66	68	64	64	48	53	55	101	92	90	101	90
26	66	68	64	64	48	53	55	101	92	92	99	90
27	66	70	64	64	44	53	55	104	92	92	96	90
28	66	68	64	62	43	53	55	101	92	94	94	90
29	66	68	64	62	-	53	56	104	92	96	94	90
30	68	68	64	62	-	51	56	106	92	99	94	90
31	70	-	64	62	-	53	-	108	-	99	92	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	2,144	76	64	69.2	4,250
November.....	2,098	74	68	69.9	4,160
December.....	2,084	70	64	67.2	4,130
Calendar year 1949	27,218	111	50	74.6	53,980
January.....	1,978	66	62	63.8	3,920
February.....	1,548	62	43	55.3	3,070
March.....	1,535	53	43	49.5	3,040
April.....	1,671	58	53	55.7	3,310
May.....	2,412	108	56	77.8	4,780
June.....	2,925	111	92	97.5	5,800
July.....	2,776	99	85	89.5	5,510
August.....	3,073	101	92	99.1	6,100
September.....	2,686	92	85	89.5	5,330
Water year 1949-50	26,930	111	43	73.8	53,400

Note.--No gage-height record Jan. to Feb. 5; discharge interpolated.

DESCHUTES RIVER BASIN

Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg.
(Formerly published as Cultus Creek above Crane Prairie, near Lapine)

Location.--Water-stage recorder, lat. 43°49', long. 121°49', in SW $\frac{1}{4}$ sec. 19, T. 20 S., R. 8 E., 1,000 feet upstream from road bridge three-quarters of a mile downstream from outlet of Cultus Lake, and 19 miles northwest of Lapine.

Records available.--March to September 1924, October 1949 to September 1950 in reports of Geological Survey. Prior to October 1949, published as Cultus Creek above Crane Prairie, near Lapine. May to August 1923, 1925, 1927, 1929 (discharge measurements only), November 1937 to September 1941 in reports of State engineer. October 1941 to September 1949 in files of State engineer.

Average discharge.--12 years (1938-50), 19.7 second-feet.

Extremes.--Maximum discharge during year, 177 second-feet June 15; minimum, 0.1 second-foot Oct. 3.

1937-50: Maximum discharge, 214 second-feet June 1, 1943 (gage height, 2.72 feet); no flow at times.

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

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from trees May 20 to July 10)

Oct. 1 to June 15

June 16 to Sept. 30

0.2	0	0.8	9.4	1.5	57	0.5	1.9	1.0	16	1.8	88
.3	1.3	.9	13	1.8	90	.6	3.0	1.1	21	2.1	129
.4	1.0	1.0	18	2.1	129	.7	5.2	1.2	27	2.4	171
.5	2.1	1.1	24	2.4	171	.8	8.5	1.3	35		
.6	3.8	1.2	31			.9	12	1.5	54		
.7	6.3	1.3	39								

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.2	7.5	b5.0	4.0	15	28	25	128	115	25	4.8
2	.2	.2	7.5	b4.5	5.0	16	28	25	130	111	22	4.5
3	.2	.2	7.2	4.0	6.0	16	28	27	135	108	21	4.3
4	.2	.2	7.2	4.5	8.0	17	27	26	137	101	20	4.1
5	.3	.2	7.5	5.0	10	18	26	26	139	98	18	4.1
6	.2	.2	7.8	6.0	9.0	19	25	25	139	94	16	3.9
7	.2	.2	7.5	7.0	8.0	19	25	25	139	91	15	3.7
8	.2	.2	7.5	7.0	8.0	19	24	25	137	87	14	3.7
9	.2	.2	7.5	6.0	8.0	20	23	25	135	83	13	3.4
10	.2	.2	7.2	6.0	8.0	21	23	24	132	82	12	3.2
11	.2	.2	6.9	6.0	8.0	21	22	24	137	78	12	3.0
12	.2	.2	6.0	5.5	8.0	21	22	25	154	76	11	2.9
13	.2	.2	6.6	6.0	10	21	22	23	167	73	11	2.9
14	.2	*.2	6.6	5.5	15	21	22	23	170	70	10	2.8
15	.2	.2	6.6	5.5	15	20	21	25	170	67	9.6	2.7
16	.2	.2	6.6	6.0	15	20	22	29	170	65	9.2	2.6
17	.2	.2	7.2	7.0	*16	22	22	40	168	62	9.2	2.6
18	.2	.2	8.2	8.0	16	25	22	43	164	60	8.8	2.6
19	.2	.2	b8.2	9.0	16	26	22	51	160	54	8.5	2.6
20	.2	.2	b8.2	10	16	30	22	78	156	52	8.2	2.4
21	.2	.3	7.2	10	14	29	23	80	154	50	7.8	2.3
22	.2	.2	7.2	10	14	29	23	84	147	48	7.5	2.2
23	.2	.9	7.2	9.0	14	29	25	91	144	46	7.2	2.1
24	.2	1.0	8.0	8.0	16	29	25	96	137	43	6.8	2.0
25	.2	.9	8.0	6.0	16	29	25	100	132	41	6.8	2.0
26	.2	1.1	7.0	8.0	16	29	25	102	126	38	6.5	2.3
27	.2	3.3	6.5	9.0	16	29	25	106	122	35	6.2	2.2
28	.2	5.3	6.0	7.0	16	29	26	111	121	32	5.9	2.1
29	.2	5.8	6.0	5.0	-	29	26	115	122	29	5.5	2.0
30	.2	6.9	5.5	4.0	-	29	25	119	119	27	5.2	1.9
31	.2	-	5.3	3.0	-	28	-	122	-	26	5.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	6.3	0.3	0.2	0.20	12
November.....	29.7	6.9	.2	.99	59
December.....	219.4	8.2	5.3	7.08	435
Calendar year 1949	9,729.1	161	.2	26.7	19,290
January.....	202.5	10	3.0	6.53	402
February.....	331.0	16	4.0	11.8	657
March.....	725	30	15	23.4	1,440
April.....	724	28	21	24.1	1,440
May.....	1,741	122	23	56.2	3,450
June.....	4,291	170	119	145	8,510
July.....	2,042	115	28	65.9	4,050
August.....	343.9	25	6.0	11.1	682
September.....	87.9	4.8	1.9	2.93	174
Water year 1949-50	10,743.7	170	.2	29.4	21,310

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Nov. 13, Jan. 3 to Feb. 16, Mar. 17, 23-28; discharge computed on basis of Odell Creek near Crescent and Cultus River above Cultus Creek.

Deer Creek above Crane Prairie Reservoir, near Lapine, Oreg.
(Formerly published as Deer Creek above Crane Prairie, near Lapine)

Location.--Water-stage recorder lat. 43°48', long. 121°50', in NW¼NW¼ sec. 36, T. 20 S., R. 7 E., 1 mile below outlet of Little Cultus Lake and 18 miles northwest of Lapine.

Records available.--October 1923 to September 1924, October 1949 to September 1950 in reports of Geological Survey. Prior to October 1949, published as Deer Creek above Crane Prairie, near Lapine. December 1937 to September 1941 in reports of State engineer. January to September 1925 and October 1941 to September 1949 in files on State engineer.

Average discharge.--12 years (1938-50), 6.91 second-feet.

Extremes.--Maximum discharge during year, 93 second-feet June 13; maximum gage height, 2.25 feet sometime during period of no gage-height Dec. 11 to Feb. 4 (ice jam); minimum discharge, 0.3 second-foot at times during October, November, August, and September. 1923-25, 1937-50: Maximum discharge, 97 second-feet Nov. 30, 1942; maximum gage height, 2.25 feet sometime during period of no gage-height record Dec. 11 to Feb. 4 (ice jam); no flow at times.

Remarks.--Records poor. No diversion or regulation above station.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.3	4.5	2.0	1.0	4.1	8.3	11	62	16	1.8	0.3
2	.3	.3	4.5	1.5	1.5	4.3	8.8	10	61	15	1.5	.3
3	.4	.3	4.0	1.0	2.5	5.1	9.0	10	61	14	1.4	.3
4	.4	.3	3.8	1.5	3.5	5.5	9.0	9.6	59	13	1.2	.3
5	.4	.3	4.1	2.0	4.0	5.7	9.0	9.0	60	12	1.1	.3
6	.3	.3	3.9	2.5	3.5	6.1	9.6	8.3	58	11	1.0	.3
7	.4	.3	3.8	3.0	3.0	b6.6	10	7.8	56	9.0	.9	.3
8	.4	.3	3.6	2.5	2.5	6.6	10	7.8	51	8.4	.9	.3
9	.5	.3	3.4	2.5	2.5	6.8	10	9.5	47	7.4	.8	.3
10	.5	.3	2.0	2.0	2.5	7.3	10	9.6	45	6.8	.8	.3
11	.6	.3	1.5	2.0	2.5	7.8	9.8	11	56	5.9	.8	.3
12	.5	.5	1.5	2.0	2.5	b7.5	9.8	13	81	5.9	.8	.3
13	.5	.4	2.0	1.5	3.0	7.1	9.6	17	90	5.6	.7	.3
14	.5	.3	2.5	1.5	3.0	7.1	9.6	22	80	5.0	.6	.3
15	.5	.3	3.0	1.5	3.0	6.6	9.3	30	69	4.8	.4	.3
16	.5	.3	3.0	2.0	3.0	7.1	9.3	39	62	4.3	.4	.3
17	.4	.3	3.0	2.5	*2.9	8.8	9.6	48	56	4.1	.3	.3
18	.4	.4	2.5	3.0	2.9	9.0	9.8	53	51	3.9	.3	.3
19	.3	.4	2.0	3.5	2.7	9.6	10	53	46	3.7	.3	.3
20	.3	.4	1.5	4.0	2.7	9.0	11	54	41	3.5	.3	.3
21	.3	.4	2.0	4.5	2.6	9.3	11	58	37	3.2	.3	.3
22	.3	.5	3.0	5.0	2.6	9.8	12	59	35	3.0	.3	.3
23	.3	1.1	3.5	3.0	2.7	9.6	13	64	33	2.8	.3	.3
24	.3	.9	3.0	2.0	3.9	9.0	13	66	31	2.6	.3	.3
25	.3	1.0	2.5	1.5	4.1	8.5	13	64	28	2.6	.3	.3
26	.3	1.4	2.5	2.5	4.1	8.3	13	64	26	2.5	.3	.3
27	.3	3.6	3.0	3.5	4.1	7.8	13	65	24	2.3	.3	.3
28	.3	3.9	4.0	2.0	4.1	7.3	12	64	22	2.2	.3	.3
29	.3	3.9	5.0	1.5	-	6.6	11	64	19	2.0	.3	.3
30	.3	4.5	3.5	1.0	-	*6.8	11	63	18	1.8	.3	.3
31	.3	-	2.5	.5	-	6.6	-	62	-	1.8	.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	11.7	0.6	0.3	0.38	23
November.....	27.8	4.5	.3	.95	55
December.....	94.6	5.0	1.5	3.05	188
Calendar year 1949.....	3,016.7	70	.2	8.26	5,980
January.....	71.0	5.0	.5	2.29	141
February.....	82.9	4.1	1.0	2.96	164
March.....	227.3	9.8	4.1	7.33	451
April.....	313.5	13	8.3	10.4	622
May.....	1,124.6	66	7.8	36.3	2,230
June.....	1,465	90	18	48.8	2,910
July.....	185.1	16	1.8	6.00	369
August.....	19.6	1.8	.3	.63	39
September.....	9.0	.3	.3	.30	18
Water year 1949-50.....	3,633.1	90	.3	9.95	7,210

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Oct. 4, 5, Dec. 3, Dec. 10 to Feb. 16, Sept. 5-11, 26, 30; discharge computed on basis of weather records and records for Odell Creek near Crescent.

DESCHUTES RIVER BASIN

Quinn River near Lapine, Oreg.

Location.--Water-stage recorder and wooden control, lat. 43°47', long. 121°50', in NW¼ sec. 1, T. 21 S., R. 7 E., just upstream from flow line of Crane Prairie Reservoir, 150 feet downstream from springs at head of river, and 19 miles northwest of Lapine. Datum of gage is 4,442.1 feet above mean sea level, based on elevation of Crane Prairie Reservoir (Bureau of Reclamation bench mark) on Sept. 22, 1949, when slack water reached station.

Records available.--June 1922 to September 1925, November 1937 to September 1950.

Average discharge.--15 years (1923-25, 1938-50), 20.0 second-feet.

Extremes.--Maximum discharge during year, 40 second-feet July 12, 14, July 20 to Sept. 28; maximum gage height, 2.71 feet Oct. 1 (backwater from reservoir); minimum discharge, 20 second-feet Mar. 11-30, Apr. 2, 3.

1922-25, 1937-50: Maximum discharge, 59 second-feet July 4, 1949; maximum gage height, 3.03 feet Sept. 29, 1949; practically no flow Nov. 14, 1941.

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

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	29	23	22	21	21	21	24	28	35	40	40
2	33	29	23	22	21	21	20	24	28	36	40	40
3	33	27	23	22	21	21	20	24	28	36	40	40
4	33	27	23	22	21	21	21	24	28	36	40	40
5	33	27	23	22	21	21	21	25	30	36	40	40
6	33	27	23	22	21	21	21	25	30	37	40	40
7	33	27	23	22	21	21	21	25	30	37	40	40
8	32	27	23	22	21	21	21	25	30	37	40	40
9	32	27	23	22	21	21	21	25	30	37	40	40
10	32	27	23	22	21	21	21	25	30	38	40	40
11	32	27	23	22	21	20	22	25	30	38	40	40
12	32	27	23	22	21	20	22	26	31	40	40	40
13	32	27	23	22	21	20	22	26	31	38	40	40
14	32	27	23	22	21	20	22	26	31	40	40	40
15	31	27	23	22	21	20	22	26	31	38	40	40
16	31	26	23	22	21	20	22	26	32	37	40	40
17	31	26	23	22	21	20	22	26	32	37	40	40
18	31	26	23	22	21	20	22	26	32	37	40	40
19	31	26	23	22	21	20	23	26	32	37	40	40
20	31	25	23	22	21	20	23	26	33	40	40	40
21	31	26	23	21	21	20	23	26	33	40	40	40
22	30	26	23	21	21	20	23	26	33	40	40	40
23	30	25	23	21	21	20	23	27	33	40	40	40
24	30	25	23	21	21	20	23	27	34	40	40	40
25	30	25	23	21	21	20	23	27	34	40	40	40
26	30	25	23	21	21	20	23	27	34	40	40	40
27	30	25	23	21	21	20	23	27	34	40	40	40
28	30	25	23	21	21	20	24	27	35	40	40	40
29	29	23	23	21	-	20	24	27	35	40	40	38
30	29	23	23	21	-	20	24	27	35	40	40	38
31	29	-	23	21	-	21	-	27	-	40	40	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	969	33	29	31.3	1,920
November.....	786	29	23	26.2	1,560
December.....	715	23	23	23.0	1,410
Calendar year 1949	11,286	57	-	30.9	22,380
January.....	671	22	21	21.6	1,330
February.....	588	21	21	21.0	1,170
March.....	631	21	20	20.4	1,250
April.....	663	24	20	22.1	1,320
May.....	800	27	24	25.8	1,590
June.....	948	35	28	31.6	1,880
July.....	1,187	40	35	38.3	2,350
August.....	1,240	40	40	40.0	2,460
September.....	1,196	40	38	39.9	2,370
Water year 1949-50	10,392	40	20	28.5	20,610

Note.--No gage-height record Oct. 1, 2, Dec. 11 to Feb. 7, Feb. 19 to Mar. 29, Apr. 5 to May 14, June 10 to July 10; discharge interpolated. Backwater from Crane Prairie Reservoir Oct. 1-4, 7-31; discharge interpolated.

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

Location.--Water-stage recorder lat. 43°47', long. 121°50', in SW¹/₄ sec. 1, T. 21 S., R. 7 E., 3½ miles upstream from Crane Prairie Dam and 18 miles northwest of Lapine.

Records available.--October 1949 to September 1950 in reports of Geological Survey. May to July 1923, April to May 1924, October 1937 to September 1941 in reports of State engineer; October 1941 to September 1949 in files of State engineer.

Average discharge.--13 years (1937-50), 1.34 second-feet.

Extremes.--Maximum discharge during year, 54 second-feet June 12 (gage height 1.53 feet, from rating curve extended above 17 second-feet); no flow Oct. 1 to May 9, July 15 to Sept. 30.

1923-24, 1937-50: Maximum discharge, that of June 12, 1950; maximum gage height, 1.56 feet June 1, 1943; no flow at times.

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

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								0	24	a8.3		
2								0	24	a7.7		
3								0	23	a7.1		
4								0	23	a6.5		
5								0	23	a5.9		
6								0	23	a5.2		
7								0	17	a4.6		
8								0	14	a4.0		
9								0	15	a3.4		
10								a1.0	16	a2.8		
11								a2.0	35	2.2		
12								a4.0	46	1.8		
13								a6.0	34	1.3		
14								a9.0	28	.6		
15								12	26	0		
16								13	27	0		
17								13	27	0		
18								12	22	0		
19								12	20	0		
20								14	20	0		
21								18	20	0		
22								20	19	0		
23								20	17	0		
24								20	13	0		
25								19	12	0		
26								20	a11	0		
27								21	a11	0		
28								19	a10	0		
29								20	a9.5	0		
30								25	a8.9	0		
31								24	-	0		

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	0	0	0	0	0
November.....	0	0	0	0	0
December.....	0	0	0	0	0
Calendar year 1949	1,031.0	27	0	2.82	2,040
January.....	0	0	0	0	0
February.....	0	0	0	0	0
March.....	0	0	0	0	0
April.....	0	0	0	0	0
May.....	324.0	25	0	10.5	643
June.....	618.4	46	8.9	20.6	1,230
July.....	61.4	8.3	0	1.98	122
August.....	0	0	0	0	0
September.....	0	0	0	0	0
Water year 1949-50	1,003.8	46	0	2.75	2,000

a No gage-height record; discharge computed on basis of records for Deer Creek near Lapine, or interpolated.

DESCHUTES RIVER BASIN

Brown Creek near Lapine, Oreg.

Location.--Water-stage recorder, lat. 43°43', long. 121°48', in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 30, T. 21 S., R. 8 E., 15 miles northwest of Lapine.

Records available.--May 1922 to September 1925 and October 1949 to September 1950 in reports of Geological Survey. 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.

Average discharge.--14 years (1922-25, 1938-45, 1946-50), 33.6 second-feet.

Extremes.--Maximum discharge during year, 55 second-feet Aug. 28 to Sept. 30; maximum gage height, 1.23 feet Sept. 5-24; minimum discharge, 36 second-feet Mar. 24-31. 1922-25, 1938-45, 1946-50: Maximum discharge, 66 second-feet Nov. 4, 1943; minimum, 16 second-feet July 22-25, 1941, and at times December 1941 to March 1942.

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

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	49	46	43	42	41	38	40	43	42	49	55
2	52	49	46	43	42	41	38	40	43	42	49	55
3	52	49	44	43	42	41	38	40	43	42	49	55
4	52	49	44	43	42	40	38	40	43	42	50	55
5	52	49	44	43	42	40	40	40	43	42	50	55
6	52	49	44	43	42	40	40	40	43	42	50	55
7	52	49	44	43	42	38	38	40	43	42	50	55
8	52	49	44	43	42	38	38	40	43	42	52	55
9	52	49	44	43	42	38	38	40	43	42	52	55
10	52	49	44	43	42	38	38	40	43	43	53	55
11	52	49	44	43	42	38	38	40	52	43	53	55
12	52	49	44	43	42	38	40	41	53	43	53	55
13	52	48	44	43	42	38	41	42	50	43	53	55
14	52	48	44	43	42	38	41	42	48	44	53	55
15	52	48	44	43	42	38	41	42	47	44	53	55
16	52	48	44	43	42	38	43	42	47	46	53	55
17	52	48	44	43	42	37	46	42	47	47	53	55
18	52	47	44	43	42	37	47	42	44	47	53	55
19	52	47	44	43	42	37	47	42	44	47	53	55
20	52	47	44	43	42	37	47	42	44	47	53	55
21	52	47	44	43	42	37	47	42	43	47	53	55
22	52	47	44	43	42	37	46	42	43	47	53	55
23	52	48	44	43	42	37	42	42	43	47	53	55
24	52	47	44	43	42	36	41	42	43	47	54	55
25	50	46	44	43	42	36	42	42	43	47	54	55
26	50	46	44	42	41	36	42	43	42	47	54	55
27	50	50	44	42	41	36	41	43	42	47	54	55
28	50	48	44	42	41	36	41	43	42	47	54	55
29	50	46	44	42	-	36	41	43	42	48	55	55
30	49	46	44	42	-	36	41	43	42	48	55	55
31	49	-	44	42	-	36	-	43	-	48	55	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,596	52	49	51.5	3,170
November.....	1,441	50	46	48.0	2,860
December.....	1,368	46	44	44.1	2,710
Calendar year 1949.....	14,587	53	35	45.0	32,500
January.....	1,327	43	42	42.8	2,630
February.....	1,173	42	41	41.9	2,330
March.....	1,171	41	36	37.8	2,320
April.....	1,238	47	38	41.3	2,460
May.....	1,285	43	40	41.5	2,550
June.....	1,335	53	42	44.5	2,650
July.....	1,391	48	42	44.9	2,760
August.....	1,628	55	49	52.5	3,230
September.....	1,650	55	55	55.0	3,270
Water year 1949-50.....	16,603	55	36	45.5	32,940

Note.--No gage-height record Dec. 12 to Feb. 16, Mar. 12-28; discharge interpolated.

Odell Creek near Crescent, Oreg.

Location.--Water-stage recorder, lat. 43°33', long. 121°58', in SW $\frac{1}{4}$ sec. 25, T. 23 S., R. 6 E., at outlet of Odell Lake, $\frac{3}{4}$ miles north of Crescent Lake and 14 miles northeast of Crescent. Datum of gage is 4,778.83 feet above mean sea level, datum of 1929.

Drainage area.--39 square miles.

Records available.--August 1911 to August 1914 (incomplete), December 1923 to June 1924, May 1933 to September 1950.

Average discharge.--17 years (1933-50), 73.1 second-feet.

Extremes.--Maximum discharge during year, 268 second-feet June 12 (gage height, 1.02 feet), from rating curve extended above 170 second-feet by logarithmic plotting; minimum, 20 second-feet Apr. 23 (gage height, 0.23 foot).
1911-14, 1923-24, 1933-50: Maximum discharge, 405 second-feet Dec. 30, 1945, from rating curve extended above 190 second-feet; maximum gage height, 2.03 feet Jan. 5, 1947 (ice jam); minimum discharge, 12 second-feet sometime during period Sept. 7-30, 1934.

Remarks.--Records good except those for periods of no gage-height record, which are fair. 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 lake levels; slightly affected at times by seiches on Odell Lake. No diversion above station.

Revisions (water years).--W 794: 1933, 1934.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Oct. 20 to Nov. 8)

0.3	28	0.6	108
.4	46	.8	181
.5	74	1.1	300

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	56	140	84	90	74	101	91	189	177	81	64
2	42	56	136	88	90	74	105	91	193	177	81	64
3	42	56	126	84	80	77	108	98	197	177	77	64
4	42	56	115	88	75	74	98	94	204	173	71	64
5	56	56	115	81	70	81	94	94	208	173	69	61
6	61	56	108	77	80	88	91	94	216	170	69	61
7	64	56	101	81	80	81	88	91	220	162	66	61
8	61	56	98	84	70	81	91	84	208	154	66	61
9	66	58	101	91	80	81	88	81	197	151	66	61
10	66	58	98	105	80	84	84	81	189	151	66	58
11	71	61	88	108	75	84	84	81	224	140	69	56
12	61	61	84	115	70	84	81	81	260	136	66	56
13	66	61	84	122	70	84	81	88	264	132	66	56
14	64	61	77	143	75	84	81	91	256	129	66	53
15	64	58	77	130	80	84	77	98	248	126	66	53
16	61	58	81	120	80	84	74	105	248	118	66	53
17	58	58	84	120	75	101	74	115	252	115	66	53
18	56	58	105	140	75	115	74	118	240	112	66	56
19	56	56	101	147	70	118	74	118	236	108	66	56
20	56	53	98	151	71	118	77	118	236	101	66	56
21	56	53	91	151	69	122	77	122	232	101	66	53
22	56	53	88	154	69	129	74	129	228	101	66	56
23	56	66	91	189	69	129	58	140	220	98	64	56
24	56	69	108	189	81	129	81	147	208	98	66	56
25	56	69	105	160	84	129	81	151	200	94	64	58
26	56	71	105	130	81	129	81	154	189	91	64	64
27	56	112	88	120	81	129	84	162	181	91	64	64
28	56	151	84	110	77	129	88	162	173	88	64	64
29	56	147	84	110	-	129	84	166	173	84	64	61
30	56	147	84	100	-	129	81	173	173	81	66	58
31	56	-	84	95	-	105	-	181	-	81	64	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	1,771	71	42	57.1	1.46	1.69	3,510
November	2,087	151	53	69.6	1.78	1.99	4,140
December	3,029	140	77	97.7	2.51	2.89	6,010
Calendar year 1949	33,119	208	42	90.7	2.33	31.58	65,690
January	3,667	189	77	118	3.03	3.50	7,270
February	2,147	90	69	76.7	1.97	2.05	4,260
March	3,139	129	74	101	2.59	2.99	6,230
April	2,514	108	58	83.8	2.15	2.40	4,990
May	3,599	181	81	116	2.97	3.43	7,140
June	6,462	264	173	215	5.51	6.16	12,820
July	3,890	177	81	125	3.21	3.71	7,720
August	2,087	81	64	67.3	1.73	1.99	4,140
September	1,757	64	53	58.6	1.50	1.68	3,480
Water year 1949-50	36,149	264	42	99.0	2.54	34.48	71,710

Note.--No gage-height record Jan. 15-18, Jan. 25 to Feb. 19; discharge computed on basis of weather records and records for Waldo Lake Outlet and Salt Creek near Oakridge.

DESCHUTES RIVER BASIN

Fall River near Lapine, Oreg.

Location.--Water-stage recorder, lat. 43°48', long. 121°34', in SE $\frac{1}{4}$ sec. 31, T. 20 S., R. 10 E., downstream from spillway from ponds at State fish hatchery 10 miles northwest of Lapine.

Records available.--May to September 1912 (fragmentary) and June 1938 to September 1950 in reports of Geological Survey. October 1923 to September 1924 (at site 3 miles downstream) in report of State engineer.

Average discharge.--12 years (1938-50), 133 second-feet.

Extremes.--Maximum discharge during year, 194 second-feet sometime during period May 10 to June 15; minimum, 107 second-feet sometime during period Mar. 18 to Apr. 7.
1938-50: Maximum discharge, 223 second-feet sometime during period Aug. 12-24, 1949, probably caused by release of water from fish hatchery; minimum, 68 second-feet Apr. 6, 1942.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Water diverted above station only to ponds at fish hatcheries, from which water returns to river above station.

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

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	178	189	174	172	164	160	160	178	178	178	172	162
2	178	189	174	172	164	160	160	178	178	176	172	165
3	178	189	174	171	164	160	160	178	178	176	172	167
4	178	189	174	171	164	160	160	178	178	176	172	167
5	178	189	174	169	163	160	160	176	178	176	172	167
6	178	189	173	169	163	160	160	176	178	176	171	169
7	178	189	173	169	163	160	160	176	178	176	169	169
8	178	189	173	169	163	160	160	176	178	176	169	171
9	178	191	173	169	163	160	160	178	178	176	167	171
10	178	187	173	169	163	160	160	178	178	176	165	171
11	178	187	173	167	163	160	162	178	178	176	163	171
12	178	185	173	167	163	158	162	178	178	176	162	171
13	178	183	172	169	162	160	164	178	178	176	162	169
14	178	180	172	165	162	160	164	178	178	176	156	169
15	178	180	172	167	162	158	164	178	178	176	156	167
16	178	176	172	167	162	160	166	178	178	176	153	165
17	178	174	172	169	162	162	166	178	178	176	153	165
18	178	172	174	167	160	160	168	178	178	176	153	163
19	178	171	174	167	158	160	168	178	178	178	149	165
20	178	171	172	167	160	160	168	178	178	178	149	163
21	178	171	172	167	160	160	170	178	178	178	147	163
22	180	172	172	167	160	160	170	178	178	178	149	162
23	180	172	172	166	160	160	170	178	178	178	151	162
24	181	174	172	166	160	160	172	178	178	178	151	162
25	181	174	174	166	160	160	172	178	178	178	151	162
26	183	174	174	166	160	160	172	178	178	178	151	162
27	183	178	172	165	160	160	174	178	178	178	151	162
28	185	176	172	165	160	160	174	178	178	178	154	162
29	187	174	172	165	-	160	174	178	178	176	156	162
30	189	174	172	165	-	160	176	178	178	176	156	162
31	189	-	172	164	-	160	-	178	-	174	160	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	5,576	189	178	180	11,060
November.....	5,408	191	171	180	10,730
December.....	5,357	174	172	173	10,630
Calendar year 1949	61,690	191	146	169	122,400
January.....	5,194	172	164	168	10,300
February.....	4,528	164	158	162	8,980
March.....	4,958	162	158	160	9,830
April.....	4,976	176	160	166	9,870
May.....	5,508	178	176	178	10,920
June.....	5,340	178	178	178	10,590
July.....	5,474	178	174	177	10,860
August.....	4,938	172	147	159	9,790
September.....	4,968	171	162	166	9,850
Water year 1949-50	62,225	191	147	170	123,400

Note.--No gage-height record Oct. 1-18, Dec. 1-16, Jan. 21 to Feb. 6, Feb. 21 to Mar. 8, Mar. 19 to Apr. 5, Apr. 12-30, May 10 to June 14, June 18 to July 16; discharge interpolated.

Little Deschutes River near Lapine, Oreg.

Location.--Water-stage recorder, lat. 43°41', long. 121°30', in SW $\frac{1}{4}$ sec. 2, T. 22 S., R. 10 E., at bridge at former town of Rosland, 1 $\frac{1}{2}$ miles north of Lapine. Datum of gage is 4,192.81 feet above mean sea level, datum of 1929.

Records available.--September 1910 to October 1913 (incomplete), June to November 1918, August to October 1920, May 1924 to September 1950.

Average discharge.--26 years (1924-50), 162 second-feet.

Extremes.--Maximum discharge during year, 990 second-feet June 13; minimum not determined; minimum daily discharge, 55 second-feet Jan. 13-15.
1910-13, 1918, 1920, 1924-50: Maximum discharge, that of June 13, 1950; minimum, 8 second-feet Sept. 2, 3, 1931 (gage height, 0.71 foot).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Small diversions above station for irrigation. Flow regulated since August 1922 by Crescent Lake Reservoir (see p. 56).

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	68	182	80	130	370	301	532	752	496	284	158
2	59	67	161	80	125	370	331	530	758	485	279	156
3	58	66	151	75	120	371	355	550	758	476	275	155
4	58	62	130	70	120	372	359	561	758	474	270	155
5	62	61	125	65	125	380	350	530	755	473	270	155
6	68	62	125	70	130	368	355	504	748	464	270	154
7	66	71	118	70	140	344	362	467	735	456	269	153
8	87	79	113	65	135	324	351	448	732	445	266	153
9	79	79	110	65	130	297	335	431	740	435	229	154
10	77	92	100	60	130	279	315	431	750	421	211	154
11	81	91	95	60	130	260	302	442	780	410	209	152
12	85	91	90	60	130	246	313	458	839	400	197	151
13	84	91	95	55	135	242	330	480	922	391	197	148
14	78	91	100	55	140	234	341	503	851	378	192	148
15	71	89	100	55	160	236	339	530	833	365	191	148
16	67	*88	95	*58	150	247	336	571	791	354	186	148
17	65	88	90	60	145	283	351	619	750	347	183	153
18	64	87	85	70	140	320	376	645	735	343	180	154
19	64	84	80	85	140	348	406	665	730	338	173	153
20	63	85	75	100	140	342	436	678	708	335	167	152
21	62	79	80	90	140	321	460	680	688	325	165	150
22	60	79	85	85	140	323	484	675	662	324	163	148
23	67	86	90	80	140	315	522	670	641	321	163	147
24	63	95	90	80	150	302	562	672	623	318	164	146
25	62	132	90	90	160	268	561	685	625	311	164	145
26	58	124	90	150	200	271	550	710	619	306	165	147
27	71	126	85	150	300	267	559	730	605	300	164	112
28	57	168	85	140	*374	261	577	742	585	294	162	90
29	61	218	80	135	-	252	579	738	559	293	161	87
30	71	203	75	130	-	239	562	740	520	290	158	82
31	70	-	80	130	-	266	-	740	-	289	157	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	2,117	87	57	68.3	4,200
November.....	2,902	218	61	96.7	5,760
December.....	3,150	182	75	102	6,250
Calendar year 1949	87,372	869	-	239	173,300
January.....	2,618	150	55	84.5	5,190
February.....	4,299	374	120	154	8,530
March.....	9,338	380	234	301	18,520
April.....	12,360	579	301	412	24,520
May.....	18,357	742	431	592	36,430
June.....	21,553	922	520	719	42,760
July.....	11,657	495	289	376	23,120
August.....	6,284	284	157	203	12,460
September.....	4,308	158	82	144	8,540
Water year 1949-50	98,948	922	55	271	196,300

Peak discharge (base, 400 sec.-ft.).--Apr. 29 (7 a.m. to 12 m.) 581 sec.-ft.; June 13 (11 a.m. to 2 p.m.) 990 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for Crescent Creek at Crescent Lake and unpublished records for Big Marsh Creek near Lapine.

Note.--Stage-discharge relation affected by ice Dec. 9 to Mar. 2.

Crescent Creek at Crescent Lake, near Crescent, Oreg.

Location.--Water-stage recorder and Parshall flume, lat. 43°30', long. 121°58', in sec. 11, T. 24 S., R. 6 E., 100 yards downstream from dam at outlet of Crescent Lake and 14 miles west of Crescent.

Drainage area.--58 square miles.

Records available.--January 1911 to July 1915, July 1927 to September 1928 (incomplete), October 1928 to September 1950.

Average discharge.--25 years (1911-14, 1928-50), 39.9 second-feet.

Extremes.--Maximum discharge during year, 219 second-feet June 14-16 (gage height, 2.62 feet); minimum observed, 3.0 second-feet Sept. 26 (gage height, 0.15 foot).

1911-15, 1927-50: Maximum discharge, 313 second-feet July 9, 1929, Aug. 9, 1936; no flow at times.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Flow regulated since 1922 by Crescent Lake Reservoir (p. 56), storage being released May 24 to Sept. 25 for diversion below station through Deschutes County Municipal Improvement District Canal at Bend. No diversion above station.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.2	4	0.6	21	1.7	109
.5	7	.8	33	2.1	153
.4	11	1.0	47	2.7	229
.5	15	1.3	71		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.9	10	11	13	71	69	69	67	184	208	186	96
2	8.9	10	11	13	71	69	69	67	182	207	185	96
3	8.9	10	11	13	71	69	69	67	182	207	182	96
4	8.9	10	11	13	71	69	69	67	181	207	181	96
5	8.9	10	11	13	71	69	69	67	181	207	178	96
6	8.9	10	11	13	a71	69	69	67	180	207	177	96
7	8.9	10	11	13	a71	69	69	67	178	207	148	96
8	8.9	10	11	13	a71	69	69	67	177	208	101	96
9	8.9	10	11	13	a71	69	69	67	177	207	101	96
10	8.9	10	11	13	71	69	69	67	177	208	101	96
11	8.9	10	11	14	71	69	69	67	177	210	101	96
12	8.9	10	11	14	71	69	68	67	198	210	101	96
13	8.9	10	11	14	72	69	68	67	217	210	100	96
14	8.9	10	11	14	71	69	68	67	219	208	100	96
15	8.9	10	11	14	71	69	68	67	217	208	100	96
16	8.9	10	11	14	71	69	68	68	219	207	99	96
17	8.9	10	11	14	71	69	68	68	217	207	99	96
18	8.9	10	11	14	71	69	68	68	218	204	99	96
19	8.9	10	11	14	70	69	68	69	215	203	99	96
20	9.3	10	12	14	70	69	67	69	215	202	99	96
21	9.3	10	12	14	70	69	67	69	216	199	99	96
22	9.3	10	12	14	70	69	67	69	216	196	98	96
23	9.3	10	12	14	70	69	67	69	217	194	98	96
24	9.7	10	12	h32	69	69	67	85	216	193	98	96
25	9.7	10	12	71	69	69	67	129	215	191	98	h67
26	9.7	10	13	71	69	69	67	129	212	191	98	6
27	9.7	10	13	71	69	69	67	130	211	183	97	6
28	10	10	h13	71	69	69	67	130	208	191	97	6.4
29	10	10	13	71	-	69	67	158	208	190	97	6.4
30	10	11	13	71	-	69	67	182	208	189	97	6.4
31	10	-	13	71	-	69	-	184	-	187	97	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	285.1	10	8.9	9.20	565
November.....	301	11	10	10.0	597
December.....	359	13	11	11.6	712
Calendar year 1949	24,751.2	244	-	67.8	49,050
January.....	841	71	13	27.1	1,670
February.....	1,974	72	69	70.5	3,920
March.....	2,139	69	69	69.0	4,240
April.....	2,040	69	67	68.0	4,050
May.....	2,681	184	67	86.5	5,320
June.....	6,036	219	177	201	11,970
July.....	6,258	210	187	202	12,410
August.....	3,611	186	97	116	7,180
September.....	2,402.2	96	6	80.1	4,760
Water year 1949-50	28,925.3	219	6	79.2	57,370

h Computed from staff-gage reading.

Note.--No gage-height record Dec. 17-27, Dec. 29 to Jan. 23, Jan. 25 to Mar. 9, Sept. 26, 27; discharge interpolated.

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 SW $\frac{1}{4}$ sec. 27, T. 18 S., R. 11 E.; water used for irrigation southeast of Bend.

Central Oregon Canal diverts from right bank in NE $\frac{1}{4}$ 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 NE $\frac{1}{4}$ 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 Reservoir is diverted by this canal.

North Unit Main Canal diverts water from right bank in NE $\frac{1}{4}$ sec. 29, T. 17 S., R. 12 E.; water used for irrigation near Madras.

North and Swalley Canals divert from right bank in NE $\frac{1}{4}$ sec. 29, T. 17 S., R. 12 E.; water used for irrigation north of Bend, mostly near Redmond.

Records of monthly discharge of these canals, published as a group, are available from October 1926 to September 1950; records for each canal published separately prior to 1926.

Diversions, in acre-feet, water year October 1949 to September 1950

Month	Arnold	Central Oregon Canal	Deschutes County Municipal Improvement District Canal	North Unit Main Canal	North Canal	Swalley Canal	Total
October.....	702	17,170	2,670	8,190	18,510	4,950	52,192
November.....	0	3,420	0	0	13,920	547	17,887
December.....	593	1,960	0	0	1,090	361	4,004
January.....	61	720	0	0	859	238	1,878
February.....	744	2,300	0	428	2,320	770	6,562
March.....	155	2,440	0	0	1,830	413	4,838
April.....	2,640	14,840	266	26,670	14,980	3,020	62,416
May.....	5,370	29,710	3,370	43,330	27,750	6,200	115,730
June.....	6,090	24,880	3,000	31,700	24,340	6,080	96,090
July.....	7,720	34,360	4,920	58,250	31,800	7,350	144,400
August.....	6,910	34,070	9,230	37,150	32,260	7,350	126,990
September.....	4,470	29,980	8,590	28,250	27,940	6,360	105,590
Water year 1949-50	35,455	195,850	32,046	233,968	197,619	43,639	738,577

DESCHUTES RIVER BASIN

Tumalo Creek below Bend, Oreg.

Location.--Water-stage recorder, lat. 44°05', long. 121°22', in SE $\frac{1}{4}$ sec. 23, T. 17 S., R. 11 E., 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.--57 square miles.

Records available.--October 1906 to December 1908 and October 1910 to April 1913 (winters only), November 1913 to September 1950.

Average discharge.--35 years (1913-21, 1923-50), 79.7 second-feet, excluding Columbia Southern Canal.

Extremes.--Maximum discharge during year, 882 second-feet Nov. 27, from rating curve extended above 250 second-feet; maximum gage height, 4.41 feet Feb. 2, 3 (backwater from ice); minimum discharge, 25 second-feet Oct. 2, 3 (gage height, 1.33 feet).
1906-8, 1911-50: Maximum discharge, 1,420 second-feet about Jan. 6, 1923, from rating curve extended above 200⁰ second-feet; maximum gage height, 6.23 feet Feb. 12, 13, 1948 (backwater from ice); minimum discharge, 1 second-foot June 28 to July 3, 1940.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Crater Creek Canal diverts flow of tributaries of Soda Creek into head of Tumalo Creek. Columbia Southern Canal diverts from creek above station; canal records good. Records of daily discharge do not include diversion by Columbia Southern Canal.

Revisions (water years).--W 864: 1937.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to June 12					June 13 to Sept. 30				
1.3	22	1.9	101		1.3	27	1.9	108	
1.4	31	2.1	140		1.4	38	2.2	167	
1.5	42	2.4	212		1.5	50	2.5	240	
1.6	54	2.7	305		1.7	77	2.8	345	
1.7	68	3.0	425						

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	68	114	b70	b55	82	109	107	234	261	64	40
2	27	68	105	b65	a50	82	114	101	240	255	60	40
3	27	67	94	a60	a50	92	101	101	234	249	60	40
4	27	67	96	a60	a55	96	98	99	243	261	56	43
5	31	67	94	a65	a55	96	98	98	258	261	51	43
6	31	67	89	a70	a60	92	101	94	240	238	49	42
7	68	67	87	a70	a65	87	98	92	196	230	48	40
8	68	68	87	a70	a70	87	96	91	167	222	a50	39
9	74	70	86	a70	*b70	87	94	91	160	252	50	38
10	81	68	84	a65	b70	86	92	98	194	220	49	39
11	87	73	a80	a65	b70	84	92	112	325	176	43	38
12	78	73	a80	a60	71	b82	94	130	421	160	42	37
13	73	71	a85	a60	73	82	94	149	313	174	43	38
14	71	71	a85	a60	76	81	92	174	280	178	42	36
15	71	73	a85	a60	79	79	92	176	264	174	44	38
16	71	74	a80	a65	74	87	94	184	237	163	43	38
17	70	76	a75	a65	70	*126	99	191	249	143	40	39
18	70	a75	a70	a70	70	107	103	151	255	141	44	38
19	68	a75	a70	a70	68	99	103	126	261	160	43	36
20	76	a72	b65	a75	67	96	114	136	294	129	42	37
21	70	a68	b60	b60	64	94	118	151	333	115	45	36
22	70	*67	b70	b60	64	92	122	174	286	111	34	34
23	70	152	74	b80	68	91	116	179	230	113	45	35
24	68	169	73	b75	91	89	112	172	181	111	59	36
25	68	107	b70	b75	101	87	110	202	169	108	48	38
26	68	110	74	b70	92	84	110	176	167	102	42	44
27	68	389	74	b70	86	84	110	196	181	92	43	40
28	94	155	76	b65	82	82	103	186	208	90	40	38
29	84	120	76	b65	-	81	101	194	249	69	39	38
30	73	147	b75	a60	-	82	101	220	267	65	40	38
31	70	-	b70	b55	-	84	-	226	-	67	42	-

Month	Tumalo Creek					Columbia Southern Canal (runoff in acre-feet)	Combined runoff in acre-feet
	Second- foot-days	Discharge in second-feet			Runoff in acre-feet		
		Maximum	Minimum	Mean			
October.....	1,998	94	27	64.5	3,960	460	4,420
November.....	2,894	389	67	96.5	5,740	0	5,740
December.....	2,503	114	60	80.7	4,960	0	4,960
Calendar year 1949....	32,892	389	26	90.1	65,220	16,830	82,050
January.....	2,090	80	55	67.4	4,150	0	4,150
February.....	1,966	101	50	70.2	3,900	0	3,900
March.....	2,760	126	79	89.0	5,470	0	5,470
April.....	3,081	122	92	103	6,110	0	6,110
May.....	4,577	226	91	148	9,080	1,440	10,520
June.....	7,339	421	160	245	14,560	4,040	18,600
July.....	5,086	261	63	164	10,090	4,440	14,530
August.....	1,449	64	39	46.7	2,870	3,220	6,090
September.....	1,156	44	34	38.5	2,290	2,270	4,560
Water year 1949-50....	36,899	421	27	101	73,180	15,870	89,050

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for Squaw Creek near Sisters.

b Stage-discharge relation affected by ice.

Squaw Creek near Sisters, Oreg.

Location.--Water-stage recorder, lat. 44°14', long. 121°34', in NW $\frac{1}{4}$ sec. 32, T. 15 S., R. 10 E., just upstream from intake of McCallister ditch and 4 miles south of Sisters.

Drainage area.--63 square miles.

Records available.--1913-25 (irrigation seasons only), October 1925 to September 1950. July 1906 to May 1913 at site 700 feet downstream, below intake of McCallister ditch.

Average discharge.--38 years (1906-18, 1919-21, 1925-50), 102 second-feet.

Extremes.--Maximum discharge during year, 930 second-feet Nov. 27 (gage height, 4.30 feet); minimum, 48 second-feet Oct. 16, but may have been less during periods of ice effect Dec. 9 to Feb. 13.

1906-50: Maximum gage height, about 8.75 feet (over top of gage), Nov. 22, 1909, site and datum then in use (discharge not determined); maximum discharge recorded since that time, 1,130 second-feet Dec. 2, 1941 (gage height, 3.33 feet); minimum, 19 second-feet Dec. 6, 1922.

Remarks.--Records fair except those for periods of 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.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	54	162	70	50	107	118	83	295	349	165	103
2	62	54	150	70	50	99	105	79	298	346	170	105
3	61	54	138	65	50	a100	90	76	289	343	165	107
4	66	54	148	60	50	a100	84	74	307	352	148	101
5	72	54	128	60	55	a100	84	72	325	358	138	92
6	62	53	126	65	55	a90	83	69	295	346	133	90
7	59	53	124	70	60	83	81	68	242	334	138	88
8	59	54	118	70	65	78	78	68	220	326	140	86
9	69	54	110	65	65	74	74	71	228	349	140	84
10	71	53	100	65	65	72	72	79	256	313	138	83
11	76	58	90	60	65	68	72	92	331	271	133	85
12	65	61	90	60	65	66	74	107	346	259	131	81
13	59	59	100	60	65	63	74	133	298	271	128	79
14	56	58	100	60	63	62	71	138	286	280	133	76
15	55	56	100	60	59	61	72	136	283	271	136	76
16	54	58	95	60	58	90	78	138	286	248	133	74
17	53	58	90	60	55	148	86	140	292	230	131	72
18	51	56	85	65	54	113	84	131	310	228	133	71
19	53	56	75	65	53	103	86	128	328	245	131	71
20	54	56	70	70	53	94	96	148	343	225	124	71
21	51	55	*70	75	83	92	101	178	346	215	126	71
22	53	58	75	80	138	88	101	212	319	220	122	71
23	51	196	80	80	116	83	97	210	286	215	126	72
24	50	140	75	75	103	79	94	202	248	212	165	72
25	50	99	70	70	97	76	94	198	238	210	128	78
26	51	126	70	70	88	72	92	218	240	195	116	97
27	50	472	75	65	83	72	90	248	256	185	116	76
28	69	230	75	a60	92	68	86	238	286	182	111	69
29	62	198	75	a60	-	65	83	259	345	158	107	69
30	56	212	70	a55	-	65	83	286	343	155	107	68
31	55	-	70	a55	-	71	-	280	-	158	107	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,818	76	50	58.6	3,610
November.....	2,899	472	53	96.6	5,750
December.....	3,004	162	70	96.9	5,960
Calendar year 1949	42,073	472	35	115	85,450
January.....	2,025	80	55	65.3	4,020
February.....	1,955	138	50	69.8	3,880
March.....	2,602	148	61	83.9	5,160
April.....	2,583	118	71	86.1	5,120
May.....	4,559	286	68	147	9,040
June.....	8,745	346	220	292	17,350
July.....	8,049	358	155	260	15,960
August.....	4,119	170	107	133	8,170
September.....	2,436	107	68	81.2	4,650
Water year 1949-50	44,794	472	50	123	88,850

Peak discharge (base, 300 sec.-ft.).--Nov. 23 (2:30 p.m.) 375 sec.-ft.; Nov. 27 (10 a.m.) 930 sec.-ft.; June 11 (11 p.m.) 388 sec.-ft.; July 4 (9 p.m.) 405 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for Tumalo Creek near Bend and Lake Creek near Sisters.

Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 27, Feb. 2-13.

DESCHUTES RIVER BASIN

Crooked River near Post, Oreg.

Location.--Water-stage recorder, lat. 44°07', long. 120°16', in NE $\frac{1}{4}$ sec. 12, T. 17 S., R. 20 E., 1 mile downstream from North Fork and 1 $\frac{1}{2}$ miles southeast of Post. Datum of gage is 3,461.72 feet above mean sea level, datum of 1929.

Drainage area.--2,160 square miles, of which 500 square miles is probably noncontributing.

Records available.--November 1908 to August 1911, December 1939 to September 1950.

Average discharge.--10 years (1940-50), 322 second-feet.

Extremes.--Maximum discharge during year, 3,320 second-feet Apr. 2 (gage height, 5.08 feet); minimum, 5.9 second-feet Sept. 5.

1908-11, 1939-50: Maximum discharge, 6,190 second-feet Dec. 28, 1945, from rating curve extended above 2,600 second-feet; maximum gage height, 7.21 feet Feb. 17, 1949, (ice jam); minimum discharge, 4.4 second-feet July 12, 1940.

Remarks.--Records good except those for period of ice effect, which are fair. Several small diversions above station; one small canal diverts on right bank 800 feet above station for irrigation below station; no regulation.

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 25 to Mar. 5, Aug. 24 to Sept. 6)

1.0	9.5	1.6	74	3.3	780
1.1	15	1.8	117	3.5	1,000
1.2	22	2.0	170	4.0	1,700
1.3	31	2.3	270	4.5	2,450
1.4	43	2.7	430	5.0	3,200
1.5	57	3.0	570		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	51	76	50	75	535	1,880	740	150	71	18	11
2	18	54	74	40	85	530	2,900	693	130	64	17	11
3	18	54	59	35	80	716	1,600	618	117	59	16	10
4	18	53	56	45	120	952	1,450	560	108	54	15	10
5	21	53	72	45	160	1,320	1,570	520	101	50	15	11
6	21	51	*69	55	150	1,360	1,840	480	98	47	16	11
7	21	51	66	65	190	898	1,590	452	108	43	18	11
8	21	54	64	65	170	837	1,250	430	132	41	18	12
9	24	60	59	60	150	502	1,080	444	134	39	17	13
10	26	62	55	55	*140	470	1,030	530	120	39	16	13
11	27	64	45	55	130	398	1,180	651	134	41	15	13
12	27	62	52	55	120	354	1,800	850	728	38	14	14
13	26	59	60	80	140	354	2,140	1,030	892	36	14	14
14	27	57	70	55	200	374	1,590	1,170	545	33	14	14
15	28	56	75	52	350	386	1,450	1,010	434	32	13	15
16	29	56	70	55	450	488	1,530	840	418	30	13	16
17	33	59	60	60	520	1,360	1,700	764	439	29	12	16
18	36	53	50	70	493	1,640	1,780	630	466	29	12	14
19	41	56	35	80	434	1,110	1,780	545	390	28	12	15
20	36	51	50	90	406	1,000	1,980	498	372	26	12	16
21	41	53	70	100	342	708	1,880	475	418	26	11	18
22	43	54	75	160	290	740	1,780	462	346	26	11	18
23	46	67	75	150	282	624	1,390	430	246	22	11	18
24	47	69	60	130	631	565	1,080	390	204	20	11	15
25	42	76	65	100	1,480	516	988	326	197	20	11	14
26	44	69	65	100	1,460	506	916	282	170	18	12	15
27	47	76	65	100	916	434	904	260	148	18	11	16
28	49	99	65	80	*630	398	790	246	124	17	11	16
29	51	88	60	90	-	374	658	218	108	18	11	18
30	53	76	60	*90	-	470	650	197	86	17	11	18
31	51	-	60	70	-	615	-	173	-	18	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,029	53	17.	33.2	2,040
November.....	1,845	39	51.	61.4	3,860
December.....	1,937	76	35	62.5	3,840
Calendar year 1949	114,652.0	2,700	7.9	314	227,400
January.....	2,317	160	35	74.7	4,600
February.....	10,594	1,480	75	378	21,010
March.....	21,324	1,640	354	688	42,300
April.....	44,316	2,900	630	1,477	87,900
May.....	16,914	1,170	173	546	33,550
June.....	8,059	892	86	269	15,980
July.....	1,049	71	17	33.8	2,080
August.....	419	18	11	13.5	831
September.....	426	18	10	14.2	845
Water year 1949-50	110,227	2,900	10	302	218,600

Peak discharge (base, 1,600 sec.-ft.).--Feb. 26 (1 a.m.) 1,780 sec.-ft.; Mar. 6 (3 a.m.) 1,740 sec.-ft.; Mar. 18 (2:30 a.m.) 2,120 sec.-ft.; Apr. 2 (6:30 a.m.) 3,320 sec.-ft.; Apr. 6 (7:30 a.m.) 2,260 sec.-ft.; Apr. 13 (4 a.m.) 2,280 sec.-ft.; Apr. 20 (1 a.m.) 2,150 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 10 to Feb. 17 (no gage-height record Jan. 31 to Feb. 4).

Crooked River above Hoffman Dam, near Prineville, Oreg.

Location.--Water-stage recorder, lat. 44°09', long. 120°50', in NE $\frac{1}{4}$ sec. 32, T. 16 S., R. 16 E., 0.9 mile upstream from Hoffman diversion dam and 11 miles south of Prineville. Datum of gage is 2,981.23 feet above mean sea level, datum of 1929.

Drainage area.--2,810 square miles, of which 500 square miles is probably noncontributing. **Records available.**--January 1940 to February 1941 (discharge measurements only), March 1941 to September 1950. October 1908 to December 1912 at Stearns Ranch, $\frac{5}{2}$ miles south of Prineville, below Hoffman and Stearns diversions. January 1913 to September 1914 at Hoffman Ranch, 10 miles south of Prineville, below Hoffman diversion. Records practically equivalent to those at present site except for diversions.

Extremes.--Maximum discharge during year, 3,420 second-feet Apr. 2 (gage height, 5.48 feet); minimum, 4 second-feet Sept. 1, 2, 8 (gage height, 1.04 feet). 1908-12, 1913-14, 1940-50: Maximum discharge observed, 9,080 second-feet Mar. 1, 2, 1910 (gage height, 9.4 feet, former site and datum), from rating curve extended above 1,000 second-feet; no flow at times in 1940. Maximum discharge in recent years, 6,300 second-feet Mar. 28, 1943 (gage height, 7.07 feet), from rating curve extended above 3,400 second-feet.

Remarks.--Records good except those for period of ice effect, which are fair. Diversions above station for irrigation; no regulation.

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 2						Apr. 3 to Sept. 30					
1.2	10	1.9	92	3.3	760	1.0	3	1.5	33		
1.3	14	2.1	134	3.7	1,120	1.1	6	1.6	44		
1.4	22	2.3	187	4.0	1,450	1.2	11	1.7	57		
1.5	32	2.5	257	4.5	2,070	1.3	16	1.9	91		
1.6	44	2.7	350	5.0	2,740	1.4	24	2.1	134		
1.7	58	2.9	465	5.2	3,020						

Note.--Same as preceding table above 2.1 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	51	92	69	85	665	1,150	736	167	105	10	5
2	12	51	87	52	90	598	2,960	832	149	87	10	5
3	13	52	87	47	100	680	2,370	744	134	78	10	5
4	14	52	74	38	95	1,000	1,710	672	125	57	12	5
5	16	54	63	50	130	1,280	1,690	612	113	59	14	5
6	17	52	*78	50	180	1,670	1,950	563	103	53	14	5
7	19	52	79	60	170	1,792	1,890	514	103	45	15	5
8	19	52	78	75	210	792	1,510	472	105	47	13	5
9	19	54	78	75	170	612	1,240	459	127	43	12	5
10	19	58	72	70	160	514	1,150	500	139	42	12	5
11	20	66	48	65	150	459	1,150	628	159	41	14	5
12	40	69	54	65	140	388	1,680	792	605	42	15	5
13	27	69	63	65	130	372	2,370	1,000	1,500	40	16	5
14	26	71	71	70	150	378	2,020	1,190	894	32	15	5
15	26	68	81	65	200	394	1,670	1,160	605	31	14	6
16	27	66	83	65	400	411	1,710	1,000	514	30	12	6
17	28	63	79	65	560	752	1,850	858	500	30	8	6
18	28	68	78	70	556	1,840	2,040	768	556	30	8	6
19	30	66	54	80	528	1,240	2,000	620	521	28	8	6
20	32	63	40	90	453	1,180	2,200	549	417	25	8	6
21	36	63	54	120	394	876	2,170	500	549	31	6	6
22	36	61	79	180	340	752	2,060	479	475	30	6	6
23	38	69	88	170	300	768	1,710	1,477	348	25	6	6
24	42	74	88	130	356	628	1,340	423	274	18	6	6
25	42	78	71	110	1,040	598	1,160	361	246	20	6	6
26	42	85	72	120	1,810	542	1,080	315	227	18	5	8
27	42	87	78	120	*1,330	507	1,040	283	193	15	5	8
28	47	87	76	90	876	447	948	261	167	15	5	8
29	48	100	76	90	-	394	816	249	144	12	5	8
30	48	104	68	*85	-	411	704	227	127	10	5	9
31	50	-	68	100	-	528	-	197	-	10	5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	915	50	12	29.5	1,810
November.....	2,005	104	51	66.8	3,980
December.....	2,257	92	40	72.8	4,480
Calendar year 1949	131,223	3,050	5	360	260,300
January.....	2,611	180	38	84.2	5,180
February.....	11,103	1,810	85	397	22,020
March.....	1,840	372	75	154	45,180
April.....	49,338	2,960	704	1,645	97,860
May.....	18,411	1,190	197	594	36,520
June.....	10,280	1,500	103	343	20,390
July.....	1,149	105	10	37.1	2,280
August.....	300	16	5	9.7	595
September.....	177	9	5	5.9	351
Water year 1949-50	121,326	2,960	5	332	240,600

Peak discharge (base, 2,000 sec.-ft.).--Mar. 18 (2 p.m.) 2,070 sec.-ft.; Apr. 2 (5 p.m.) 3,420 sec.-ft.; Apr. 13 (10 a.m.) 2,580 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 5 to Feb. 17.

DESCHUTES RIVER BASIN

Crooked River near Culver, Oreg.

Location.--Water-stage recorder, lat. 44°33'36", long. 121°16'12", in sec. 3 (50 feet west of $\frac{1}{4}$ -corner on line between secs. 2 and 3), T. 12 S., R. 12 E., 1 mile upstream from mouth, 1 mile downstream from Cove power plant, and 4 miles northwest of Culver. Datum of gage is 1,664.86 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Drainage area.--4,330 square miles, of which 500 square miles is probably noncontributing. Records available.--October 1917 to September 1950.

Average discharge.--33 years, 1,478 second-feet.

Extremes.--Maximum discharge during year, 3,920 second-feet Apr. 3 (gage height, 5.49 feet); minimum, 1,140 second-feet Aug. 8 (gage height, 2.18 feet); minimum daily, 1,280 second-feet July 27-30.

1917-50: Maximum discharge observed, 8,260 second-feet Mar. 30, 31, 1943 (gage height, 6.70 feet, site and datum then in use); minimum, 920 second-feet Oct. 14, 1945 (gage height, 1.67 feet); minimum daily, 970 second-feet July 12 to Sept. 5, 1921.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Flow slightly regulated by Ochoco Reservoir; occasional diurnal fluctuation caused by power plant 1 mile above station. Summer flow above Prineville diverted for irrigation. Springs increase flow about 1,000 second-feet within an area extending 17 miles above station.

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

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

2.4	1,260	3.5	2,040
2.6	1,380	4.0	2,490
3.0	1,650	5.3	3,710

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,370	1,360	1,460	1,350	1,440	2,210	a2,000	h2,080	1,520	1,410	1,290	1,320
2	1,380	1,340	1,430	1,350	a1,450	2,040	a2,500	a2,100	1,490	1,350	1,300	1,320
3	1,380	1,340	1,410	1,320	a1,450	1,990	a3,700	a2,000	1,480	1,360	1,300	1,320
4	1,390	1,350	1,410	1,330	a1,500	2,120	a3,000	a1,900	1,450	1,340	1,310	1,320
5	1,390	1,350	1,390	-1,330	a1,550	2,390	a2,900	a1,800	1,450	1,320	1,310	1,330
6	1,390	1,350	1,380	1,330	a1,550	2,650	a2,900	a1,800	1,430	1,320	1,310	1,330
7	1,390	1,350	1,370	1,340	a1,600	2,730	a3,000	a1,700	1,420	1,320	1,310	1,320
8	1,390	1,360	1,390	1,350	a1,600	2,390	a2,700	a1,700	1,380	1,310	1,320	1,330
9	1,390	1,380	1,390	1,360	1,580	2,120	a2,500	a1,700	1,370	1,320	1,340	1,340
10	1,410	1,370	1,380	1,370	1,560	1,940	a2,400	a1,700	1,380	1,300	1,340	1,340
11	1,390	1,370	1,370	1,360	1,540	1,860	a2,400	a1,800	1,440	1,310	1,310	1,340
12	1,390	1,380	1,340	1,350	1,530	1,770	a2,700	a1,900	1,880	1,320	1,310	1,340
13	1,380	1,380	1,340	1,360	1,540	1,710	a3,100	a2,000	2,620	1,320	1,310	1,340
14	1,370	1,380	1,360	1,340	1,580	1,690	3,360	a2,200	2,620	1,320	1,310	1,350
15	1,370	1,390	1,360	1,330	1,630	1,690	3,020	2,340	2,190	1,320	1,310	1,340
16	1,370	1,390	1,370	1,360	1,640	1,700	2,840	2,280	2,000	1,320	1,300	1,340
17	1,380	1,380	1,380	1,350	1,950	1,750	2,880	2,150	1,960	1,330	1,310	1,350
18	1,370	1,380	1,380	a1,340	2,000	2,250	2,980	2,040	1,920	1,320	1,310	1,350
19	1,380	1,390	1,370	a1,320	1,950	2,830	3,060	1,940	1,950	1,310	1,300	1,350
20	1,370	1,380	1,360	a1,350	1,910	2,490	a3,100	1,850	1,880	1,300	1,300	1,340
21	1,370	1,370	1,340	1,380	1,820	2,470	a3,200	1,800	1,860	1,300	1,300	1,340
22	1,370	1,370	1,340	1,430	1,740	2,240	a3,100	1,760	1,960	1,300	1,300	1,330
23	1,390	1,390	1,360	1,540	1,690	2,170	a2,900	1,730	1,840	1,290	1,300	1,340
24	1,400	1,410	1,370	1,550	1,650	2,160	a2,700	1,700	1,720	1,290	1,310	1,340
25	1,390	1,410	1,380	1,440	1,800	1,980	a2,500	1,660	1,640	1,290	1,310	1,340
26	1,370	1,420	1,370	1,430	2,590	1,940	a2,400	1,640	1,620	1,300	1,330	1,340
27	1,370	1,430	1,370	1,430	2,890	1,870	a2,300	1,620	1,590	1,280	1,340	1,350
28	1,370	1,440	1,360	a1,400	2,540	1,820	a2,200	1,590	1,550	1,280	1,320	1,340
29	1,360	1,440	1,360	a1,350	-	1,760	a2,100	1,570	1,520	1,280	1,320	1,360
30	1,360	1,450	1,360	a1,400	-	1,720	a2,000	1,550	1,470	1,260	1,330	1,360
31	1,370	-	1,350	a1,400	-	1,760	-	1,530	-	1,290	1,330	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	42,770	1,410	1,360	1,360	84,830
November.....	41,500	1,450	1,340	1,383	82,310
December.....	42,600	1,460	1,340	1,374	84,500
Calendar year 1949.....	628,660	4,460	1,260	1,722	1,247,000
January.....	42,640	1,550	1,320	1,375	84,580
February.....	49,480	1,440	1,400	1,427	98,140
March.....	64,210	2,830	1,690	2,071	127,400
April.....	82,440	3,700	2,000	2,748	163,500
May.....	57,130	2,340	1,530	1,843	113,300
June.....	51,600	2,620	1,370	1,720	102,300
July.....	40,700	1,410	1,280	1,313	80,730
August.....	40,690	1,340	1,290	1,313	80,710
September.....	40,150	1,360	1,320	1,338	79,640
Water year 1949-50.....	595,910	3,700	1,280	1,633	1,182,000

Peak discharge (base, 2,500 sec.-ft.).--Feb. 27 (7 a.m.), 2,980 sec.-ft.; Mar. 7 (9 a.m.) 2,660 sec.-ft.; Mar. 19 (8 a.m.) 2,990 sec.-ft.; Apr. 3 (about 12 m.) 3,920 sec.-ft.; Apr. 14 (1 a.m.) 3,420 sec.-ft.; Apr. 21 (6 a.m.) 3,240 sec.-ft.; June 13 (7 p.m.) 2,870 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, 1 discharge measurement, weather records, and records for station above Hoffman Dam near Prineville.

h Computed from staff-gage readings.

South Fork Beaver Creek near Paulina, Oreg.

Location.--Water-stage recorder, lat. 44°08', long. 119°45', in N½ sec. 5, T. 17 S., R. 25 E1, at Palmer Ranch, 11 miles east of Paulina.

Drainage area.--90 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey. June 1944 to September 1945 in files of Bureau of Reclamation.

Extremes.--Maximum discharge during year, 4.8 second-feet Mar. 16 (gage height, 3.77 feet), from rating curve extended above 60 second-feet; no flow for many days.
1944-50: Maximum discharge, about 900 second-feet Dec. 28 or 29, 1945, computed on basis of records for Beaver Creek near Paulina; maximum gage height observed, 6.40 feet May 21, 1946; no flow at times.

Remarks.--Records good except those for periods of ice effect and those below 5 second-feet, which are poor. Most of summer flow diverted above station for irrigation and stock water. No regulation.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 23 to Dec. 10)

0.8	0	1.4	1.8	2.0	21
.9	.02	1.5	3.0	2.1	29
1.0	.08	1.6	4.7	2.3	48
1.1	.2	1.7	7.0	2.5	73
1.2	.5	1.8	10	2.7	104
1.3	1.0	1.9	15	2.9	141

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.1	4.5	5	27	78	43	10	5.6	0.3	
2			.1	2.5	6	27	58	46	10	4.9	.2	
3		0	.1	2.5	8.2	42	47	42	9.7	4.0	.2	
4		0	.2	4	8.5	38	47	41	9.1	3.7	.1	
5		0	.2	3.5	9.7	39	48	43	8.5	3.0	.1	
6		0	*.1	4	14	30	59	44	8.8	2.4	.1	
7		0	.1	3.5	9.7	25	61	40	12	1.9	0	
8		0	.1	3.5	7.9	27	56	39	19	1.8	.1	
9		0	.1	3.5	7.3	23	52	33	16	2.6	.1	
10		0	.1	3.5	6.5	25	48	25	14	4.8	.1	
11		0	.7	3	6.1	23	47	24	15	9.4	.1	
12		0	3	3	5.6	23	50	23	31	8.2	.1	
13		0	4	3.5	5.5	24	56	22	34	7.6	.1	
14		0	4	3	9	25	55	21	27	7.0	.1	
15		0	4	3	25	29	52	21	23	6.5	.1	
16		0	4.5	3.5	45	100	50	19	30	6.1	.1	
17		0	4.5	3	30	134	52	16	33	5.4	.1	
18		0	3.5	3	28	44	50	15	28	5.2	.1	
19		0	2.5	4	33	47	46	15	24	4.7	.1	
20		0	2.5	7	27	41	39	16	21	4.7	0	
21		0	4	12	20	38	39	15	20	4.4	0	
22		0	4	15	18	44	39	16	15	4.0	0	
23		.1	4.5	10	19	40	37	14	14	3.5	0	
24		.3	3.5	6	130	38	35	14	13	1.8	0	
25		0	3	6	104	39	33	12	13	1.0	0	
26		0	3.5	5	58	39	30	12	12	1.4	0	
27		0	4.5	6	41	38	31	13	12	1.8	0	
28		.1	4.5	5.5	*27	36	40	13	8.8	.9	0	
29		.1	4.5	*5	-	37	43	12	7.0	.7	0	
30		.2	2	4.5	-	43	40	14	6.3	.5	0	
31		-	4	4	-	54	-	12	-	.4	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	0	0	0	0	0
November.....	.8	.3	0	.03	1.6
December.....	76.4	4.5	.1	2.46	152
Calendar year 1949	4,827.0	145	0	13.2	9,570
January.....	150.0	15	2.5	4.84	298
February.....	714.0	130	5	25.5	1,420
March.....	1,239	134	23	40.0	2,460
April.....	1,418	78	30	47.3	2,810
May.....	734	46	12	23.7	1,460
June.....	504.2	34	6.3	16.8	1,000
July.....	119.9	9.4	.4	3.87	238
August.....	2.2	.3	0	.07	4.4
September.....	0	0	0	0	0
Water year 1949-50	4,958.5	134	0	13.6	9,840

*Peak discharge (base, 150 sec.-ft.)--Feb. 24 (6:30 p.m.) 326 sec.-ft.; Mar. 16 (9 p.m.) 418 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 11 to Feb. 2, Feb. 13-18.

DESCHUTES RIVER BASIN

Beaver Creek near Paulina, Oreg.

Location.--Water-stage recorder, lat. 44°10', long. 119°56', in NE $\frac{1}{4}$ sec. 26, T. 16 S., R. 23 E., three-quarters of a mile downstream from Paulina Creek, $1\frac{1}{4}$ miles downstream from Wolf Creek, and 3 miles northeast of Paulina.

Drainage area.--425 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey. October 1941 to September 1945 in files of Bureau of Reclamation.

Extremes.--Maximum discharge during year, 1,580 second-feet Mar. 17 (gage height, 4.95 feet), from rating curve extended above 900 second-feet on basis of discharge of Crooked River near Post; minimum, 0.8 second-foot Sept. 20, 21.
1941-50: Maximum discharge, 4,310 second-feet Dec. 28, 1945 (gage height, 10.2 feet), from rating curve extended above 900 second-feet 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 each bank diverting past station.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used June 26-30)

Oct. 1 to June 30						July 1 to Sept. 30			
0.2	2.5	0.6	19	1.2	70	2.0	286	0.1	0.6
.3	5.1	.7	25	1.4	109	2.5	465	.2	3.0
.4	8.6	.8	32	1.6	162	3.0	665	.3	6.5
.5	13	1.0	49	1.8	220	4.2	1,200		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	6.5	8.2	7.6	18	208	755	157	25	4.4	3.7	3.7
2	2.5	6.5	7.9	7.6	17	199	854	173	21	4.0	3.0	3.7
3	2.0	6.5	7.6	6.5	16	344	485	157	18	3.7	3.0	3.7
4	3.0	6.5	7.6	6.8	17	390	394	140	16	3.4	4.0	4.0
5	3.8	6.5	8.6	7.6	21	545	404	132	11	3.4	5.4	3.7
6	3.8	6.2	8.6	7.9	65	386	477	122	13	3.4	5.4	3.7
7	3.8	6.2	8.6	8.6	59	252	465	112	17	2.7	5.8	3.7
8	3.8	6.2	8.6	8.6	66	199	372	105	23	3.0	4.8	4.0
9	4.1	6.5	8.6	8.6	56	157	334	96	26	3.0	3.7	4.4
10	4.3	6.5	8.6	8.6	47	159	303	85	28	3.0	3.7	4.4
11	4.6	6.8	7.2	9.1	41	127	300	98	28	3.0	3.7	4.0
12	4.6	7.2	7.2	8.6	38	109	355	117	57	3.0	3.7	4.4
13	4.8	6.8	8.2	8.6	38	125	433	135	89	3.0	3.7	4.4
14	5.1	6.8	8.6	7.9	50	140	380	154	55	3.7	4.4	4.4
15	5.4	6.8	9.1	8.2	84	168	330	151	42	3.7	5.1	1.6
16	5.4	6.8	10	8.6	168	249	320	130	48	4.0	5.1	1.9
17	5.4	6.8	10	8.6	205	994	330	109	55	4.0	5.1	1.4
18	5.4	6.8	9.5	8.6	190	609	330	82	51	4.4	5.1	1.0
19	5.8	6.8	8.2	8.6	173	509	327	69	41	4.8	4.8	1.0
20	5.8	7.2	7.6	9.5	165	408	334	59	41	4.8	5.1	.8
21	5.8	7.2	7.6	11	122	286	334	54	140	3.7	5.1	.8
22	5.8	7.2	7.9	22	100	317	320	51	47	3.0	4.8	1.0
23	5.8	7.0	8.2	38	114	259	272	46	34	3.4	4.8	1.0
24	5.8	8.6	7.9	26	382	233	233	41	29	3.4	4.8	1.0
25	6.2	8.2	7.2	24	1,200	211	211	39	24	3.4	4.8	1.0
26	6.2	7.9	6.8	23	768	199	199	34	17	3.4	4.8	1.2
27	6.2	8.6	7.2	23	418	184	184	29	16	3.0	4.8	1.2
28	6.8	8.2	7.6	23	255	154	179	29	14	2.7	4.4	1.2
29	6.2	8.2	7.9	21	-	146	165	28	9.5	4.0	3.7	1.2
30	6.5	8.2	7.6	20	-	217	148	28	7.9	4.4	3.7	1.0
31	6.5	-	6.8	20	-	300	-	28	-	4.4	3.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	153.4	6.8	2.0	4.95	304
November.....	213.1	8.6	6.2	7.10	423
December.....	251.2	10	6.8	8.10	498
Calendar year 1949.....	32,117.6	1,280	1.1	88.0	63,700
January.....	415.7	38	6.5	13.4	625
February.....	4,893	1,200	16	175	9,710
March.....	8,783	994	109	283	17,420
April.....	10,527	854	148	351	20,860
May.....	2,790	173	28	90.0	5,530
June.....	1,023.4	140	7.9	34.1	2,030
July.....	111.2	4.8	2.7	3.59	221
August.....	137.7	5.8	3.0	4.44	273
September.....	73.1	4.4	.8	2.44	145
Water year 1949-50.....	29,371.8	1,200	.8	80.5	58,260

Peak discharge (base, 600 sec.-ft.).--Feb. 25 (5 p.m.) 1,480 sec.-ft.; Mar. 5 (8 p.m.) 945 sec.-ft.; Mar. 17 (4:30 p.m.) 1,580 sec.-ft.; Apr. 1 (10:30 p.m.) 1,500 sec.-ft.

North Fork Beaver Creek near Paulina, Oreg.

Location.--Water-stage recorder, lat. 44°10', long. 119°43', in NW $\frac{1}{4}$ sec. 22, T. 16' S., R. 25 E., 12 miles east of Paulina.

Drainage area.--70 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey.
January 1942 to September 1945 in files of Bureau of Reclamation.

Extremes.--Maximum discharge during year, 549 second-feet Feb. 24 (gage height, 3.93 feet), from rating curve extended above 160 second-feet; minimum, 0.2 second-foot on many days in August and September.
1942-50: Maximum discharge, 899 second-feet Dec. 28, 1945 (gage height, 5.90 feet), from rating curve extended above 110 second-feet; minimum, 0.1 second-foot at times during 1944-46.

Remarks.--Records good except those for periods of ice effect or shifting control, and those above 200 second-feet, which are fair. Several small dams above station store water for irrigation and stock watering. Most of summer flow diverted above station for irrigation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.4	1.4	1.0	3.5	39	163	85	3.4	0.8	0.3	0.2
2	.4	.4	1.3	1.0	5	37	230	67	2.8	.7	.3	.2
3	.4	.4	1.2	.9	6	106	151	51	2.3	.6	.2	.2
4	.4	.4	1.2	1.0	7	110	106	44	1.8	.6	.2	.2
5	.5	.4	1.4	.9	15	125	115	36	1.5	.5	.3	.2
6	.5	.4	1.3	1.1	30	105	160	31	1.6	.4	.3	.2
7	.5	.5	1.4	1.1	20	56	142	27	2.3	.4	.3	.2
8	.4	.6	1.4	1.1	18	42	110	24	3.1	.3	.3	.2
9	.4	.6	1.4	1.1	14	37	95	24	2.6	.3	.2	.2
10	.5	.6	1.4	1.2	11	34	90	28	2.3	.3	.2	.2
11	.5	.8	1.3	1.1	9	24	88	36	2.4	.3	.2	.2
12	.4	.8	1.3	1.0	7	22	146	50	10	.3	.2	.2
13	.4	.8	1.4	1.1	7.0	25	178	69	9.7	.3	.2	.2
14	.4	.8	1.4	.9	22	40	117	87	5.5	.3	.2	.2
15	.4	.8	1.4	.8	74	46	106	72	4.7	.3	.2	.2
16	.4	.8	1.5	.9	137	84	108	56	.23	.3	.2	.2
17	.4	.8	1.4	.8	118	280	115	51	12	.3	.2	.2
18	.4	.8	1.1	.8	75	169	122	35	8.2	.3	.2	.2
19	.4	.8	1.0	1.0	65	172	120	27	5.5	.3	.2	.2
20	.4	.8	1.0	2.5	49	105	147	24	4.2	.3	.2	.2
21	.4	.8	1.2	6	27	69	146	23	4.2	.3	.2	.2
22	.4	.8	1.1	11	22	92	139	22	3.6	.3	.2	.2
23	.4	1.5	1.2	7	32	59	106	21	2.9	.3	.2	.2
24	.4	1.4	1.1	5	338	51	81	15	2.6	.3	.3	.2
25	.4	1.2	1.0	4	326	44	74	12	2.8	.3	.3	.2
26	.4	1.1	1.0	4	180	45	74	9.7	2.4	.3	.3	.2
27	.4	1.4	1.0	3.5	112	43	76	8.2	1.8	.3	.3	.2
28	.4	1.4	1.1	4	*51	31	67	7.6	1.5	.3	.2	.2
29	.4	1.2	1.2	3.5	-	25	51	6.4	1.3	.8	.2	.2
30	.4	1.5	1.0	3	-	35	42	5.5	.9	.3	.2	.2
31	.4	-	1.0	2.5	-	47	-	4.4	-	.3	.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	12.9	0.5	0.4	0.42	26
November.....	25.0	1.5	.4	.83	50
December.....	38.1	1.5	1.0	1.23	76
Calendar year 1949	10,027.7	366	.3	27.5	19,890
January.....	74.8	11	.8	2.41	148
February.....	1,780.5	358	3.5	63.6	3,530
March.....	2,203	280	22	71.1	4,370
April.....	3,455	230	42	116	6,670
May.....	1,042.8	87	4.4	33.6	2,070
June.....	133.3	23	.9	4.44	264
July.....	11.2	.8	.3	.36	22
August.....	7.2	.3	.2	.23	14
September.....	6.0	.2	.2	.20	12
Water year 1949-50	6,799.8	338	.2	24.1	17,450

Peak discharge (base, 400 sec.-ft.)--Feb. 24 (8 p.m.) 549 sec.-ft.; Mar. 17 (4 p.m.) 414 sec.-ft.
* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 18 to Feb. 12. Shifting-control method used Oct. 1 to Dec. 2, Apr. 13 to Sept. 30.

North Fork Crooked River above Deep Creek, Oreg.

Location.--Water-stage recorder, lat. 44°20', long. 120°05', in SW $\frac{1}{4}$ sec. 21, T. 14 S., R. 22 E., three-quarters of a mile upstream from Deep Creek, 14 miles northwest of Paulina, and 38 miles east of Prineville.

Drainage area.--159 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey. November 1941 to September 1945 (incomplete) in files of Bureau of Reclamation.

Extremes.--Maximum discharge during year, 1,210 second-feet Apr. 1 or 2 (gage height, 3.48 feet); minimum, 1 second-foot Sept. 12-18, 21-23.

1941-50: Maximum discharge, 2,060 second-foot Apr. 7, 1943, from rating curve extended above 910 second-foot; maximum gage height 8.01 feet (present datum) Jan. 1, 1943 (ice jam); minimum discharge, 0.5 second-foot Aug. 14, 15, 1942.

Remarks.--Records good except those below 10 second-feet, which are fair, and those for periods of ice effect or no gage-height record, which are poor. No diversion or regulation above station.

Revisions.--W 1094: Drainage area.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 24

Apr. 25 to Sept. 30

0.4	1.0	1.0	22	1.7	132	0.39	1.0	1.0	20	1.7	111
.5	2.5	1.2	41	1.8	161	.4	1.5	1.1	27	1.8	136
.6	4.5	1.3	53	2.0	235	.5	2.5	1.2	35	2.0	198
.7	7.0	1.4	68	2.2	330	.6	4.0	1.3	45	2.2	277
.8	11	1.5	86	2.5	510	.7	6.5	1.4	57	2.4	380
.9	16	1.6	107	2.7	640	.8	9.5	1.5	72	2.7	580
						.9	14	1.6	90		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	3.	13	7	13	85	500	252	76	29	2.5	1.5
2	1.5	3	10	6	12	90	600	231	64	25	2	1.5
3	1.5	3	7.5	5.5	12	120	350	195	56	22	2	1.5
4	2	3	7	6	12	180	320	178	52	18	1.5	1.5
5	2	3	*7.5	6.5	16	230	450	165	50	15	2	1.5
6	2	3	7	7	18	180	400	148	45	13	2	1.5
7	2	3.5	6.5	7.5	17	140	300	142	58	10	2	1.5
8	2	4	b6	8	18	110	250	134	76	9.5	2	1.5
9	2	4	b6	8	17	80	230	131	68	9.5	2.5	1.5
10	2	4.5	b5.5	8	16	70	230	159	58	9.5	2.5	1.5
11	2	5	5.5	7.5	15	60	350	205	81	9.5	2.5	1.5
12	2	5	5	7	14	52	500	296	580	9	2	1.5
13	2	5	6	7	14	52	550	398	558	8	2	1.5
14	2	4.5	6.5	6.5	17	52	370	487	296	7.5	2	1
15	2	4	7	6.5	20	55	370	428	216	6.5	2	1
16	2	4.5	7.5	6.5	24	70	400	330	213	6	2	1
17	2	5	8	6	25	220	500	347	198	5.5	2	1
18	2.5	4.5	7	6.5	24	170	520	277	224	5	2	1
19	2.5	4.5	6.5	7	22	140	560	239	178	4.5	1.5	1.5
20	2.5	4.5	6	8	21	110	600	216	142	4.5	1.5	1.5
21	3	4.5	6.5	10	20	90	550	220	162	4	1.5	1.5
22	3	5	7	16	20	100	520	224	116	4	1.5	1
23	3	7	8	25	20	75	400	213	98	3.5	1.5	1
24	3	12	7	20	30	75	330	182	94	3.5	2	1.5
25	3	7.5	6.5	18	75	70	315	153	86	3	2	1.5
26	3	7	6.5	18	90	65	287	131	76	2.5	2	1.5
27	3	14	7	18	90	60	291	126	64	2.5	2	1.5
28	3	26	7.5	18	90	50	269	121	53	2.5	1.5	1.5
29	3	13	8	16	-	50	216	109	42	2.5	1.5	1.5
30	3	12	7	15	-	60	198	100	35	2.5	1.5	1.5
31	3	-	6.5	*b14	-	50	-	85	-	2.5	1.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	73.0	3	1.5	2.35	145
November.....	187.5	26	3	6.25	372
December.....	219.0	13	5	7.06	434
Calendar year 1949	31,804.0	1,040	1	87.1	63,080
January.....	326.0	25	5.5	10.5	647
February.....	782	90	12	27.9	1,550
March.....	3,011	230	50	97.1	5,970
April.....	11,726	600	198	391	23,260
May.....	6,622	487	85	214	13,130
June.....	4,113	580	35	137	8,160
July.....	259.5	29	2.5	8.37	515
August.....	59.0	2.5	1.5	1.90	117
September.....	41.5	1.5	1	1.38	82
Water year 1949-50	27,419.5	600	1	75.1	54,380

Peak discharge (base, 850 sec.-ft.)--Apr. 1 or 2 (time unknown) 1,210 sec.-ft.; Apr. 12 or 13 (time and discharge unknown); Apr. 19 (time and discharge unknown).

* Winter discharge made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Dec. 11 to Jan. 30, Feb. 1 to Apr. 21; discharge computed on basis of recorded range in stage, weather records, and records for station below Deep Creek.

North Fork Crooked River below Deep Creek, Oreg.

Location.--Water-stage recorder, lat. 44°19', long. 120°05', in SW $\frac{1}{4}$ sec. 27, T. 14 S., R. 22 E., a quarter of a mile downstream from Deep Creek, 14 miles northwest of Paulina, and 38 miles east of Prineville.

Drainage area.--264 square miles.

Records available.--September 1946 to September 1950.

Extremes.--Maximum discharge during year, 1,900 second-feet Apr. 2 (gage height, 6.07 feet), from rating curve extended above 1,300 second-feet by logarithmic plotting; minimum, 9 second-feet Sept. 3, 11-16.

1946-50: Maximum discharge, 2,450 second-feet Apr. 20, 1948, from rating curve extended above 1,300 second-feet by logarithmic plotting; maximum gage height, 7.69 feet Feb. 12, 1947 (ice jam); minimum discharge, 7 second-feet on many days July to September 1947 and on Aug. 3, 4, 5, 6, 1949.

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

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	12	25	17	38	188	1,140	586	117	58	14	9.5
2	10	12	22	15	35	192	1,560	487	98	53	13	9.5
3	10	12	20	13	35	281	784	419	88	49	12	9.5
4	10	12	20	14	35	370	680	377	81	44	12	9.5
5	12	12	*20	16	40	523	1,060	343	76	41	13	9.5
6	11	12	16	19	50	450	951	302	74	38	13	9.5
7	11	12	15	20	45	322	675	282	95	35	13	9.5
8	11	13	14	20	50	228	547	282	112	34	13	9.5
9	11	16	14	20	45	177	519	337	96	34	14	9.5
10	12	15	13	19	40	150	519	464	86	33	14	9.5
11	12	16	12	19	37	123	681	614	116	32	13	9.5
12	11	16	14	18	35	110	1,170	786	743	29	12	9
13	11	15	16	17	35	110	1,250	937	695	28	12	9
14	11	15	17	17	40	110	834	965	416	26	12	9
15	11	15	18	17	50	112	828	822	313	25	12	9
16	11	16	20	16	60	163	924	695	316	24	11	9
17	11	15	20	15	64	504	1,100	636	305	23	11	9.5
18	12	15	18	16	58	352	1,170	507	337	22	12	10
19	13	16	16	18	52	300	1,250	433	256	21	11	10
20	14	16	15	20	51	222	1,390	391	218	20	10	10
21	14	16	17	25	50	195	1,310	377	242	20	10	10
22	13	16	19	50	50	232	1,160	367	172	19	10	9.5
23	12	20	20	70	50	154	882	343	150	18	11	9.5
24	12	28	18	60	78	166	706	290	144	17	11	9.5
25	12	22	16	54	177	148	700	244	132	16	11	9.5
26	12	20	18	52	200	147	680	212	113	15	11	10
27	12	34	19	52	194	122	655	200	99	14	11	10
28	13	42	20	52	192	113	555	184	84	14	11	10
29	13	26	21	45	-	122	458	165	73	15	10	10
30	12	25	17	40	-	154	475	154	65	14	10	11
31	12	-	16	40	-	302	-	132	-	14	9.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	362	14	10	11.7	718
November.....	532	42	12	17.7	1,060
December.....	546	25	12	17.6	1,080
Calendar year 1949	57,067.5	1,970	7.5	156	113,200
January.....	886	70	13	28.6	1,760
February.....	1,886	200	35	67.4	3,740
March.....	6,842	523	110	221	13,570
April.....	26,393	1,390	458	880	52,350
May.....	13,333	965	132	430	26,450
June.....	5,916	743	65	197	11,730
July.....	845	58	14	27.3	1,680
August.....	362.5	14	9.5	11.7	719
September.....	288	11	9	9.60	571
Water year 1949-50	58,191.5	1,390	9	159	115,400

Peak discharge (base, 1,400 sec.-ft.)--Apr. 2 (1 a.m.) 1,900 sec.-ft.; Apr. 13 (12:30 a.m.) 1,540 sec.-ft.; Apr. 19 (8 p.m.) 1,570 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 18-21, Dec. 9 to Feb. 19.

Metolius River near Grandview, Oreg.

Location.--Water-stage recorder, lat. 44°37', long. 121°27', in NE $\frac{1}{4}$ sec. 19, T. 11 S., R. 11 E., at Montgomery Ranch, 8 miles northwest of Grandview.

Drainage area.--324 square miles.

Records available.--October 1921 to September 1950.

Average discharge.--29 years, 1,408 second-feet.

Extremes.--Maximum discharge during year, 2,240 second-feet June 17; maximum gage height, 1.39 feet Nov. 27; minimum discharge, 1,260 second-feet Jan. 31 (gage height, 0.57 foot).

1921-50: Maximum discharge, 5,780 second-feet Jan. 7, 1923 (gage height, 3.32 feet), from rating curve extended above 2,200 second-feet; minimum, 1,080 second-feet Feb. 17, 1932, Oct. 2-31, Nov. 6, 7, 10-14, 1942.

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

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 24		Feb. 25 to Sept. 30	
0.4	1,090	0.6	1,380
.7	1,390	.8	1,610
1.0	1,720	1.0	1,830
1.2	1,950	1.2	2,060
		1.4	2,280

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,320	1,310	1,440	1,350	1,340	1,820	1,940	1,720	1,960	2,000	1,660	1,530
2	1,320	1,300	1,440	1,340	1,320	1,810	2,010	1,710	1,990	1,960	1,660	1,530
3	1,320	1,300	1,400	1,320	1,330	1,900	1,940	1,700	1,960	1,940	1,650	1,540
4	1,320	1,300	1,390	1,340	1,360	1,980	1,880	1,690	1,980	1,940	1,630	1,530
5	1,360	1,300	1,390	1,330	1,390	1,990	1,870	1,690	2,010	1,940	1,620	1,510
6	1,360	1,300	1,380	1,340	1,370	1,910	1,850	1,690	2,000	1,930	1,610	1,500
7	1,340	1,300	1,370	1,350	1,350	1,850	1,840	1,660	1,940	1,920	1,610	1,500
8	1,320	1,300	1,360	1,330	1,350	1,820	1,850	1,650	1,900	1,900	1,610	1,490
9	1,360	1,310	1,380	1,330	1,340	1,780	1,820	1,650	1,900	1,930	1,610	1,490
10	1,360	1,300	1,350	1,340	1,340	1,740	1,780	1,650	1,930	1,880	1,600	1,480
11	1,390	1,320	1,330	1,330	1,330	1,710	1,780	1,680	2,060	1,820	1,600	1,480
12	1,360	1,320	1,340	1,320	1,330	1,690	1,790	1,710	2,140	1,790	1,600	1,480
13	1,340	1,300	1,330	1,330	1,340	1,660	1,780	1,780	2,090	1,810	1,590	1,470
14	1,330	1,300	1,330	1,310	1,390	1,650	1,760	1,820	2,060	1,830	1,570	1,470
15	1,330	1,300	1,330	1,320	1,410	1,630	1,760	1,820	2,050	1,820	1,590	1,470
16	1,330	1,300	1,330	1,320	1,430	1,700	1,780	1,850	2,060	1,790	1,590	1,470
17	1,330	1,300	1,330	1,330	1,420	1,940	1,810	1,860	2,180	1,760	1,590	1,470
18	1,330	1,290	1,330	1,300	1,410	1,930	1,800	1,830	2,120	1,760	1,600	1,470
19	1,320	1,290	1,320	1,320	1,390	1,920	1,780	1,810	2,120	1,790	1,590	1,460
20	1,320	1,290	1,310	1,380	1,390	1,880	1,790	1,810	2,100	1,750	1,590	1,450
21	1,320	1,280	1,310	1,490	1,370	1,870	1,820	1,850	2,130	1,730	1,590	1,450
22	1,320	1,300	1,320	1,600	1,370	1,900	1,830	1,900	2,090	1,740	1,570	1,450
23	1,320	1,620	1,340	1,530	1,430	1,860	1,800	1,920	2,050	1,740	1,600	1,450
24	1,320	1,580	1,330	1,480	1,780	1,850	1,780	1,930	1,960	1,740	1,650	1,450
25	1,320	1,410	1,330	1,430	2,150	1,830	1,780	1,900	1,910	1,740	1,590	1,470
26	1,320	1,430	1,330	1,440	2,040	1,810	1,740	1,900	1,880	1,730	1,550	1,530
27	1,320	1,910	1,320	1,420	1,940	1,800	1,730	1,940	1,880	1,720	1,540	1,470
28	1,410	1,580	1,320	1,390	1,880	1,760	1,720	1,940	1,900	1,720	1,540	1,460
29	1,350	1,470	1,320	1,370	-	1,740	1,710	1,940	1,960	1,690	1,530	1,450
30	1,330	1,560	1,340	1,350	-	1,730	1,710	1,960	2,010	1,660	1,540	1,440
31	1,320	-	1,350	1,300	-	1,750	-	1,950	-	1,660	1,530	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	41,450	1,410	1,320	1,337	4.13	4.76	82,210
November	41,170	1,910	1,280	1,372	4.23	4.73	81,660
December	41,770	1,440	1,310	1,347	4.16	4.79	82,850
Calendar year 1949	546,310	2,200	1,180	1,497	4.62	62.70	1,084,000
January	42,430	1,600	1,300	1,369	4.23	4.87	84,160
February	41,300	2,150	1,320	1,475	4.55	4.74	81,920
March	56,210	1,990	1,630	1,813	5.60	6.45	111,500
April	54,230	2,010	1,710	1,808	5.58	6.22	107,600
May	55,910	1,960	1,650	1,804	5.57	6.42	110,900
June	60,320	2,180	1,680	2,011	6.21	6.92	119,600
July	56,130	2,000	1,660	1,811	5.59	6.44	111,300
August	49,400	1,660	1,530	1,594	4.92	5.67	97,980
September	44,410	1,540	1,440	1,480	4.57	5.10	88,090
Water year 1949-50	584,730	2,180	1,280	1,602	4.94	67.11	1,160,000

Peak discharge (base, 1,800 sec.-ft.).--Nov. 27 (12 a.m.) 2,180 sec.-ft.; Feb. 25 (7 a.m.) 2,160 sec.-ft.; June 17 (4-5 a.m.) 2,240 sec.-ft.

Lake Creek near Sisters, Oreg.

Location.--Water-stage recorder, lat. 44°26', long. 121°44', in SW¹/₄ sec. 24, T. 13 S., R. 8 E., a quarter of a mile downstream from Suttle Lake, 6 miles upstream from mouth, and 13 miles northwest of Sisters. Altitude of gage, about 3,430 feet (from topographic map).

Drainage area.--20.5 square miles.

Records available.--1911-13 (occasional readings during summers), April 1915 to September 1950.

Average discharge.--34 years (1915-18, 1919-50), 49.1 second-feet.

Extremes.--Maximum discharge during year, 223 second-feet June 29 (gage height, 2.79 feet); minimum, 25 second-feet Nov. 14; minimum gage height, 0.91 foot Sept. 22.

1911-13, 1915-50: Maximum discharge, 351 second-feet Dec. 16, 1946 (gage height, 3.50 feet); minimum, 1.0 second-foot Nov. 4, 5, 1940; minimum daily, 8 second-feet Nov. 5, 1940, Oct. 6, 1942.

Remarks.--Records good except those for periods of no gage-height record, which are poor. No diversion above station; occasional regulation by storage in Suttle Lake.

Revisions (water years).--W 1124: 1943, 1947.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)
(Backwater from debris May 5-11)

Oct. 1 to June 29			June 30 to Sept. 30		
1.0	28	1.7	83	1.0	31
1.2	41	2.1	124	1.2	43
1.4	57	2.5	178	1.4	57

Note.--Same as preceding table above 1.4 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	31	49	40	82	116	80	75	126	96	47	41
2	33	30	51	41	59	112	79	73	128	84	44	40
3	32	30	52	40	58	111	81	75	126	85	44	40
4	33	30	51	40	57	108	83	80	125	81	43	39
5	36	30	53	33	57	109	85	104	131	76	43	39
6	38	31	51	35	57	109	86	95	139	74	42	39
7	38	31	50	38	55	107	85	78	142	74	42	39
8	36	31	47	40	55	106	85	72	140	74	41	39
9	34	32	46	40	54	104	82	69	136	73	41	38
10	34	33	46	44	53	102	79	59	136	71	40	38
11	34	34	49	45	51	98	78	48	140	70	40	38
12	34	33	46	45	42	91	77	45	141	69	40	38
13	35	32	43	47	38	87	76	51	162	68	39	37
14	35	28	42	49	40	83	74	63	174	59	40	36
15	35	28	42	46	41	79	74	98	162	51	40	37
16	34	28	42	45	43	81	78	120	156	50	40	37
17	34	29	43	45	43	91	79	109	152	49	40	37
18	34	29	48	48	46	91	74	106	149	49	a40	37
19	34	30	43	48	47	98	85	104	145	49	a40	37
20	34	29	41	46	48	103	67	103	141	49	a40	37
21	34	32	40	63	49	106	71	90	137	49	a40	37
22	34	35	40	77	49	109	76	81	132	49	a40	38
23	34	67	40	72	53	106	79	119	130	49	a40	39
24	34	60	43	70	64	104	82	130	126	48	a40	38
25	34	47	43	65	70	100	80	115	122	48	a40	38
26	34	46	40	65	75	97	73	118	115	49	a40	39
27	34	53	39	72	118	97	72	116	87	49	a40	39
28	34	54	38	71	129	92	74	117	70	49	a40	39
29	34	54	39	67	-	86	84	126	133	49	a40	39
30	34	48	40	66	-	82	85	129	125	49	a40	39
31	32	-	40	64	-	79	-	128	-	49	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,062	38	32	34.3	2,110
November.....	1,105	67	28	36.8	2,190
December.....	1,375	53	38	44.4	2,730
Calendar year 1949.....	21,404	-	28	58.6	42,450
January.....	1,607	77	33	51.8	3,190
February.....	1,613	129	38	57.6	3,200
March.....	3,044	116	79	98.2	6,040
April.....	2,343	86	65	78.1	4,650
May.....	2,896	130	45	93.4	5,740
June.....	4,028	174	70	134	7,990
July.....	1,896	96	49	60.8	3,740
August.....	1,267	47	39	40.9	2,510
September.....	1,148	41	36	38.3	2,280
Water year 1949-50.....	23,374	174	28	64.0	46,370

a No gage-height record; discharge computed on basis of records for Squaw Creek near Sisters.

DESCHUTES RIVER BASIN

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

Location.--Water-stage recorder, lat. 44°58', long. 121°28', in N½ sec. 18, T. 7 S., R. 11 E., 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 square miles.

Records available.--June 1915, August 1949 to September 1950.

Extremes.--Maximum discharge during year, 406 second-feet Feb. 25; maximum gage height, 3.43 feet Jan. 20 (ice jam); minimum discharge, 98 second-feet Jan. 17. 1915, 1949-50: Maximum discharge, that of Feb. 25, 1950; maximum gage height, that of Jan. 20, 1950; minimum discharge, that of Jan. 17, 1950; minimum daily, 102 second-feet June 15-17, 1915.
A discharge of 97 second-feet was measured on Sept. 5, 1915.

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

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.8	105	1.2	180
.9	118	1.5	260
1.0	135	2.0	409

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	120	118	130	115	a118	238	260	224	336	213	133	128
2	118	118	132	115	a118	224	312	224	336	202	133	128
3	118	118	126	b115	a117	246	295	218	336	198	132	128
4	118	118	123	115	a117	266	274	216	342	190	132	128
5	126	118	123	114	a117	269	263	216	345	185	132	126
6	125	118	121	115	a117	252	252	210	342	180	132	128
7	123	118	120	118	a117	232	246	205	333	178	132	126
8	121	118	118	115	a117	221	252	205	324	175	132	126
9	123	118	118	115	117	210	240	213	312	173	132	126
10	125	118	118	117	117	200	232	227	327	168	132	126
11	123	118	115	115	117	185	232	246	333	166	132	126
12	121	118	117	115	115	175	232	274	348	163	132	126
13	121	118	117	b110	117	170	232	318	339	161	130	126
14	121	117	117	b117	118	166	232	363	324	158	128	126
15	121	117	115	b116	121	166	235	353	315	156	128	126
16	121	117	115	b115	125	170	243	384	321	154	128	126
17	121	115	117	b115	126	229	257	390	378	152	128	126
18	121	115	118	b115	125	252	260	369	345	152	126	126
19	118	115	115	b115	125	257	260	351	324	150	126	126
20	118	115	114	b115	123	249	266	348	315	150	126	126
21	118	115	115	b117	125	240	280	357	309	146	126	126
22	118	115	115	b120	125	252	289	378	301	146	126	126
23	118	138	121	b118	135	235	283	384	298	145	128	126
24	118	128	125	b118	219	229	266	372	283	141	130	126
25	118	123	120	b118	339	227	257	363	269	139	130	128
26	118	121	118	b118	354	221	246	357	254	137	128	133
27	118	150	118	*b118	301	221	243	363	240	137	126	125
28	121	154	118	b118	*252	205	232	357	232	137	126	126
29	120	135	118	b118	-	192	224	351	227	137	126	126
30	118	137	*118	b118	-	190	224	345	218	135	126	126
31	118	-	117	a118	-	205	-	356	-	135	126	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	3,726	126	118	120	1.11	1.28	7,390
November	3,662	154	115	122	1.13	1.26	7,260
December	3,692	132	114	119	1.10	1.27	7,320
Calendar year	-	-	-	-	-	-	-
January	3,601	120	110	116	1.07	1.24	7,140
February	4,225	354	115	151	1.40	1.45	8,380
March	6,794	269	166	219	2.03	2.34	13,480
April	7,619	312	224	254	2.35	2.62	15,110
May	9,539	390	205	308	2.85	3.28	18,920
June	9,306	378	218	310	2.87	3.20	18,480
July	4,957	213	135	160	1.48	1.71	9,830
August	4,004	133	126	129	1.19	1.38	7,940
September	3,799	133	126	127	1.18	1.31	7,540
Water year 1949-50	64,924	390	110	178	1.65	22.34	128,800

Peak discharge (base, 320 sec.-ft.)--Feb. 25 (5 to 7 p.m.) 406 sec.-ft.; Apr. 2 (9 p.m.) 324 sec.-ft.; May 7 (8 to 10 a.m.) 400 sec.-ft.; June 17 (8 a.m.) 400 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge interpolated.

b Stage-discharge relation affected by ice.

White River near Wapinitia, Oreg.

Location.--Water-stage recorder, lat. 45°09', long. 121°30', in NE $\frac{1}{4}$ sec. 11, T. 5 S., R. 10 E., 500 feet downstream from Crane Creek, 1 mile downstream from Clear Creek, and 12 $\frac{1}{2}$ miles northwest of Wapinitia.

Drainage area.--115 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey (discontinued). September 1941 to October 1943 and May 1944 to September 1945 in files of Bureau of Reclamation.

Extremes.--Maximum discharge during year, 1,260 second-feet May 14 (gage height, 3.93 feet); minimum, 101 second-feet Sept. 21, 23.

1941-50: Maximum discharge, 3,620 second-feet Dec. 15, 1946 (gage height, 6.43 feet); minimum, 54 second-feet Oct. 9, 1942.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Wapinitia Irrigation Co. Canal diverts from Frog Creek and Clear Creek, capacity about 25 second-feet; Crane Creek ditch diverts from Crane Creek. No regulation.

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 12				May 13 to Sept. 30	
1.3	100	2.3	308	3.0	610
1.5	125	2.6	422	3.3	795
1.7	156	3.1	652	3.6	1,020
2.0	216	3.7	1,000	4.0	1,320

Note.--Same as preceding table below 2.6 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	MAY	June	July	Aug.	Sept..
1	110	121	236	170	b150	499	564	456	1,080	530	155	125
2	110	118	244	163	b140	477	592	456	1,100	510	150	126
3	110	117	219	150	b140	617	522	443	1,110	480	150	126
4	116	116	204	155	b140	662	477	443	1,160	450	150	125
5	151	116	195	150	b140	678	451	439	1,150	420	145	120
6	156	115	183	160	b140	607	426	418	1,030	400	145	117
7	132	115	171	170	b135	549	410	414	970	380	145	118
8	124	116	164	160	b140	504	418	418	895	360	140	116
9	164	118	161	155	159	464	402	439	851	340	140	116
10	181	116	156	160	159	426	390	499	918	320	140	115
11	164	132	151	150	156	386	386	627	918	300	143	115
12	153	154	161	140	153	359	398	814	962	280	145	112
13	140	136	170	130	181	344	418	1,080	902	260	142	112
14	136	130	158	125	222	322	426	1,180	844	250	142	111
15	131	118	153	124	253	312	451	1,140	788	250	143	108
16	130	116	153	125	247	359	513	1,070	802	260	143	107
17	126	115	151	124	241	578	549	1,050	865	240	138	105
18	124	113	150	130	236	554	545	932	837	220	140	104
19	122	112	151	140	227	526	559	851	837	230	136	104
20	121	112	153	160	219	482	602	880	844	220	134	104
21	121	110	151	236	214	456	662	992	823	200	134	104
22	120	110	170	367	214	439	652	1,140	767	190	132	104
23	117	194	207	348	305	410	802	1,100	746	180	140	104
24	116	211	198	265	736	386	559	1,040	648	175	151	105
25	116	183	187	219	941	363	531	1,030	590	170	134	117
26	115	195	183	195	786	352	495	1,080	555	165	130	146
27	116	374	185	180	647	340	482	1,140	550	165	128	115
28	166	319	189	180	564	312	456	1,040	560	165	128	106
29	156	268	187	160	-	294	443	1,030	560	165	126	105
30	136	277	179	160	-	291	447	1,000	550	160	128	104
31	126	-	177	*161	-	337	-	1,010	-	155	126	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	4,106	181	110	132	8,140
November.....	4,650	374	110	155	9,220
December.....	5,497	244	150	177	10,900
Calendar year 1949.....	121,882	1,770	98	334	241,700
January.....	5,372	367	124	175	10,660
February.....	7,985	841	135	285	15,840
March.....	13,685	678	291	441	27,140
April.....	14,828	662	386	494	29,410
May.....	25,651	1,180	414	827	50,880
June.....	25,212	1,160	550	840	50,010
July.....	8,590	530	155	277	17,040
August.....	4,323	155	126	139	8,570
September.....	3,396	146	104	113	6,740
Water year 1949-50.....	123,295	1,180	104	338	244,600

Peak discharge (base, 850 sec.-ft.).--Feb. 25 (5 a.m.) 987 sec.-ft.; May 14 (8:30 p.m.) 1,260 sec.-ft.; June 4 (9 to 10 p.m.) 1,250 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Jan. 3-20, Jan. 26-30, June 30 to Aug. 10; discharge computed on basis of recorded range in stage, weather records, and records for station near Tygh Valley.

White River below Tygh Valley, Oreg.

Location.--Water-stage recorder, lat. 45°14', long. 121°06', in NW $\frac{1}{4}$ sec. 8, T. 4 S., R. 14 E., just below Pacific Power & Light Co.'s plant at White River Falls and 4 $\frac{1}{2}$ miles east of Tygh Valley.

Drainage area.--393 square miles.

Records available.--October 1917 to September 1950.

Average discharge.--33 years, 416 second-feet.

Extremes.--Maximum discharge during year, 3,320 second-feet Feb. 24 (gage height, 6.35 feet); minimum, 70 second-feet Jan. 10 (gage height, 0.53 foot); minimum daily, 119 second-feet Jan. 14.

1917-50: Maximum discharge, 13,300 second-feet Jan. 6, 1923 (gage height, about 13.3 feet), from rating curve extended above 5,000 second-feet; minimum, 10 second-feet Dec. 11-14, 1919, Aug. 9, 1931; minimum daily, 71 second-feet Aug. 31, 1941.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair: Diversions above station for irrigation. Low-water flow partly regulated by power plant.

Cooperation.--Water-stage recorder inspected by employees of Pacific Power & Light Co.

Rating tables, water year 1949-50, except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 27

Nov. 28 to Sept. 30

1.2	139	1.0	113	3.0	650
1.6	218	1.2	137	3.5	920
1.9	305	1.5	185	4.0	1,220
2.3	445	1.9	267	5.0	1,990
2.7	605	2.4	410	6.1	3,050

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	152	169	351	247	b210	980	860	630	1,400	715	219	174
2	152	169	360	232	a200	908	1,180	625	1,440	665	215	171
3	149	168	320	215	a190	1,230	1,140	605	1,470	625	215	171
4	149	164	303	230	a210	1,370	992	600	1,540	596	211	171
5	194	160	292	223	a200	1,460	902	596	1,590	564	211	167
6	218	155	272	241	a200	1,280	818	560	1,430	528	207	162
7	201	155	258	247	a200	1,120	745	548	1,330	508	205	186
8	177	155	247	241	a190	1,020	725	548	1,220	476	205	160
9	179	159	243	230	b220	890	690	556	1,160	456	201	156
10	281	157	236	232	b220	780	650	600	1,230	434	198	156
11	237	159	221	223	b220	695	640	760	1,260	400	194	156
12	223	201	238	207	b230	610	695	1,080	1,360	378	192	155
13	199	184	249	174	326	568	775	1,370	1,270	363	189	155
14	190	169	241	119	459	540	785	1,630	1,210	348	189	152
15	186	164	232	a170	*725	520	800	1,600	1,140	340	189	152
16	181	155	234	a170	932	528	860	1,480	1,120	360	190	149
17	179	153	234	a170	980	980	1,010	1,490	1,280	320	183	148
18	177	145	234	a180	760	1,220	1,010	1,320	1,180	303	185	143
19	175	145	223	a190	625	1,200	986	1,180	1,160	314	176	148
20	173	145	215	a210	556	1,070	1,030	1,180	1,200	309	171	146
21	166	144	232	a330	528	980	1,120	1,260	1,200	295	172	142
22	169	142	241	a520	605	1,010	1,120	1,490	1,100	270	172	140
23	166	199	287	a480	1,410	878	1,050	1,470	1,090	263	171	140
24	162	388	300	a410	3,030	878	932	1,400	962	252	198	142
25	160	308	274	a340	2,750	770	872	1,350	848	243	185	154
26	159	305	274	*b290	2,120	710	775	1,360	765	238	174	190
27	164	585	260	a260	1,500	670	745	1,540	730	236	174	181
28	181	532	*272	a230	1,160	630	700	1,450	735	236	172	156
29	216	420	267	a230	-	572	650	1,400	770	238	171	156
30	179	424	258	a230	-	560	635	1,360	755	227	174	154
31	173	-	254	a220	-	560	-	1,320	-	223	171	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	5,667	281	149	183	11,240
November.....	6,678	586	142	223	15,250
December.....	8,122	360	215	262	16,110
Calendar year 1949.....	204,670	2,680	142	561	406,000
January.....	7,691	520	119	248	15,250
February.....	20,956	3,030	190	748	41,570
March.....	27,187	1,460	520	877	53,920
April.....	25,892	1,180	635	863	51,560
May.....	34,358	1,630	548	1,108	69,150
June.....	34,945	1,590	730	1,165	69,150
July.....	11,723	715	223	378	23,250
August.....	5,877	219	171	190	11,660
September.....	4,713	190	140	157	9,350
Water year 1949-50.....	193,809	3,030	119	531	384,400

Peak discharge (base, 1,200 sec.-ft.).--Feb. 24 (6:30 p.m.) 3,320 sec.-ft.; Mar. 5 (4 a.m.) 1,500 sec.-ft.; Mar. 18 (11 p.m.) 1,310 sec.-ft.; Apr. 2 (3 p.m.) 1,220 sec.-ft.; May 15 (3 a.m.) 1,700 sec.-ft.; June 5 (3 a.m.) 1,720 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for station near Wapinitia.

b Stage-discharge relation affected by ice.

Clear Creek near Government Camp, Oreg.

Location.--Water-stage recorder, lat. 45°10', long. 121°41', in NW¼ sec. 4, T. 5 S., R. 9 E., 0.7 mile downstream from Clear Lake Outlet and 9 miles southeast of Government Camp. Datum of gage is 3,450.94 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Drainage area.--8.9 square miles.

Records available.--October 1946 to September 1950. December 1940 to September 1941 in files of Oregon State engineer.

Extremes.--Maximum discharge during year, 91 second-feet June 7 (gage height, 2.47 feet); minimum, 4.6 second-feet Feb. 12, 13.
1940-41, 1946-50: Maximum discharge, 150 second-feet Dec. 15, 1946 (gage height, 3.00 feet); minimum observed, 1.6 second-feet Nov. 1, 1940.

Remarks.--Records fair. No diversions or regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.6	8.1	16	11	7.5	28	26	28	79	45	18	13
2	8.6	8.1	16	10	7.5	29	32	29	76	42	18	13
3	8.6	7.5	14	9	7.5	32	30	29	82	39	18	12
4	8.6	7.5	14	9	6.9	36	29	29	85	38	18	12
5	9.8	7.5	14	8.5	6.9	37	27	29	86	36	18	12
6	10	7.5	14	8.5	6.9	29	23	29	85	35	18	11
7	9.8	7.5	13	8.5	5.8	30	23	29	89	32	18	11
8	8.6	7.5	12	8.5	5.8	31	22	29	87	31	17	9.8
9	8.6	7.5	12	8.5	5.2	31	22	30	83	30	17	9.8
10	9.8	7.5	12	8.5	5.2	28	22	32	83	28	17	9.8
11	9.2	8.6	12	8.5	5.2	27	23	34	84	28	18	9.8
12	9.2	8.6	12	8	5.2	26	23	39	85	27	17	9.8
13	9.2	8.1	12	8	5.2	23	26	44	82	26	17	9.8
14	7.5	8.1	11	8	5.8	22	26	51	79	26	17	9.2
15	6.4	7.5	11	7.5	6.4	21	27	56	74	25	16	9.2
16	6.4	7.5	11	7	7.5	22	28	60	74	23	16	9.2
17	6.4	7.5	12	7	8.6	30	30	64	74	23	16	9.2
18	6.4	6.9	14	7	9.2	32	30	64	71	23	17	9.2
19	6.4	6.9	13	7.5	9.8	31	31	62	69	23	17	9.2
20	6.4	6.9	12	9	10	29	35	61	69	22	17	9.2
21	6.4	6.9	12	12	10	26	37	63	69	22	16	9.2
22	6.4	6.9	12	15	11	23	37	68	67	21	16	8.1
23	6.4	11	14	13	12	21	35	69	66	20	16	7.5
24	6.4	10	14	11	17	19	34	69	64	19	16	7.5
25	6.4	10	15	10	21	18	32	70	60	19	16	8.1
26	7.5	12	13	9	23	17	30	73	57	19	16	9.2
27	7.5	17	12	8.5	26	15	29	75	53	19	16	8.6
28	8.1	16	13	8.5	27	12	28	75	51	19	15	8.6
29	7.5	16	12	8	-	11	28	77	49	19	14	9.2
30	7.5	17	11	8	-	12	28	78	47	19	13	8.6
31	7.5	-	11	7.5	-	14	-	78	-	19	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	242.1	10	6.4	7.81	0.878	1.01	480
November	275.6	17	6.9	9.19	1.03	1.15	547
December	396	16	11	12.8	1.44	1.65	785
Calendar year 1949	9,059.2	125	4.6	24.8	2.79	37.85	17,970
January	278.0	15	7	8.97	1.01	1.16	551
February	285.1	27	5.2	10.2	1.15	1.19	565
March	762	37	11	24.6	2.76	3.18	1,510
April	853	37	22	28.4	3.19	3.56	1,690
May	1,623	78	28	52.4	5.89	6.78	3,220
June	2,179	89	47	72.6	8.16	9.11	4,320
July	817	45	19	26.4	2.97	3.41	1,620
August	512	18	13	16.5	1.85	2.14	1,020
September	291.8	13	7.5	9.73	1.09	1.22	579
Water year 1949-50	8,514.6	89	5.2	23.3	2.62	35.56	16,890

Peak discharge (base, 80 sec.-ft.).--June 7 (2 to 9 p.m.) 91 sec.-ft.

Note.--No gage-height record Dec. 26 to Jan. 31; discharge computed on basis of recorded range in stage, weather records, and records for Salmon River near Government Camp.

FIFTEENMILE CREEK BASIN

Fifteenmile Creek near Wrentham, Oreg.

Location.--Water-stage recorder, lat. 45°30', long. 121°02', in sec. 3, T. 1 S., R. 14 E., 0.1 mile below Dry Creek, 3 miles southwest of Wrentham, and 9½ miles southeast of The Dalles.

Drainage area.--171 square miles.

Records available.--October 1946 to September 1950. December 1926 to May 1927 at site 2½ miles downstream, in files of State engineer.

Extremes.--Maximum discharge during year, 1,210 second-feet Feb. 23 (gage height, 5.17 feet), minimum, 2.1 second-feet Aug. 26, Sept. 3.
1946-50: Maximum discharge, 3,000 second-feet Feb. 10, 1949, by slope-area method; maximum gage height, 8.42 feet Feb. 10, 1949 (ice jam); minimum discharge, 0.8 second-foot Aug. 22, 1947.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. The town of Dufur diverts water from creek about 5 miles above station. Several small diversions above and below gage for irrigation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.6	6.9	a13	b12	b26	237	122	65	111	76	12	3.1
2	5.6	6.9	a13	b9	b24	214	155	65	111	76	12	2.5
3	5.6	6.9	a11	b8	b24	251	144	64	111	76	12	2.3
4	5.6	6.9	a12	b8	b25	272	131	62	111	70	11	2.3
5	6.5	7.3	a11	b7	b26	284	124	62	113	64	11	2.7
6	7.3	7.3	a10	b9	b27	246	124	58	116	58	10	4.7
7	6.2	7.3	a10	b12	b28	211	118	53	118	52	9.7	5.0
8	5.6	7.3	a10	b11	b28	193	118	52	116	48	9.7	5.0
9	4.7	7.3	a10	b10	b28	165	107	51	111	47	9.3	4.7
10	4.1	7.7	a9.5	b10	b28	151	103	52	109	42	9.3	4.4
11	3.5	8.1	a9	b9	b32	135	97	53	109	35	8.9	4.7
12	3.1	8.5	a11	b8	39	124	101	59	109	31	8.1	4.7
13	2.9	8.5	a13	b7.5	65	116	107	68	111	28	7.7	4.1
14	2.9	8.5	a12	a6.5	*137	103	105	76	109	29	7.7	3.5
15	3.1	8.9	a11	a6.5	252	95	99	84	109	28	8.1	3.5
16	3.1	9.3	a12	a6	462	95	99	87	118	26	7.7	3.3
17	3.3	a9	a13	a6	316	142	101	89	131	23	6.2	3.3
18	3.5	a9	a12	a7	237	185	99	91	120	22	5.6	3.5
19	4.4	a9	a10	a8	190	209	95	91	116	22	5.3	3.8
20	5.3	a9	a10	a15	167	185	91	89	113	22	5.3	3.5
21	5.6	a9	a11	b43	151	185	91	89	113	19	5.3	4.1
22	5.9	a9	a13	b62	*175	203	93	89	103	18	4.7	4.4
23	6.2	a12	a12	b54	535	182	93	87	99	18	4.7	4.4
24	6.2	a16	a14	b48	750	182	85	89	87	17	4.4	4.7
25	6.2	a13	a13	*b42	700	167	84	103	78	14	3.1	5.9
26	6.5	a12	a15	b37	506	151	80	107	a75	12	2.7	6.2
27	6.9	a15	a14	b34	360	138	78	111	73	12	3.3	7.3
28	6.9	a17	*14	b33	278	127	75	113	68	12	4.1	6.5
29	6.9	a15	13	b31	-	118	71	116	70	10	4.7	6.5
30	6.9	a14	13	b29	-	111	66	113	75	9.7	4.7	6.9
31	6.9	-	14	b27	-	107	-	111	-	9.3	4.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	163.0	7.3	2.9	5.26	323
November.....	291.6	17	6.9	9.72	578
December.....	368.5	15	9	11.9	731
Calendar year 1949.....	27,194.7	1,800	2.9	74.5	53,930
January.....	615.5	62	6	19.9	1,220
February.....	5,636	750	24	201	11,130
March.....	5,284	284	95	170	10,480
April.....	3,056	155	66	102	6,060
May.....	2,499	116	51	80.6	4,960
June.....	3,113	151	68	104	6,170
July.....	1,026.0	76	9.3	33.1	2,040
August.....	223.0	12	2.7	7.19	442
September.....	131.5	7.3	2.3	4.38	261
Water year 1949-50.....	22,407.1	750	2.3	61.4	44,440

Peak discharge (base, 270 sec.-ft.).--Feb. 16 (7 p.m.) 710 sec.-ft.; Feb. 23 (2:30 p.m.) 1,210 sec.-ft.; June 16 (11 p.m.) 654 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for stations on nearby streams.

b Stage-discharge relation affected by ice.

Eightmile Creek near Boyd, Oreg.

Location.--Water-stage recorder, lat. 45°31'10", long. 121°06'35", in SE $\frac{1}{4}$ sec. 31, T. 1 N., R. 14 E., at county bridge crossing 2 $\frac{1}{2}$ miles northwest of Boyd and 7 miles southeast of The Dalles.

Drainage area.--56 square miles.

Records available.--October 1946 to September 1950.

Extremes.--Maximum discharge during year, 219 second-feet Feb. 25 (gage height, 5.19 feet); minimum, 2.4 second-feet Sept. 20, but may have been less during periods of ice effect.
1946-50: Maximum discharge, 385 second-feet Feb. 10, 1949 (gage height, 7.11 feet); minimum, 0.8 second-foot Sept. 24, 1947.

Remarks.--Records good except those for periods of ice effect, which are fair. No regulation. Several small diversions above station for private irrigation.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 28 to Dec. 4, Dec. 14-28,
Mar. 5-21, July 1 to Sept. 16)

Oct. 1 to Apr. 28

Apr. 29 to Sept. 30

2.1	2.3	2.5	7.0	3.0	38	1.5	2.2	2.2	14
2.2	2.9	2.6	10	3.5	83	1.6	3.1	2.4	20
2.3	3.7	2.7	15	4.0	124	1.7	4.2	2.6	29
2.4	4.9	2.8	21	4.7	180	1.8	5.5	2.8	41
						2.0	8.9	3.0	57

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.2	5.7	8.4	5.5	7.5	77	71	40	37	24	7.6	3.8
2	4.3	5.7	7.7	4.1	7	75	88	40	38	24	6.8	3.2
3	4.3	5.7	7.7	4	6.5	108	87	40	38	22	6.3	3.4
4	4.4	5.7	*6.8	3.5	7	143	78	39	40	22	5.4	3.8
5	4.9	5.7	6.6	3.5	7.5	131	76	37	40	22	5.2	3.3
6	5.3	5.7	6.6	4.5	8	110	72	36	40	21	5.2	3.5
7	5.3	6.0	6.4	5	8	88	71	34	40	20	5.5	3.5
8	5.3	6.0	6.2	5	8	76	70	34	39	18	6.0	3.6
9	5.3	6.4	6.0	5	8	67	68	34	37	18	6.0	3.5
10	5.1	6.2	5.7	4.5	8	60	65	37	38	17	5.5	3.5
11	5.1	6.6	4.5	4	8	54	65	40	37	17	5.2	3.5
12	4.8	7.0	6.0	3.5	8	48	69	45	38	16	5.4	3.5
13	4.9	7.4	7.0	3	12	44	72	52	37	15	5.4	3.3
14	4.9	6.6	6.0	2.5	20	42	73	56	37	15	5.5	3.5
15	4.9	6.4	6.0	2.5	32	40	71	56	36	14	5.7	3.4
16	4.9	6.2	6.6	3	41	40	71	54	35	14	5.5	3.4
17	5.1	6.0	6.8	3	*41	52	73	52	43	14	5.4	3.2
18	5.1	6.0	7.0	3	40	62	71	49	40	14	5.4	3.0
19	5.1	6.0	5	3.5	38	70	69	45	39	12	5.0	2.8
20	5.1	6.0	5	4	36	71	68	42	39	12	4.7	2.6
21	5.3	6.0	6.2	4.5	34	70	70	40	39	12	4.8	2.6
22	5.3	6.0	6.6	6	*32	87	70	41	37	11	4.8	2.7
23	5.3	7.7	6.4	9	36	80	67	41	36	9.5	4.8	2.8
24	5.3	12	7.0	15	*67	78	61	42	36	8.7	5.1	2.9
25	5.1	8.8	6.2	13	139	74	57	38	33	7.8	4.8	3.4
26	5.1	7.7	7.0	*11	177	70	52	37	31	7.6	4.6	3.8
27	5.3	10	6.2	9	131	69	52	38	30	7.6	4.6	4.0
28	5.3	13	*6.0	9.5	91	67	43	38	28	7.6	4.6	3.8
29	5.7	10	6.0	9	-	64	42	38	27	8.0	4.5	3.5
30	6.0	9.8	5.7	8.5	-	60	40	35	25	8.0	4.2	3.6
31	5.7	-	6.4	8	-	60	-	37	-	8.0	4.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	157.7	6.0	4.2	5.09	313
November.....	214.0	13	5.7	7.13	424
December.....	197.7	8.4	4.5	6.38	392
Calendar year 1949.....	10,208.2	254	3.0	28.0	20,250
January.....	179.1	15	2.5	5.78	355
February.....	1,058.5	177	6.5	37.8	2,100
March.....	2,237	143	40	72.2	4,440
April.....	2,002	88	40	66.7	3,970
May.....	1,287	56	34	41.5	2,550
June.....	1,090	43	25	36.3	2,160
July.....	446.8	24	7.6	14.4	886
August.....	165.7	7.6	4.2	5.28	325
September.....	100.4	4.0	2.6	3.35	199
Water year 1949-50.....	9,133.9	177	2.5	25.0	18,110

Peak discharge (base, 60 sec.-ft.)--Feb. 25 (9 p.m.) 219 sec.-ft.; Mar. 3 (11 p.m.) 166 sec.-ft.; Mar. 22 (2 a.m.) 98 sec.-ft.; Apr. 3 (2 a.m.) 92 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 11, 19, 20, Jan. 3 to Feb. 19 (no gage-height record Feb. 2-7).

FIFTEENMILE CREEK BASIN

Fivemile Creek near The Dalles, Oreg.

Location.--Water-stage recorder, lat. 45°32', long. 121°09', in W $\frac{1}{2}$ of sec. 25, T. 1 N., R. 13 E., $\frac{1}{2}$ miles southeast of The Dalles.

Drainage area.--32.4 square miles.

Records available.--October 1948 to September 1950. December 1925 to May 1926, at about same site, December 1927 to May 1928, and February 1930 to May 1931 at site half a mile upstream, in reports of State engineer.

Extremes.--Maximum discharge during year, 176 second-feet Feb. 25 (gage height, 2.95 feet), no flow for many days during August and September.
1925-26, 1927-28, 1930-31, 1948-50: Maximum discharge recorded, 315 second-feet Feb. 10, 1949 (gage height, 3.66 feet); no flow at times.

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

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from leaves Oct. 5, 6, Oct. 30 to Nov. 15)

0.5	0	1.1	7.1	1.9	48
.6	.2	1.2	10	2.1	68
.7	.6	1.3	13	2.3	90
.8	1.6	1.5	21	2.6	126
.9	2.9	1.6	26	2.8	153
1.0	4.8	1.8	40		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.9	3.7	2.2	b2.8	61	54	30	20	4.0	0.2	0
2	.2	.9	3.1	b1.9	b2.6	57	78	31	20	3.5	.2	0
3	.1	.9	2.8	b1.6	b2.6	*84	78	30	20	2.9	.2	0
4	.2	.9	2.6	b1.5	b2.8	103	67	27	20	2.8	.1	0
5	.2	.9	2.5	b1.4	b3.0	100	61	26	20	2.4	.2	.1
6	.3	.9	2.4	b2.0	b3.2	89	57	25	20	2.0	.2	.1
7	.4	.9	2.2	2.5	b3.3	68	53	24	19	1.9	.2	0
8	.5	.9	2.1	2.5	b3.4	58	52	24	18	1.7	.1	0
9	.5	1.0	2.0	2.4	b3.5	47	50	26	16	1.7	.1	0
10	.5	1.0	2.0	2.5	b3.9	41	46	30	16	1.6	.2	.1
11	.6	1.1	b1.7	2.4	5.3	36	46	34	15	1.3	.1	.2
12	.5	1.1	1.6	b2.3	5.5	31	52	42	15	1.1	0	.1
13	.5	1.1	1.6	b2.1	6.6	28	60	54	14	.8	.1	.2
14	.6	1.2	1.7	b2.0	*10	26	61	58	13	.8	.1	.2
15	.6	1.2	1.7	b1.8	18	24	58	54	12	.9	.2	.2
16	.6	1.2	1.7	b1.7	31	26	58	46	12	.6	.2	.2
17	.6	1.2	1.9	b1.7	36	36	60	42	14	.7	.2	.2
18	.6	1.2	2.0	b1.7	35	47	59	37	14	.6	0	.1
19	.6	1.2	1.9	b1.9	34	59	56	32	13	.4	0	0
20	.7	1.2	1.7	b2.1	34	62	56	27	12	.4	0	.1
21	.7	1.2	1.6	b2.3	33	61	62	27	12	.5	.1	.2
22	.7	1.2	1.7	b2.7	*32	65	63	28	11	.6	.1	.1
23	.6	2.0	1.9	b4.3	43	63	57	28	10	.4	.2	.1
24	.8	2.4	2.0	b4.8	94	60	48	27	9.4	.2	.2	.3
25	.9	2.4	2.2	*b4.3	*145	54	42	25	8.6	.2	.2	.4
26	.9	2.1	2.2	b4.0	145	49	39	24	7.7	.1	.1	.5
27	.8	2.1	2.2	b3.7	106	48	36	25	7.1	.2	0	.4
28	.6	4.0	*2.2	b3.7	76	47	32	26	6.4	.2	0	.4
29	.6	4.2	2.2	b3.4	-	45	29	24	5.3	.3	.1	.4
30	.7	4.0	2.2	b3.2	-	42	29	23	4.6	.4	.1	.4
31	.9	-	2.2	b3.0	-	42	-	24	-	.3	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	17.2	0.9	0.1	0.55	34
November.....	46.5	4.2	1.55	1.55	92
December.....	65.5	3.7	1.6	2.11	130
Calendar year 1949	7,453.8	168	0	20.4	14,780
January.....	79.6	4.8	1.4	2.57	158
February.....	920.5	145	2.6	32.9	1,830
March.....	1,659	103	24	53.5	3,290
April.....	1,589	78	29	53.3	3,170
May.....	980	58	23	31.6	1,940
June.....	405.1	20	4.6	13.5	804
July.....	35.5	4.0	.1	1.15	70
August.....	3.7	.2	0	.12	7.3
September.....	5.0	.5	0	.17	9.9
Water year 1949-50	5,816.6	145	0	15.9	11,540

Peak discharge (base, 130 sec.-ft.)--Feb. 25 (8 p.m.) 176 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 11, Jan. 2-6, Jan. 12 to Feb. 10.

Klickitat River above West Fork, near Glenwood, Wash.

Location.--Water-stage recorder, lat. 46°15'40", long. 121°14'30", in S½ sec. 18, T. 9 N., R. 13 E., 1½ miles upstream from West Fork and 17 miles north of Glenwood.

Drainage area.--151 square miles.

Records available.--November 1944 to September 1950.

Extremes.--Maximum discharge during year, 1,960 second-feet June 5; maximum gage height, 3.82 feet Jan. 22 (ice jam); minimum discharge, 84 second-feet Nov. 7, 8 (gage height, 1.12 feet).
1944-50: Maximum discharge, 3,280 second-feet May 27, 1948 (gage height, 4.28 feet); minimum, 48 second-feet Nov. 14, 15, 1945 (gage height, 0.98 foot), but may have been less during periods of ice effect.

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

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 17 to May 13, Aug. 2 to Sept. 24)

1.1	79	1.8	311	2.8	1,070
1.3	129	2.1	465	3.1	1,450
1.5	193	2.4	680	3.5	2,040

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	97	107	352	179	120	257	343	382	1,560	1,050	257	144
2	97	100	414	150	120	246	348	388	1,560	971	253	144
3	97	97	339	140	120	265	316	382	1,620	900	250	141
4	97	93	316	145	122	382	294	372	1,710	900	242	141
5	124	88	298	150	124	436	290	367	1,890	880	238	138
6	129	86	265	145	130	414	277	352	1,600	822	234	138
7	118	86	250	140	124	387	289	362	1,370	765	230	138
8	113	88	242	140	120	329	261	377	1,200	680	226	135
9	113	93	238	135	118	298	253	454	1,150	648	219	132
10	141	88	212	130	117	282	242	564	1,150	616	219	132
11	124	105	200	130	118	257	238	748	1,170	523	215	129
12	132	153	220	125	120	242	277	1,110	1,290	484	215	132
13	124	147	219	115	130	226	303	1,560	1,360	478	208	132
14	121	153	208	110	145	215	307	1,650	1,440	478	204	129
15	118	147	197	120	160	208	511	1,590	1,410	471	208	126
16	121	135	186	130	180	208	357	1,510	1,440	448	212	124
17	118	121	186	130	159	282	408	1,480	1,640	419	193	121
18	116	113	183	130	138	286	403	1,270	1,640	408	190	118
19	110	110	176	130	135	265	414	1,110	1,560	419	190	116
20	113	102	183	130	132	246	471	1,110	1,640	388	190	116
21	113	100	190	135	129	242	543	1,290	1,700	362	183	116
22	110	102	210	140	129	230	510	1,440	1,480	357	183	116
23	110	159	183	150	135	223	465	1,360	1,280	348	193	113
24	107	697	183	149	246	215	436	1,290	1,080	343	190	118
25	107	491	159	130	266	200	419	1,280	920	339	173	113
26	105	431	166	125	320	197	398	1,360	841	334	169	159
27	105	1,040	159	125	307	190	377	1,550	870	311	166	144
28	193	648	193	123	277	183	357	1,510	930	307	162	129
29	179	465	204	120	-	173	348	1,460	1,050	307	156	126
30	135	393	193	120	-	176	367	1,460	1,120	277	163	124
31	118	-	179	120	-	200	-	1,450	-	269	150	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	3,705	193	97	120	0.795	0.91	7,350
November	6,736	1,040	86	225	1.49	1.66	13,360
December	6,903	414	159	223	1.48	1.70	13,690
Calendar year 1949	141,749	2,640	86	388	2.57	34.93	281,200
January	4,132	179	110	133	.881	1.02	8,200
February	4,459	320	117	159	1.05	1.10	8,840
March	7,940	436	173	256	1.70	1.96	15,750
April	10,602	543	238	353	2.34	2.61	21,030
May	32,578	1,650	352	1,051	6.96	8.02	64,620
June	40,721	1,890	841	1,357	8.99	10.03	80,770
July	16,302	1,050	289	526	3.48	4.02	32,330
August	6,271	257	150	202	1.34	1.54	12,440
September	3,884	159	113	129	.854	.96	7,700
Water year 1949-50	144,233	1,890	86	395	2.62	35.53	286,100

Peak discharge (base, 700 sec.-ft.)--Nov. 24 (2:30 p.m.) 920 sec.-ft.; Nov. 27 (10 a.m.) 1,230 sec.-ft.; May 13 (10:30 p.m.) 1,820 sec.-ft.; June 5 (3:30 a.m.) 1,960 sec.-ft.; June 21 (5 a.m.) 1,740 sec.-ft.

Note.--Stage-discharge relation affected by ice Dec. 11, 12, 21, 22, Jan. 2 to Feb. 16 (no gage-height record Jan. 3, Jan. 6-16, Jan. 24 to Feb. 16; discharge computed on basis of weather records and records for station near Glenwood).

Klickitat River near Glenwood, Wash.

Location.--Water-stage recorder, lat. 46°05'30", long. 121°15'30", in SE $\frac{1}{4}$ sec. 14, T. 7 N. R. 12 E., half a mile downstream from Dairy Creek, 5 miles north of Glenwood, and 7 miles upstream from Trout Creek. Datum of gage is about 1,703 feet above mean sea level, datum of 1929.

Drainage area.--360 square miles.

Records available.--December 1910 to September 1950 (1920-28 incomplete). October 1909 to December 1910 at site 1 mile upstream.

Average discharge.--33 years (1909-20, 1928-50), 817 second-feet.

Extremes.--Maximum discharge during year, 3,410 second-feet June 5 (gage height, 6.26 feet); minimum, 305 second-feet Jan. 13.

1909-50: Maximum discharge, 9,870 second-feet Dec. 22, 1933 (gage height, 7.9 feet, present datum), from rating curve extended above 2,000 second-feet; minimum, 204 second-feet Nov. 28, 1931.

Remarks.--Records good. All low-water flow of Hellroaring Creek, a tributary of Big Muddy Creek, is diverted for irrigation. No regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	417	472	855	453	450	825	991	1,116	2,940	2,240	863	562
2	412	453	935	400	440	780	1,010	1,120	3,060	2,120	855	562
3	412	441	832	394	440	840	935	1,110	3,060	2,060	818	562
4	435	429	780	441	440	1,100	895	1,090	3,200	2,060	773	536
5	453	417	744	453	450	1,240	871	1,070	3,340	2,000	744	516
6	453	412	693	472	500	1,190	855	1,050	3,060	1,890	736	503
7	423	406	843	447	470	1,070	832	1,050	2,680	1,840	722	497
8	406	406	609	441	450	991	832	1,090	2,360	1,670	714	484
9	412	435	609	435	450	919	810	1,240	2,240	1,620	700	478
10	453	423	542	429	450	863	788	1,420	2,280	1,520	693	478
11	429	491	484	417	450	810	795	1,670	2,360	1,420	686	472
12	441	636	562	417	450	765	927	2,120	2,480	1,320	679	472
13	423	609	548	376	470	744	975	2,740	2,610	1,320	664	466
14	423	602	536	343	510	714	967	3,000	2,680	1,280	657	453
15	417	582	522	376	540	693	991	3,000	2,610	1,280	729	447
16	412	536	510	400	582	707	1,070	2,940	2,610	1,240	707	441
17	412	503	510	400	582	935	1,150	2,870	2,870	1,190	686	435
18	406	484	497	400	562	951	1,140	2,610	2,870	1,160	679	429
19	394	472	435	400	548	887	1,170	2,360	2,870	1,180	679	423
20	394	460	441	400	529	840	1,280	2,360	2,940	1,120	664	423
21	394	447	497	420	516	818	1,420	2,610	3,060	1,070	650	435
22	388	484	484	460	516	795	1,370	2,900	2,800	1,080	622	423
23	388	680	510	540	548	765	1,280	2,740	2,540	1,080	657	423
24	382	1,570	491	500	832	736	1,240	2,610	2,240	1,080	616	447
25	382	1,240	466	470	975	707	1,190	2,610	2,000	1,070	582	491
26	376	1,160	460	470	1,050	693	1,140	2,740	1,890	1,040	575	516
27	382	2,280	478	460	975	679	1,110	2,870	1,890	983	568	466
28	736	1,520	542	460	887	657	1,070	2,870	2,000	935	562	441
29	609	1,140	529	450	-	629	1,050	2,800	2,180	911	562	441
30	522	959	497	450	-	636	1,070	2,800	2,360	871	555	453
31	497	-	478	450	-	693	-	2,740	-	871	555	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	13,483	736	376	435	1.21	1.39	26,740
November	21,149	2,280	406	705	1.98	2.18	41,950
December	17,719	935	435	572	1.59	1.85	35,150
Calendar year 1949	351,634	4,410	310	963	2.68	36.33	697,500
January	13,424	540	343	433	1.20	1.39	26,630
February	16,062	1,050	440	574	1.59	1.66	31,860
March	25,672	1,240	629	828	2.30	2.65	50,920
April	31,224	1,420	788	1,041	2.89	3.23	61,930
May	67,610	3,000	1,050	2,168	6.02	6.84	133,300
June	78,080	3,340	1,890	2,603	7.23	8.07	154,900
July	42,521	2,240	871	1,372	3.61	4.39	84,340
August	20,952	863	555	676	1.88	2.16	41,560
September	14,175	562	423	472	1.31	1.46	28,120
Water year 1949-50	361,671	3,340	343	991	2.75	37.35	717,400

Peak discharge (base, 1,700 sec.-ft.)--Nov. 27 (4 a.m.) 2,680 sec.-ft.; June 5 (1 a.m.) 3,410 sec.-ft.

Note.--No gage-height record Jan. 17 to Feb. 15; discharge computed on basis of weather records and records for station near Pitt.

Location.--Water-stage recorder, lat. 45°45', long. 120°12', in SW $\frac{1}{4}$ sec. 8, T. 3 N., R. 13 E., 3 $\frac{1}{2}$ miles south of Pitt, 5 miles upstream from Silvias Creek, and 7 miles upstream from mouth at Lyle. Altitude of gage is 285 feet (from river-profile map).

Records available.--October 1935 to September 1950. July 1909 to January 1912 at site 7 miles upstream, published as Klickitat River at Klickitat. October 1928 to September 1935, 3½ miles upstream, published as Klickitat River at Pitt.

Extremes.--Maximum discharge during year, 10,200 second-feet Feb. 24 (gage height, 8.82 feet); minimum, 730 second-feet Jan. 14 (gage height, 3.95 feet).
1909-12, 1928-50: Maximum discharge observed, 21,000 second-feet Dec. 22, 1933 (gage height, 12.5 feet, site and datum then in use), from rating curve extended above 3,000 second-feet; minimum discharge, 466 second-feet Feb. 4, 1937.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	786	842	1,420	958	1,070	3,610	3,620	2,600	3,890	2,840	1,210	915
2	794	818	1,450	868	1,040	3,540	4,180	2,600	4,080	2,760	1,210	925
3	794	794	1,380	834	1,040	3,800	3,800	2,520	4,080	2,600	1,190	935
4	810	786	1,270	868	1,060	5,120	3,440	2,520	4,080	2,520	1,140	815
5	842	786	1,230	868	1,080	5,800	3,550	2,360	4,370	2,520	1,140	875
6	859	778	1,170	985	1,210	5,230	3,260	2,360	4,180	2,440	1,120	875
7	818	778	1,100	1,020	1,160	4,380	3,180	2,280	3,710	2,360	1,130	875
8	794	770	1,060	1,000	1,040	3,980	3,260	2,280	3,350	2,210	1,150	865
9	786	810	1,040	976	1,050	3,700	3,180	2,360	3,180	2,140	1,140	855
10	842	810	994	976	1,060	3,540	3,010	2,600	3,100	2,060	1,120	885
11	826	834	904	940	1,040	3,000	3,010	2,920	3,180	1,920	1,120	855
12	826	1,000	967	922	1,050	2,680	3,260	3,440	3,260	1,780	1,100	855
13	818	1,010	985	877	1,220	2,530	3,350	4,080	3,440	1,720	1,090	855
14	810	958	967	762	1,450	2,380	3,260	4,570	3,530	1,720	1,070	855
15	802	967	940	818	1,880	2,500	3,260	4,570	3,440	1,720	1,080	836
16	794	922	931	834	2,600	2,460	3,350	4,370	3,440	1,650	1,160	826
17	786	886	949	826	2,840	3,800	3,530	4,370	3,800	1,650	1,100	817
18	778	868	949	834	2,530	4,580	3,440	3,980	3,800	1,580	1,090	808
19	778	850	877	842	2,300	4,580	3,350	3,620	3,710	1,580	1,070	798
20	770	834	834	850	2,160	4,270	3,350	3,440	3,710	1,520	1,060	798
21	770	826	913	1,000	2,090	4,080	3,620	3,530	3,890	1,510	1,050	808
22	770	826	922	1,880	2,380	4,370	3,530	3,890	3,710	1,480	1,050	798
23	762	967	994	2,460	3,700	4,080	3,350	3,890	3,440	1,500	1,050	798
24	762	1,760	1,080	1,880	8,170	4,080	3,100	3,710	3,010	1,470	1,040	798
25	754	1,820	994	1,570	7,840	3,530	3,010	3,620	2,680	1,470	986	885
26	746	1,510	994	1,440	6,530	3,260	3,010	3,710	2,520	1,450	976	915
27	762	2,800	976	1,360	5,340	3,350	2,760	3,890	2,520	1,400	968	895
28	958	2,380	1,030	1,310	4,180	3,010	2,680	3,980	2,520	1,330	945	856
29	1,060	1,820	1,050	1,210	-	2,840	2,520	3,800	2,680	1,300	935	826
30	913	1,570	1,010	1,190	-	2,760	2,520	3,890	2,920	1,240	935	855
31	859	-	1,010	1,130	-	2,640	-	3,710	-	1,220	915	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	25,229	1,060	746	814	0.696	0.80	50

Peak discharge (base, 4,000 sec.-ft.)---Feb. 24 (7:30 p.m.) 10,200 sec.-ft.; Mar. 5 (1:30 a.m., 7:30 a.m., 5,800 sec.-ft.; Mar. 18 (8 p.m.) 5,120 sec.-ft.; Mar. 21 (10 to 12 p.m.) 4,880 sec.-ft.; Mar. 23 (10 p.m.) 4,470 sec.-ft.; Apr. 2 (4 a.m.) 4,270 sec.-ft.; Mar 15 (6 to 7 a.m.) 4,780 sec.-ft.; June 5 (9 a.m.) 4,570 sec.-ft.

KLICKITAT RIVER BASIN

Little Klickitat River near Goldendale, Wash.

Location.--Water-stage recorder, lat. 45°51', long. 120°48', in NW 1/4 sec. 10, T. 4 N., R. 16 E., 13 miles upstream from mouth and 2 1/2 miles northeast of Goldendale.

Records available.--October 1910 to June 1912, October 1946 to September 1950.

Extremes.--Maximum discharge during year, 1,360 second-feet Feb. 24 (gage height, 5.22 feet); minimum, 2.8 second-feet Sept. 3 (gage height, 0.94 foot).

1910-12, 1946-50: Maximum discharge, 1,760 second-feet Jan. 7, 1948 (gage height, 5.55 feet), from rating curve extended above 665 second-feet; minimum, 0.6 second-foot Aug. 28, 1947 (gage height, 1.13 feet).

Remarks.--Records good except those for periods of ice effect, which are poor. Probably small diversions for domestic use and irrigation. No regulation.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 19 to Sept. 30)

Oct. 1 to Feb. 23

Feb. 24 to Sept. 30

1.1	1.7	2.3	79	0.9	2.5	2.0	66	3.7	562
1.2	3.2	2.6	127	1.1	5.8	2.3	114	4.2	765
1.4	8.0	3.0	215	1.3	11.5	2.6	185	4.8	1,080
1.7	21	3.4	335	1.5	21	2.9	274		
2.0	44			1.7	35	3.3	412		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	5.6	18	22	*27	314	231	83	80	38	8.7	3.8
2	3.2	5.3	21	19.5	27	290	271	80	82	36	7.9	3.5
3	3.2	5.3	18.5	17	27	385	234	79	82	33	7.1	3.3
4	3.4	5.3	17	17	27	561	205	76	85	32	6.8	3.5
5	4.2	5.3	16.5	17	30	562	191	72	85	29	6.8	3.8
6	5.1	5.6	15	18	45	468	180	69	80	28	6.8	3.6
7	5.1	5.3	14	17	36	569	167	65	76	26	6.3	3.5
8	4.9	5.6	13.5	16	33	510	162	62	70	25	5.8	3.3
9	5.1	6.6	13	16	32	255	149	62	64	25	5.6	3.2
10	5.3	7.7	11.5	18	32	210	140	72	64	22	5.4	3.2
11	5.1	7.5	12	19.5	37	*175	140	82	62	20	5.4	3.2
12	4.9	15.5	12	18	66	152	159	96	77	19.5	5.2	3.3
13	4.7	12.5	12	16	86	133	164	116	77	17.5	5.2	3.5
14	4.5	9.4	11	14	192	122	159	124	76	17.5	5.0	3.3
15	4.5	8.0	10.5	15	312	112	159	124	69	17	5.0	3.3
16	4.5	7.5	10.5	15	250	129	169	120	70	15.5	5.2	3.3
17	4.7	7.2	11	15	202	281	172	114	79	15.5	5.0	3.3
18	4.9	6.9	10.5	15	161	324	162	101	77	15	4.7	3.6
19	4.9	6.6	10	15	135	334	154	90	74	15	4.3	3.5
20	5.1	6.6	10.5	16	120	287	157	86	70	14.5	3.8	3.5
21	5.1	6.6	11.5	25	111	271	162	91	73	13	3.8	3.5
22	5.1	6.9	11.5	40	138	255	152	100	66	13	4.1	3.3
23	5.1	9.0	16	70	269	246	140	96	60	12	4.7	3.2
24	5.1	16	18.5	50	1,050	231	127	90	54	11.5	5.2	3.3
25	4.9	13	16	35	835	191	116	86	49	11.5	5.2	3.8
26	4.9	11	14.5	32	742	180	107	86	46	11	4.8	5.0
27	4.9	31	16	30	543	172	101	90	43	11	4.5	5.8
28	6.9	*23	29	29	394	147	93	86	41	11.5	4.3	5.0
29	7.5	19.5	30	28	-	133	85	85	40	11.5	3.9	4.8
30	6.1	20	26	27	-	129	82	80	40	10.5	3.9	4.8
31	5.8	-	24	27	-	147	-	77	-	9.7	3.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	151.7	7.5	3.0	4.89	301
November.....	301.3	31	5.3	10.0	598
December.....	481	30	10	15.5	954
Calendar year 1949	28,190.4	825	2.0	77.2	55,900
January.....	729	70	14	23.5	1,450
February.....	5,959	1,050	27	213	11,820
March.....	7,893	581	112	255	15,660
April.....	4,690	271	82	156	9,300
May.....	2,740	124	62	88.4	5,430
June.....	2,011	85	40	67.0	3,990
July.....	587.2	38	9.7	18.9	1,160
August.....	164.3	8.7	3.8	5.30	326
September.....	111.0	5.8	3.2	3.70	220
Water year 1949-50	25,818.5	1,050	3.0	70.7	51,210

Peak discharge (base, 500 sec.-ft.)--Feb. 24 (2 p.m.) 1,360 sec.-ft.; Mar. 4 (8 p.m.) 620 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 11, 12, 19, 20, Jan. 2-9, Jan. 13 to Feb. 11, Feb. 16 (no gage-height record Jan. 16-30; discharge computed on basis of weather records and records for nearby streams).

Hood River near Hood River, Oreg.

Location.--Water-stage recorder, lat. 45°42', long. 121°31', in SE¹ sec. 36, T. 3 N., R. 10 E., at Powderdale, 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. Datum of gage is 106.23 feet above mean sea level, datum of 1929.

Drainage area.--329 square miles.

Records available.--March 1913 to September 1950.

Average discharge.--37 years, 1,059 second-feet (including flow of Pacific Power & Light Co.'s conduit).

Extremes.--Maximum discharge during year (river only), 10,100 second-feet Feb. 24 (gage height, 6.40 feet); minimum, 37 second-feet Sept. 15; minimum daily (including discharge of Pacific Power & Light Co.'s conduit), 435 second-feet Sept. 21.

1913-50: Maximum discharge, 34,000 second-feet Jan. 6, 1923 (gage height, 11.1 feet, site then in use), no diversion by power conduit; minimum, 3 second-feet Aug. 9, 1926; minimum daily (including discharge of Pacific Power & Light Co.'s conduit), 165 second-feet Aug. 5, 1941.

Remarks.--Records good. Daily discharge regulated by pondage at sawmill at Dee and by Pacific Power & Light Co.'s conduit, which diverts water around gage.

Cooperation.--Water-stage recorder inspected by employees of Pacific Power & Light Co.

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 26

Nov. 27 to Sept. 30

0.5	46	1.4	230	3.0	1,210	0.3	34	1.7	325	4.4	2,960
.7	73	1.7	344	3.5	1,740	.5	51	2.0	455	4.8	3,920
.9	105	2.1	550	4.1	2,490	.7	74	2.3	620	5.3	5,570
1.1	146	2.5	825			.9	105	2.9	1,040	6.0	8,430
						1.1	146	3.4	1,490		
						1.4	224	3.9	2,100		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	188	1,400	737	953	1,680	3,320	1,130	1,600	1,240	744	69
2	59	144	1,520	626	911	1,790	5,020	1,110	1,700	1,180	744	75
3	56	131	1,140	510	862	3,260	2,280	1,060	1,710	1,140	724	84
4	72	113	953	495	8860	4,090	1,930	1,060	1,830	1,130	659	72
5	420	100	939	436	8850	3,840	1,730	1,170	1,830	1,100	626	53
6	608	91	820	685	785	3,000	1,600	1,060	1,610	1,020	614	51
7	349	82	692	813	764	2,460	1,480	976	1,490	932	620	50
8	211	88	590	633	602	2,070	1,590	953	1,440	841	633	51
9	520	107	549	560	427	1,790	1,440	1,000	1,290	925	633	52
10	825	126	480	560	413	1,600	1,350	1,140	1,480	855	608	54
11	550	292	399	480	404	1,380	1,330	1,370	1,570	724	602	52
12	506	615	404	441	408	1,240	1,460	1,830	1,620	640	584	52
13	349	353	422	362	718	1,130	1,570	2,160	1,500	602	566	49
14	264	264	369	475	1,080	1,100	1,500	2,070	1,420	608	578	46
15	227	257	362	646	1,320	1,050	1,730	1,920	1,340	590	614	40
16	185	179	417	813	1,400	1,510	2,200	1,770	1,390	549	640	40
17	174	156	510	750	1,450	3,650	2,250	1,810	1,730	485	602	41
18	161	133	516	718	1,250	3,090	1,910	1,580	1,580	455	602	41
19	135	114	395	750	1,120	3,220	1,730	1,380	1,610	584	566	41
20	128	100	353	976	1,040	2,580	1,720	1,350	1,720	500	406	43
21	114	93	378	1,750	939	2,240	1,830	1,480	1,690	404	124	44
22	100	96	532	2,670	976	2,220	1,690	1,730	1,530	408	103	44
23	90	933	1,400	2,530	2,240	1,920	1,510	1,640	1,630	422	210	45
24	82	2,360	1,450	1,620	*8,400	1,720	1,350	1,470	1,320	446	374	45
25	78	1,620	1,150	1,100	*7,180	1,520	1,280	1,450	1,180	532	196	130
26	141	1,740	1,120	939	4,680	1,470	1,210	1,710	1,070	399	111	552
27	76	3,580	*1,120	848	3,090	1,480	1,190	1,810	1,090	345	96	221
28	675	2,690	1,220	750	2,310	1,370	1,140	1,620	1,200	382	80	113
29	495	2,030	1,130	692	-	1,230	1,080	1,530	1,330	318	69	84
30	275	2,040	968	640	-	1,190	1,070	1,530	1,330	254	70	68
31	211	-	876	785	-	1,360	-	1,450	-	562	61	-

Month	Observed				Pacific Power & Light Co.'s Conduit near Hood River (acre-feet)	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October.....	825	56	264	16,260	29,140	45,400	738		
November.....	3,580	82	694	41,290	28,110	69,400	1,166		
December.....	1,520	353	793	48,760	29,590	78,350	1,274		
Calendar year 1949	6,200	54	856	619,800	311,300	931,100	1,286		
January.....	2,670	382	865	53,180	20,380	73,560	1,196		
February.....	8,400	404	1,694	94,080	19,380	113,500	2,043		
March.....	4,090	1,050	2,046	125,800	28,320	154,100	2,507		
April.....	3,320	1,070	1,683	100,100	27,760	127,900	2,149		
May.....	2,160	953	1,462	89,890	28,180	118,100	1,920		
June.....	1,830	1,070	1,494	88,920	25,610	114,700	1,928		
July.....	1,240	254	664	40,800	26,710	67,510	1,098		
August.....	744	61	447	27,490	10,980	38,470	626		
September.....	552	40	807	4,800	26,130	30,930	520		
Water year 1949-50	8,400	40	1,010	731,400	300,500	1,032,000	1,425		

Peak discharge (base, 4,200 sec.-ft.).--Nov. 27 (8:30 a.m.) 5,570 sec.-ft.; Feb. 24 (12:30 p.m.) 10,100 sec.-ft.; Mar. 7 (11 a.m.) 1,520 sec.-ft.

* Winter discharge measurement made on this day.

* Stage-discharge relation affected by ice.

HOOD RIVER BASIN

West Fork Hood River near Dee, Oreg.

Location.--Water-stage recorder, lat. 45°36', long. 121°38', in SE $\frac{1}{4}$ sec. 1, T. 1 N., R. 9 E., a quarter of a mile upstream from Dead Point Creek, half a mile upstream from mouth, and 1 mile northwest of Dee. Datum of gage is 802.1 feet above mean sea level, datum of 1929.

Drainage area.--96 square miles.

Records available.--September 1913 to February 1916 (incomplete), June 1932 to September 1950.

Average discharge.--18 years (1932-50), 528 second-feet.

Extremes.--Maximum discharge during year, 6,440 second-feet Feb. 24 (gage height, 8.82 feet); minimum, 170 second-feet Sept. 22 (gage height, 1.56 feet).
1913-14, 1932-50: Maximum discharge, 12,900 second-feet Dec. 22, 1933 (gage height, 12.4 feet), from rating curve extended above 5,000 second-feet; minimum, 93 second-feet Aug. 22, 1941 (gage height, 1.37 feet).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for irrigation.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

1.5	156	4.0	1,220
1.8	230	5.0	1,940
2.1	319	6.0	2,830
2.5	460	7.0	3,900
3.0	665	8.0	5,190

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	192	282	1,080	608	a430	1,080	2,260	705	980	730	300	225
2	186	276	1,200	548	a400	1,050	1,780	700	1,010	675	304	227
3	182	252	870	500	a580	2,340	1,280	670	1,050	656	291	225
4	209	244	720	430	a570	2,760	1,050	715	1,110	652	282	225
5	449	236	730	433	a370	2,420	946	798	1,070	612	270	214
6	576	227	638	564	b560	1,800	858	700	902	580	270	212
7	426	222	556	564	352	1,300	809	680	897	556	273	209
8	342	230	508	500	362	1,060	842	642	914	508	282	207
9	599	247	484	472	359	919	792	675	842	524	279	207
10	642	261	445	460	352	804	750	787	919	484	273	204
11	532	431	408	422	352	695	755	968	963	449	264	202
12	516	524	404	400	349	624	886	1,320	1,010	426	261	196
13	422	404	422	362	b500	588	952	1,510	908	426	258	196
14	372	359	386	a370	735	560	914	1,410	831	426	258	192
15	342	322	415	a380	902	556	1,190	1,260	787	411	270	189
16	313	304	430	a360	1,020	883	1,520	1,130	875	390	264	189
17	294	282	452	a340	968	2,240	1,550	1,150	1,030	379	267	186
18	282	270	441	a320	814	1,740	1,250	996	956	376	255	182
19	264	255	397	a360	765	1,720	1,120	864	974	415	250	177
20	252	247	376	a600	647	1,360	1,100	856	1,030	393	247	177
21	241	236	386	a1,000	596	1,150	1,120	919	963	376	250	174
22	236	252	560	1,860	600	1,090	1,010	1,060	897	372	244	172
23	225	856	1,420	1,500	1,490	952	892	985	946	366	316	172
24	220	1,870	1,280	1,040	5,160	842	804	902	792	362	359	182
25	214	1,160	1,010	798	4,290	760	740	919	720	352	279	255
26	209	1,210	930	675	2,730	725	690	990	670	339	252	449
27	209	2,470	*974	608	1,860	720	705	1,140	690	332	244	270
28	572	2,010	1,040	568	1,350	660	665	985	740	366	238	230
29	415	1,550	956	524	-	608	675	930	798	339	233	217
30	336	1,600	776	480	-	600	670	897	792	316	227	214
31	304	-	690	a420	-	765	-	875	-	310	225	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	10,573	642	182	341	20,970
November.....	19,111	2,470	222	637	37,910
December.....	21,364	1,420	376	689	42,370
Calendar year 1949.....	216,930	3,500	177	594	430,300
January.....	18,496	1,860	320	597	36,690
February.....	28,863	5,160	349	1,031	57,250
March.....	35,371	2,760	556	1,141	70,160
April.....	30,595	2,260	670	1,020	60,680
May.....	29,098	1,510	642	939	57,720
June.....	27,046	1,110	670	902	53,640
July.....	13,878	750	510	448	27,530
August.....	8,385	359	225	267	16,430
September.....	6,376	449	172	213	12,650
Water year 1949-50.....	249,056	5,160	172	682	494,000

Peak discharge (base, 4,100 sec.-ft.).--Feb. 24 (10 a.m.), 6,440 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Hood River near Hood River, including flow in Pacific Power & Light Co.'s conduit.

b Stage-discharge relation affected by ice.

Green Point Creek below North Fork, near Dee, Oreg.

Location.--Water-stage recorder, lat. 45°35', long. 121°40', in NE $\frac{1}{4}$ sec. 11, T. 1 N., R. 9 E., three-quarters of a mile upstream from mouth, 1 $\frac{1}{4}$ miles downstream from North Fork, and 1 $\frac{1}{2}$ miles west of Dee.

Drainage area.--20.0 square miles.

Records available.--August 1949 to September 1950.

Extremes.--Maximum discharge during year, 1,270 second-feet Feb. 24 (gage height, 4.14 feet); minimum, 19 second-feet Sept. 19-22.

1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, 19 second-feet Sept. 13, 14, 1949, Sept. 19-22, 1950.

Remarks.--Records good. Several diversions above station for irrigation.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(shifting-control method used Nov. 11-22, Apr. 16 to June 25)

Oct. 1 to June 25					June 26 to Sept. 30				
0.6	22	1.1	67	2.1	258	0.6	19	1.0	54
.7	28	1.3	94	2.5	380	.7	24	1.2	86
.8	35	1.5	125	3.0	570	.8	31	1.5	140
.9	44	1.8	184			.9	41		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	34	184	97	65	180	454	141	206	126	34	23
2	26	33	218	84	62	182	339	139	214	115	33	23
3	26	32	153	75	60	426	239	132	214	108	32	22
4	27	31	123	68	60	554	184	139	234	103	31	22
5	45	30	114	65	59	446	163	141	226	94	31	22
6	59	29	98	77	57	333	149	127	193	94	30	22
7	46	29	87	84	54	247	141	125	193	80	30	22
8	38	29	75	74	55	191	143	134	193	73	30	21
9	45	33	70	68	*53	159	136	155	180	70	30	21
10	66	34	63	66	52	139	130	193	193	65	30	21
11	57	57	59	61	52	122	134	236	202	62	29	21
12	53	68	57	59	50	111	163	324	211	57	28	20
13	47	55	57	54	75	103	174	380	191	54	28	20
14	44	51	53	59	112	98	163	362	182	51	28	20
15	40	48	56	53	143	97	218	312	174	50	28	20
16	38	45	57	51	161	144	312	274	174	48	28	20
17	35	42	61	47	151	366	312	269	191	46	27	20
18	34	40	59	47	130	309	255	214	186	45	27	20
19	33	39	55	b53	115	321	226	182	184	46	26	19
20	32	37	53	b70	104	242	228	184	197	42	26	19
21	31	36	53	209	96	197	234	214	193	41	25	19
22	30	38	70	401	100	184	199	281	176	40	25	19
23	29	126	185	286	244	157	169	231	178	39	30	20
24	29	247	182	981	139	151	202	151	39	31	20	20
25	28	174	143	141	768	127	145	202	136	37	28	24
26	27	167	129	115	482	119	136	214	124	36	26	53
27	27	466	*139	103	327	114	132	250	124	36	25	34
28	52	432	169	93	239	106	129	221	128	39	25	28
29	44	321	149	84	-	102	129	202	138	38	24	28
30	38	303	125	77	-	103	132	186	136	36	23	31
31	36	-	111	70	-	153	-	184	-	35	23	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,188	66	26	38.3	2,360
November.....	3,106	466	29	104	6,160
December.....	3,207	218	53	103	6,360
Calendar year	-	-	-	-	-
January.....	3,075	401	47	99.2	6,100
February.....	4,907	981	50	175	9,750
March.....	6,271	554	97	202	12,440
April.....	5,819	454	129	194	11,540
May.....	6,530	380	125	211	12,950
June.....	5,422	234	124	181	10,750
July.....	1,845	126	35	59.5	3,660
August.....	871	34	23	28.1	1,730
September.....	694	53	19	23.1	1,360
Water year 1949-50	42,935	981	19	118	85,160

Peak discharge (base, 850 sec.-ft.).--Feb. 24 (11 a.m.) 1,270 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Pacific Power & Light Co.'s conduit near Hood River, Oreg.

Location.--Venturi meter and electrical-output meter, lat. 45°42', long. 121°31', in NE¼ sec. 36, T. 3 N., R. 10 E., at Pacific Power & Light Co.'s plant on Hood River, half a mile southeast of town of Hood River.

Records available.--October 1922 to September 1950. October 1913 to September 1914 and January 1916 to July 1922 at site in tailrace of former plant.

Average discharge.--28 years (1922-50), 373 second-feet.

Extremes.--Maximum daily discharge during year, 496 second-feet Dec. 12, Aug. 27; no flow at times when power plant was shut down.

1913-14, 1916-50: Maximum discharge observed, 510 second-feet Dec. 30, 1932; no flow at times.

Remarks.--Records excellent. Discharge computed from relation between flow in conduit and output of power plant, based on discharge measurements. Pacific Power & Light Co.'s conduit diverts from Hood River in SE¼ sec. 11, T. 2 N., R. 10 E., just below Neal Creek. Water is diverted around station on Hood River near town of Hood River and returned to river in NE¼ sec. 36, T. 3 N., R. 10 E.

Cooperation.--Hourly readings of venturi meter and record of daily electrical output furnished by Pacific Power & Light Co.

Revisions (water years).--W 864: 1937.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	476	465	482	481	0	469	466	481	450	427	0	487
2	461	494	482	480	0	460	453	481	433	426	0	489
3	443	495	485	479	0	428	475	481	448	426	0	489
4	455	492	481	479	0	432	479	480	444	426	0	489
5	481	493	479	481	0	395	480	476	441	427	0	471
6	478	494	480	479	60	417	479	477	412	429	0	452
7	479	487	480	476	73	423	477	478	441	429	0	447
8	484	488	480	479	296	470	474	478	441	430	0	438
9	480	493	479	480	468	482	472	476	439	430	0	430
10	473	493	486	480	473	479	463	475	438	429	0	429
11	485	493	479	479	478	478	473	468	438	430	0	424
12	484	482	496	479	478	480	472	463	441	432	0	421
13	483	485	475	429	478	474	467	450	441	434	0	412
14	484	486	486	328	482	479	468	446	439	432	0	405
15	485	421	486	299	483	487	467	444	436	404	0	411
16	481	492	485	0	482	480	462	439	434	461	0	408
17	481	492	484	0	483	442	461	458	435	432	0	408
18	481	493	484	0	485	453	480	471	434	433	0	398
19	480	493	485	0	485	482	459	470	432	443	0	396
20	480	493	484	13	486	461	464	466	431	452	171	395
21	480	490	481	250	486	456	443	464	425	469	480	391
22	480	492	482	256	487	454	454	461	426	475	479	393
23	480	476	467	0	425	458	453	459	426	476	484	396
24	478	449	463	258	393	478	454	457	425	479	486	410
25	476	458	482	485	429	276	455	454	424	387	488	482
26	402	348	482	466	441	470	448	281	426	480	492	480
27	478	386	482	455	450	468	468	452	429	480	496	481
28	460	423	482	441	469	461	480	455	429	479	491	481
29	468	465	482	403	-	460	483	457	430	479	490	480
30	474	463	482	393	-	463	485	454	428	480	490	480
31	482	-	481	148	-	484	-	453	-	148	487	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	14,692	485	402	474	29,140
November.....	14,172	494	348	472	28,110
December.....	14,920	496	463	481	29,590
Calendar year 1949	156,940	498	0	450	311,300
January.....	10,276	485	0	331	20,380
February.....	9,770	487	0	349	19,380
March.....	14,279	487	395	461	28,320
April.....	13,994	485	443	466	27,760
May.....	14,205	481	281	458	28,180
June.....	13,014	450	412	434	25,810
July.....	13,466	480	148	434	26,710
August.....	5,534	496	0	179	10,980
September.....	13,172	489	391	439	26,130
Water year 1949-50	151,494	496	0	415	300,500

White Salmon River near Underwood, Wash.

Location.--Water-stage recorder, lat. 45°45'00", long. 121°31'30", in NW $\frac{1}{4}$ sec. 14, T. 3 N., R. 10 E., 1,000 feet downstream from Northwestern Electric Co.'s Condit power plant and 2 miles north of Underwood and mouth.

Drainage area.--384 square miles.

Records available.--March 1915 to September 1930, September 1935 to September 1950. October 1912 to February 1913 at site at Condit Dam, 1 mile upstream.

Average discharge.--30 years (1915-30, 1935-50), 1,046 second-feet.

Extremes.--Maximum discharge during year, 5,260 second-feet Feb. 24 (gage height, 7.69 feet); minimum, 71 second-feet sometime Oct. 1-27 during period of no gage-height record (gage height, 1.76 feet, from recorded range in stage); minimum daily, 158 second-feet Jan. 17.

1915-30, 1935-50: Maximum discharge, 9,700 second-feet Dec. 29, 1917 (gage height, 9.5 feet, datum then in use, relation to present datum unknown); practically no flow at times when power plant is shut down.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Many diversions near Trout Lake for irrigation. Flow regulated by power plant.

Revisions (water years).--W 484: 1915-17.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

2.3	152	3.3	477	5.0	1,770
2.5	197	3.6	624	5.5	2,310
2.7	254	4.0	875	6.0	2,900
3.0	356	4.5	1,280	7.0	4,230

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	730	700	1,350	1,030	840	2,120	2,520	1,760	2,070	1,870	1,160	840
2	700	680	1,440	910	838	2,760	2,760	1,750	2,210	1,810	1,150	834
3	680	670	1,330	812	836	3,740	2,520	1,700	2,240	1,760	1,110	852
4	680	664	1,310	916	796	3,580	2,320	1,690	2,360	1,700	1,080	863
5	710	634	1,260	928	842	3,140	2,240	1,670	2,400	1,640	1,080	866
6	700	668	1,100	970	886	f2,780	2,170	1,660	2,330	1,650	1,120	842
7	760	636	1,030	1,020	842	f2,890	2,120	1,650	2,220	1,620	1,110	784
8	730	630	1,000	1,020	856	2,640	2,090	1,650	2,160	1,590	1,070	826
9	700	618	924	994	820	2,360	2,000	1,680	2,090	1,540	1,080	806
10	710	687	894	932	862	2,170	1,970	f1,740	2,180	1,550	1,080	862
11	680	761	836	912	848	1,980	1,960	f1,860	2,210	1,490	1,040	824
12	770	998	890	956	843	1,840	2,020	2,010	2,230	1,450	1,020	802
13	750	982	834	876	896	1,760	2,010	2,170	2,270	1,470	998	786
14	760	924	853	778	968	1,710	1,990	2,440	2,240	1,420	992	778
15	660	875	774	780	1,160	1,710	f2,000	2,470	2,200	1,430	991	804
16	580	808	834	814	1,420	1,810	f2,180	2,440	2,160	1,380	1,010	790
17	720	756	882	158	1,510	2,800	2,240	f2,330	2,210	1,350	979	810
18	630	728	843	846	1,460	3,060	2,220	f2,260	2,230	1,320	991	784
19	690	750	896	824	1,350	2,910	2,180	2,110	2,260	1,320	951	806
20	700	642	899	824	1,300	2,660	2,140	2,050	2,260	1,310	968	782
21	660	626	673	842	1,230	2,530	2,170	2,040	2,330	1,300	960	784
22	650	737	824	1,350	1,280	2,610	2,120	2,070	2,190	1,200	957	739
23	650	908	1,050	1,690	1,670	2,420	2,060	2,070	2,200	1,160	926	740
24	660	1,110	1,190	1,560	3,510	2,280	1,960	2,000	2,120	1,190	984	830
25	620	1,340	1,050	1,450	3,780	2,130	1,920	1,990	1,990	1,260	962	706
26	630	1,360	1,060	1,390	3,670	2,010	1,890	2,040	1,920	1,230	966	860
27	630	2,600	1,050	1,320	3,080	2,140	1,850	2,070	1,850	1,210	889	874
28	782	2,290	1,150	1,280	2,600	2,050	1,780	2,160	1,840	1,170	928	856
29	870	1,750	1,250	1,090	-	1,920	1,740	2,140	1,840	1,220	919	822
30	798	1,530	1,070	552	-	1,890	1,750	2,090	1,850	1,230	812	794
31	686	-	1,130	905	-	1,980	-	2,050	-	1,190	861	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	21,676	870	580	699	42,990
November.....	29,044	2,600	618	968	57,610
December.....	31,656	1,440	673	1,021	62,790
Calendar year 1949	469,230	3,390	550	1,286	930,800
January.....	30,729	1,690	158	991	60,950
February.....	40,993	3,780	796	1,464	81,310
March.....	74,380	3,740	1,710	2,399	147,500
April.....	62,890	2,760	1,740	2,096	124,700
May.....	61,810	2,470	1,650	1,994	122,600
June.....	64,660	2,400	1,840	2,155	128,300
July.....	44,030	1,870	1,160	1,420	87,350
August.....	31,144	1,160	812	1,005	61,770
September.....	24,356	888	706	812	46,310
Water year 1949-50.....	517,368	3,780	158	1,417	1,026,000

f Computed on basis of partly estimated gage-height record.

Note.--No gage-height record Oct. 1-27; discharge computed on basis of record of power output.

LITTLE WHITE SALMON RIVER BASIN

Little White Salmon River at Willard, Wash.

Location.--Water-stage recorder, lat. 45°47'00", long. 121°37'30", in NW¼ sec. 1, T. 3 N., R. 9 E., a quarter of a mile downstream from Lava Creek, at Willard.

Drainage area.--117 square miles.

Records available.--December 1944 to September 1950. November 1903 to August 1906 (fragmentary).

Extremes.--Maximum discharge during year, 2,580 second-feet Feb. 24 (gage height, 8.32 feet); minimum, 33 second-feet Nov. 8 (gage height, 1.63 feet).

1903-6, 1944-50: Maximum discharge, 4,140 second-feet Dec. 15, 1946 (gage height, 9.50 feet), from rating curve extended above 2,500 second-feet; minimum, 8.3 second-feet Oct. 26, 1946.

Remarks.--Records good. Broughton Lumber Co. diversion may at times carry as much as 30 second-feet past station (see miscellaneous measurements at end of this volume). Other diversions above station for water supply, irrigation, and hatchery purposes. No regulation.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 28)

1.6	29	2.7	133	5.0	594
1.8	42	3.0	175	6.0	860
2.0	57	3.5	260	6.5	1,050
2.2	74	4.0	363	7.0	1,340
2.4	95	4.5	475	8.1	2,350

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	45	385	618	418	960	1,410	800	666	582	396	195
2	53	41	440	582	407	920	1,480	800	666	582	385	196
3	51	39	440	558	396	1,340	1,270	771	642	582	385	193
4	55	37	418	546	396	2,030	1,150	744	642	570	374	180
5	71	36	429	534	396	2,030	1,050	744	642	570	363	172
6	79	35	429	594	385	1,830	960	717	642	570	363	167
7	73	34	418	642	385	1,480	920	717	642	558	352	162
8	64	34	407	594	385	1,270	890	691	618	546	352	162
9	60	43	407	570	374	1,150	860	717	618	546	342	155
10	57	53	396	546	363	1,000	860	744	642	534	332	148
11	55	102	396	522	363	920	830	771	642	522	321	146
12	54	154	385	498	352	860	860	860	642	522	321	143
13	51	114	385	486	385	830	920	890	642	510	310	139
14	50	90	385	475	429	800	890	860	642	510	300	134
15	48	76	396	464	522	771	960	800	642	498	300	130
16	47	69	396	440	618	830	1,150	771	642	498	290	132
17	46	65	418	429	691	1,560	1,210	771	642	498	280	128
18	46	65	429	418	642	1,650	1,150	744	642	486	280	121
19	45	66	407	407	606	1,480	1,050	744	642	486	280	116
20	44	68	407	407	570	1,410	1,050	744	642	486	270	112
21	43	70	407	510	534	1,270	1,050	744	618	475	260	108
22	43	73	418	830	522	1,340	1,000	744	618	464	250	110
23	42	108	634	830	666	1,210	920	744	618	464	250	114
24	42	321	890	691	2,240	1,150	860	744	606	452	241	106
25	41	270	771	606	2,350	1,000	860	717	606	440	236	107
26	40	290	717	558	1,930	960	830	717	594	440	227	128
27	40	744	717	510	1,560	1,000	830	717	594	429	220	111
28	64	534	771	486	1,210	960	800	691	582	429	213	100
29	63	429	771	464	-	890	800	691	582	418	208	95
30	55	407	717	452	-	860	800	666	582	418	203	93
31	48	-	666	429	-	860	-	666	-	407	198	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,624	79	40	52.4	3,220
November.....	4,512	744	34	150	8,950
December.....	15,652	890	385	505	31,050
Calendar year 1949.....	153,392	2,150	34	420	304,200
January.....	16,696	830	407	539	33,120
February.....	20,095	2,350	352	718	39,860
March.....	36,821	2,030	771	1,181	72,640
April.....	29,670	1,480	800	989	58,850
May.....	23,241	890	666	750	46,100
June.....	18,840	666	582	628	37,370
July.....	15,492	582	407	500	30,730
August.....	9,102	396	198	294	18,050
September.....	4,103	196	93	137	8,140
Water year 1949-50.....	195,648	2,350	34	536	388,100

Peak discharge (base, 1,500 sec.-ft.)--Feb. 24 (3 p.m.) 2,580 sec.-ft.; Mar. 3 (7 p.m.) 2,130 sec.-ft.; Mar. 17 (8 p.m.) 1,850 sec.-ft.; Apr. 1 (7 p.m.) 1,560 sec.-ft.

LITTLE WHITE SALMON RIVER BASIN

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Little White Salmon River below Lapham Creek, near Willard, Wash.

Location.--Water-stage recorder, lat. 45°46'00", long. 121°37'40", in NW $\frac{1}{4}$ sec. 12, T. 3 N., R. 9 E., 0.3 mile downstream from mouth of Lapham Creek and 1.2 miles south of Willard.

Drainage area.--123 square miles.

Records available.--September 1949 to September 1950.

Extremes.--Maximum discharge during period September 1949 to September 1950, 2,540 second-foot Feb. 24 (gage height, 5.32 feet); minimum, 91 second-foot Nov. 7 (gage height, 1.55 feet).

Remarks.--Records good. Broughton Lumber Co. diversion may at times carry as much as 30 second-foot past station (see miscellaneous measurements at end of this volume). Other diversions above station for water supply, irrigation, and hatchery purposes. Possibly some regulation.

Discharge, in second-feet, 1949-50
1949

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Sept. 1	a195	Sept. 7	166	Sept. 13	152	Sept. 19	142	Sept. 25	120
2	187	8	164	14	149	20	138	26	118
3	a185	9	161	15	161	21	132	27	116
4	a180	10	159	16	169	22	131	28	114
5	a175	11	156	17	159	23	127	29	112
6	a170	12	154	18	147	24	124	30	110
								31	-

a No gage-height record; discharge computed on basis of 1 discharge measurement and records for station at Willard.

1949-50

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	108	102	447	688	a485	1,100	1,390	880	712	650	438	241
2	108	98	503	650	a475	1,040	1,530	880	712	645	430	241
3	106	96	503	635	a465	1,440	1,340	851	739	640	422	235
4	110	96	485	620	a460	1,960	1,220	822	712	640	418	223
5	127	96	494	605	a455	1,960	1,140	822	712	635	414	220
6	135	96	490	686	a455	1,740	1,070	794	712	640	402	214
7	129	93	481	712	a450	1,530	1,040	766	712	615	394	212
8	118	95	472	660	454	1,390	1,000	766	686	610	386	212
9	116	102	468	645	414	1,260	970	766	686	600	379	203
10	112	110	455	625	406	1,140	940	794	712	591	375	198
11	110	154	447	591	402	1,040	940	880	712	581	367	198
12	108	206	438	562	394	970	970	870	712	572	363	192
13	106	169	438	539	426	940	1,040	970	712	567	360	189
14	104	149	438	525	476	880	1,000	940	712	562	352	187
15	102	158	443	516	596	851	1,070	880	712	557	341	184
16	100	132	451	490	712	910	1,260	880	712	553	334	184
17	100	127	481	a480	822	1,530	1,500	851	712	548	330	179
18	98	127	490	a470	759	1,630	1,220	851	712	548	323	171
19	98	127	468	a460	686	1,530	1,140	822	712	544	320	169
20	98	127	464	a460	635	1,440	1,140	822	712	539	316	166
21	98	129	459	581	600	1,340	1,140	822	686	534	302	164
22	98	135	481	1,000	586	1,390	1,100	822	686	530	299	164
23	96	170	748	970	773	1,300	1,040	822	686	521	299	169
24	96	375	1,040	794	2,200	1,220	970	822	660	512	292	159
25	96	320	880	686	2,200	1,140	940	794	660	498	282	159
26	95	337	851	620	1,840	1,100	910	794	660	490	272	179
27	95	873	851	572	1,530	1,140	910	794	650	485	266	161
28	122	605	910	539	1,300	1,070	910	794	645	490	263	156
29	118	494	910	a520	-	1,000	880	766	640	476	256	149
30	110	472	822	a505	-	970	880	739	640	464	250	149
31	104	-	766	a495	-	970	-	712	-	451	241	-

Peak discharge (base, 1,500 sec.-ft.).--Feb. 24 (1:30 p.m.) 2,540 sec.-ft.; Mar. 4 (6 p.m.) 2,020 sec.-ft.; Mar. 17 (4 p.m.) 1,790 sec.-ft.; Apr. 1 (10 p.m.) 1,580 sec.-ft.

a No gage-height record; discharge computed on basis of records for station at Willard.

Monthly discharge, in second-feet, 1949-50

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
September 1949.....	4,473	195	110	149	8,870
October 1949.....	3,321	135	95	107	6,590
November.....	6,350	873	93	212	12,600
December.....	16,074	1,040	438	583	35,850
Calendar year.....	-	-	-	-	-
January 1950.....	18,899	1,000	460	610	37,490
February.....	21,416	2,200	394	765	42,480
March.....	38,921	1,960	851	1,256	77,200
April.....	32,400	1,530	880	1,080	64,260
May.....	25,688	970	712	829	50,950
June.....	20,828	759	640	694	41,310
July.....	17,288	650	451	558	34,290
August.....	10,486	438	241	338	20,800
September.....	5,627	241	149	188	11,160
Water year 1949-50.....	219,298	2,200	93	601	435,000

WIND RIVER BASIN

Wind River above Trout Creek, near Carson, Wash.

Location.--Staff gage, lat. 45°48'30", long. 121°54'30", in NE $\frac{1}{4}$ sec. 26, T. 4 N., R. 7 E., three-quarters of a mile upstream from mouth of Trout Creek and 7 miles northwest of Carson.

Drainage area.--108 square miles.

Records available.--October 1944 to September 1950.

Extremes.--Maximum discharge during year, 4,770 second-feet Nov. 27 (gage height, 11.8 feet, from graph based on gage readings); minimum observed, 75 second-feet Oct. 3, 4 (gage height, 1.71 feet).

1944-50: Maximum discharge, 8,880 second-feet Feb. 8, 1945 (gage height, 15.5 feet, from high-water mark), from rating curve extended above 5,000 second-feet; minimum observed, 52 second-feet Oct. 27-30, 1945.

Remarks.--Records good. Gage read twice daily. Very small regulation by fish hatchery dam above station. No diversion above station which is not returned to stream.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.8	83	4.0	451	7.0	1,460
2.1	114	4.5	583	8.0	1,940
2.5	162	5.0	730	9.0	2,530
3.0	239	5.5	895	10.0	3,230
3.5	338	6.0	1,070	11.0	4,050

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	158	1,000	825	464	1,260	1,540	860	1,070	626	182	107
2	79	148	1,300	730	451	1,180	1,460	895	1,100	583	172	104
3	76	135	1,070	655	427	1,840	1,260	860	1,140	555	165	104
4	81	131	930	611	416	2,670	1,100	860	1,220	528	163	104
5	149	125	895	569	404	3,020	1,040	930	1,220	515	162	104
6	189	120	790	670	392	2,460	1,000	930	1,070	489	161	103
7	171	116	730	626	392	1,840	930	860	965	451	159	98
8	139	123	655	569	416	1,500	930	860	1,000	427	157	97
9	156	221	611	555	416	1,260	895	842	930	416	154	98
10	171	239	569	555	404	1,100	860	895	965	392	152	98
11	189	700	502	502	392	965	842	1,100	1,000	359	147	88
12	196	1,140	476	476	392	895	1,000	1,380	1,000	338	143	96
13	166	745	451	439	464	825	1,100	1,540	895	328	141	93
14	150	569	439	416	583	775	1,040	1,500	860	317	138	90
15	143	464	427	416	842	715	1,140	1,380	808	307	138	89
16	137	392	416	392	1,300	895	1,460	1,260	808	297	138	89
17	127	348	451	359	1,260	1,990	1,640	1,260	895	287	132	82
18	120	317	439	348	1,070	1,940	1,420	1,140	860	277	130	89
19	114	287	392	338	965	1,590	1,300	1,070	860	267	126	87
20	108	268	370	317	895	1,420	1,300	1,000	895	268	126	84
21	106	248	370	1,140	808	1,260	1,260	1,000	860	248	120	87
22	104	248	439	1,540	745	1,300	1,180	1,040	808	239	118	84
23	101	381	842	1,340	965	1,220	1,070	1,070	808	221	136	88
24	98	1,260	1,140	1,040	2,810	1,100	1,000	1,000	715	212	139	92
25	95	1,260	965	860	3,160	1,000	930	1,040	655	212	129	123
26	94	1,640	895	775	2,670	930	895	1,070	626	196	123	166
27	92	3,870	965	700	1,940	930	860	1,180	611	196	118	124
28	451	1,840	1,220	640	1,540	895	860	1,140	611	212	116	110
29	307	1,300	1,140	583	-	825	842	1,040	640	221	114	102
30	204	1,140	1,040	528	-	790	842	1,000	655	196	112	101
31	175	-	930	502	-	808	-	1,000	-	189	110	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-feet
October	4,568	451	76	147	1.36	1.57	9,060
November	19,933	3,870	116	664	6.15	6.86	39,540
December	22,859	1,300	370	737	6.82	7.87	45,340
Calendar year 1949	197,165	3,870	76	540	5.00	67.88	391,100
January	20,016	1,540	317	646	5.98	6.89	39,700
February	26,983	3,160	392	964	8.93	9.29	53,520
March	41,198	3,020	715	1,329	12.3	14.19	81,720
April	32,996	1,640	842	1,100	10.2	11.36	65,450
May	33,002	1,540	842	1,065	9.86	11.36	65,460
June	26,550	1,220	611	885	8.19	9.14	52,660
July	10,389	626	189	335	3.10	3.58	20,610
August	4,321	182	110	139	1.29	1.49	8,570
September	2,991	166	84	99.7	.923	1.03	5,930
Water year 1949-50	245,806	3,870	76	673	6.23	84.63	487,600

Peak discharge (base, 3,000 sec.-ft.).--Nov. 27 (5 a.m.) 4,770 sec.-ft.; Feb. 24 (2 p.m.) 3,310 sec.-ft.; Mar. 5 (5:30 p.m.) 3,160 sec.-ft.

WIND RIVER BASIN

99

Wind River near Carson, Wash.

Location.--Water-stage recorder, lat. 45°44'10", long. 121°48'10", in SW¹/₄ sec. 21, T. 8 N., R. 8 E., three-quarters of a mile upstream from Little Wind River, 1 mile north-east of Carson, and 2½ miles upstream from mouth. Discharge measurements made just downstream from mouth of Little Wind River.

Drainage area.--225 square miles, including that of Little Wind River.

Records available.--December 1934 to September 1950 (includes flow of Little Wind River).

Average discharge.--15 years, 1,074 second-feet.

Extremes.--Maximum discharge during year, 10,800 second-feet Nov. 27 (gage height, 14.07 feet), from rating curve extended above 5,000 second-feet on basis of velocity-area studies; minimum, 181 second-feet Oct. 3, 4 (gage height, 3.11 feet).

1934-50: Maximum discharge, 16,700 second-feet Dec. 29, 1937 (gage height, 17.30 feet), from rating curve extended above 5,000 second-feet on basis of velocity-area studies; minimum, 136 second-feet Nov. 29, Dec. 1, 1936 (gage height, 2.21 feet).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow occasionally affected by pondage at Forest Service power plant on Trout Creek. No diversion above station.

Revisions.--W 964: Drainage area.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

3.1	179	5.0	660	9.0	3,290
3.3	212	5.5	860	10.0	4,370
3.6	269	6.0	1,100	11.0	5,620
4.0	359	7.0	1,670	12.0	7,050
4.5	491	8.0	2,400	13.0	8,720

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	189	359	2,090	1,810	a970	2,910	3,480	1,810	2,020	1,050	372	241
2	187	335	2,640	1,550	a900	2,730	3,590	1,950	2,090	1,000	359	236
3	185	312	2,240	1,370	a910	5,100	3,000	1,810	2,090	925	359	234
4	195	301	1,880	1,250	a850	6,750	2,560	1,810	2,240	900	347	234
5	312	290	1,810	1,150	a800	6,900	2,320	2,020	2,160	860	347	230
6	463	269	1,740	1,600	780	5,620	2,160	1,950	1,950	840	335	226
7	423	269	1,490	1,740	800	4,030	2,020	1,810	1,740	780	335	226
8	335	280	1,310	1,400	925	3,190	2,020	1,740	1,740	740	335	221
9	347	477	1,200	1,280	900	2,730	1,950	1,740	1,670	720	324	223
10	450	585	1,080	1,310	900	2,400	1,810	1,880	1,670	680	312	223
11	463	1,680	950	1,180	900	2,090	1,810	2,320	1,740	640	312	219
12	491	2,620	900	1,080	925	1,810	2,160	3,090	1,670	602	312	214
13	397	1,610	860	a1,030	1,200	1,810	2,560	3,090	1,550	602	312	209
14	359	1,200	820	a1,000	1,810	1,490	2,320	3,190	1,460	585	301	209
15	335	975	800	a960	3,000	1,460	2,640	2,910	1,400	550	301	209
16	312	800	800	a930	3,920	2,020	3,590	2,640	1,400	535	312	209
17	290	700	950	a900	3,700	5,210	3,920	2,560	1,490	520	290	209
18	280	602	1,000	a870	3,000	4,850	3,190	2,400	1,460	506	290	207
19	269	535	860	a840	2,560	4,250	2,820	2,090	1,430	506	280	204
20	259	491	780	a810	2,240	3,490	2,730	1,950	1,460	491	280	200
21	249	463	760	a2,500	1,950	3,090	2,730	2,020	1,460	463	269	200
22	247	463	1,000	4,250	1,810	3,190	2,480	2,090	1,340	450	269	200
23	241	947	2,730	3,550	3,060	2,910	2,240	2,090	1,340	450	312	195
24	232	3,950	3,620	2,560	8,720	2,560	2,020	1,950	1,220	436	312	200
25	226	2,910	2,560	1,950	8,360	2,240	1,880	2,020	1,120	410	290	269
26	219	3,250	2,400	1,740	6,450	2,090	1,810	2,160	1,080	410	269	384
27	223	7,980	2,640	1,490	4,850	2,320	1,810	2,320	1,020	397	269	290
28	791	4,250	3,290	1,250	3,590	2,160	1,740	2,160	1,050	436	259	249
29	680	2,910	2,910	1,200	-	1,950	1,670	2,020	1,080	436	249	245
30	463	2,560	2,400	a1,120	-	1,810	1,740	1,880	1,100	410	249	234
31	397	-	2,090	a1,060	-	1,810	-	1,880	-	384	247	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	10,509	791	195	339	1.51	1.74	20,640
November	44,373	7,980	269	1,479	6.57	7.33	89,010
December	52,600	3,620	760	1,697	7.54	8.69	104,300
Calendar year 1949	435,356	7,980	185	1,193	5.30	71.94	863,500
January	46,730	4,250	810	1,507	6.70	7.72	92,690
February	70,780	8,720	760	2,528	11.2	11.70	140,400
March	96,770	6,900	1,460	3,122	13.9	16.00	191,900
April	72,770	3,920	1,670	2,426	10.8	12.05	144,300
May	67,650	3,390	1,740	2,182	9.70	11.18	134,200
June	46,240	2,240	1,020	1,541	6.85	7.64	91,720
July	18,714	1,050	384	604	2.68	3.09	37,120
August	9,409	372	247	304	1.35	1.56	18,660
September	6,849	384	195	228	1.01	1.13	13,580
Water year 1949-50	543,394	8,720	185	1,489	6.62	89.81	1,078,000

Peak discharge (base, 5,700 sec.-ft.).--Nov. 27 (6:30 a.m.) 10,800 sec.-ft.; Feb. 24 (11:30 a.m.) 9,840 sec.-ft.; Mar. 5 (3 p.m.) 7,050 sec.-ft.; Mar. 17 (2:30 p.m.) 6,030 sec.-ft.

a No gage-height record; discharge computed on basis of records for station above Trout Creek, near Carson.

Panther Creek near Carson, Wash.

Location.--Water-stage recorder, lat. 45°48'00", long. 121°52'00", in SW¹/₄ sec. 25, T. 4 N., R. 7¹/₂ E., a third of a mile upstream from Cedar Creek and 6 miles north of Carson.

Drainage area.--30.1 square miles.

Records available.--December 1944 to September 1950.

Extremes.--Maximum discharge during year, 1,880 second-feet Feb. 24 (gage height, 4.67 feet); minimum, 56 second-feet Oct. 2, 3 (gage height, 0.94 foot).
1944-50: Maximum discharge, 2,230 second-feet Jan. 7, 1948 (gage height, 5.1 feet, from high-water mark in well); minimum, 47 second-feet Aug. 31 to Sept. 2, 1945.
A discharge of 40 second-feet was measured Oct. 30, 1944.

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

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.9	50	1.8	235	3.5	1,030
1.0	66	2.0	294	4.0	1,380
1.2	101	2.3	405	4.5	1,790
1.4	140	2.6	536		
1.6	184	3.0	732		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	63	227	227	a120	332	496	246	246	140	107	83
2	56	61	260	194	a116	318	487	246	246	138	105	83
3	56	60	246	172	a114	786	405	235	255	136	103	83
4	63	58	214	159	a112	1,130	339	227	263	134	103	81
5	76	58	204	148	a111	1,130	311	243	255	154	103	81
6	85	60	196	170	a111	786	304	246	222	132	101	80
7	74	58	175	192	a112	500	275	230	204	132	101	80
8	66	61	157	172	a112	381	282	219	204	130	101	80
9	68	83	148	161	110	318	282	219	202	130	101	78
10	69	94	136	161	110	275	263	246	209	130	99	78
11	74	196	128	148	112	241	257	325	209	128	97	78
12	73	227	122	140	114	214	318	434	202	128	97	78
13	68	155	118	134	142	196	373	456	189	126	96	78
14	64	128	112	a128	230	182	339	413	184	124	96	78
15	63	109	114	a121	443	177	385	365	177	124	94	78
16	61	96	112	a118	680	249	545	332	182	122	94	76
17	60	88	124	a112	573	902	545	321	184	120	92	76
18	60	85	130	a109	405	786	434	288	177	120	92	74
19	60	80	118	a104	328	596	373	249	177	120	90	74
20	60	76	110	a100	282	504	373	232	177	118	90	74
21	60	73	110	381	243	434	377	246	170	116	88	74
22	60	76	144	559	222	460	335	275	163	114	90	74
23	60	152	420	430	429	418	294	266	159	112	96	73
24	60	514	527	297	1,700	358	260	249	155	112	92	73
25	60	321	332	230	1,500	318	241	252	150	110	88	67
26	60	394	282	194	996	294	232	272	148	110	88	96
27	61	1,280	350	168	630	308	235	291	146	110	87	78
28	101	473	504	150	430	291	232	269	144	114	87	78
29	83	301	422	136	-	263	227	241	144	110	87	76
30	71	252	332	a129	-	246	230	230	142	110	85	74
31	66	-	272	a123	-	260	-	227	-	109	85	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	2,056	101	56	66.3	2.20	2.54	4,080
November	5,712	1,280	58	190	6.31	7.06	11,330
December	6,846	527	110	221	7.34	8.46	13,580
Calendar year 1949	62,342	1,420	56	171	5.68	77.04	123,600
January	5,767	559	100	186	6.18	7.13	11,440
February	10,587	1,700	110	378	12.6	13.08	21,000
March	13,653	1,130	177	440	14.6	16.87	27,080
April	10,049	545	227	335	11.1	12.42	19,930
May	8,590	456	219	277	9.20	10.61	17,040
June	5,685	263	142	190	6.31	7.02	11,280
July	3,793	140	109	122	4.06	4.69	7,520
August	2,935	107	85	94.7	3.15	3.63	5,820
September	2,354	96	73	78.5	2.61	2.91	4,670
Water year 1949-50	78,027	1,700	56	214	7.11	96.42	154,800

Peak discharge (base, 1,000 sec.-ft.),--Nov. 27 (6 a.m.) 1,840 sec.-ft.; Feb. 24 (10 a.m.) 1,880 sec.-ft.; Mar. 3 (10 p.m.) 1,160 sec.-ft.; Mar. 17 (12 m.) 1,130 sec.-ft.

a No gage-height record; discharge computed on basis of records for Wind River above Trout Creek, near Carson.

SANDY RIVER BASIN

101

Sandy River near Marmot, Oreg.

Location.--Water-stage recorder, lat. 45°23', long. 122°08', in NE¼ sec. 24, T. 2 S., R. 5 E., 1 mile southwest of Marmot, 1½ miles upstream from Sandy River Dam of Portland General Electric Co., and 5 miles downstream from Salmon River.

Drainage area.--262 square miles.

Records available.--August 1911 to December 1915, July 1919 to September 1950. Equivalent records for period January 1916 to June 1919 obtained by combining records for Sandy River below dam near Marmot with records for Sandy River Canal near Marmot.

Average discharge.--39 years, 1,323 second-feet.

Extremes.--Maximum discharge during year, 14,000 second-feet Feb. 24 (gage height, 12.02 feet), from rating curve extended above 6,000 second-feet; minimum, 325 second-feet Oct. 4 (gage height, 3.15 feet).
1911-50: Maximum discharge, 29,200 second-feet Jan. 6, 1923 (gage height, 17.5 feet, site and datum then in use), by computation of flow over dam; minimum, 205 second-feet Sept. 21-24, 1940.

Remarks.--Records excellent. No diversion or regulation above station.

Cooperation.--Water-stage recorder inspected by employee of Portland General Electric Co.

Revisions.--W 594: Drainage area.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

3.1	305	6.0	2,450
3.4	435	7.0	3,700
3.8	640	8.0	5,300
4.4	1,010	9.0	7,200
5.0	1,470	11.0	11,600

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	350	560	2,590	1,370	938	2,470	4,500	1,650	2,970	1,560	646	445
2	333	525	2,770	1,200	867	2,550	4,080	1,640	2,970	1,450	634	455
3	329	495	2,150	1,080	845	4,970	2,980	1,580	3,100	1,370	607	465
4	399	475	1,750	1,030	867	4,830	2,370	1,830	3,200	1,330	585	430
5	1,020	465	1,700	964	874	4,500	2,130	2,150	3,010	1,280	570	412
6	1,420	445	1,500	1,100	958	3,590	2,000	1,960	2,560	1,210	555	394
7	1,070	430	1,320	1,170	919	2,750	1,790	1,760	2,670	1,140	560	394
8	779	445	1,170	1,030	997	2,300	1,790	1,650	2,780	1,070	570	386
9	1,760	470	1,130	984	1,000	2,010	1,710	1,660	2,470	1,110	565	361
10	2,560	480	1,030	1,040	1,030	1,790	1,580	1,900	2,750	1,020	545	381
11	1,610	618	938	964	1,070	1,600	1,580	2,590	2,800	945	530	381
12	1,380	888	945	900	1,080	1,440	1,940	3,640	3,300	919	525	376
13	1,120	673	1,240	860	1,950	1,330	2,220	3,920	2,910	906	510	376
14	926	607	1,180	797	3,130	1,260	2,050	3,760	2,460	912	520	372
15	815	570	1,170	785	3,990	1,210	2,240	3,430	2,240	880	530	358
16	719	470	1,170	767	3,810	2,200	2,660	3,150	2,300	860	530	354
17	651	505	1,300	707	3,220	5,550	2,920	3,250	2,720	815	520	350
18	818	480	1,290	688	2,570	4,170	2,530	2,680	2,380	809	525	345
19	570	460	1,090	971	2,380	4,180	2,370	2,280	2,330	912	495	345
20	545	440	984	2,440	2,060	3,080	2,500	2,310	2,300	834	490	345
21	520	426	1,090	4,530	1,770	2,540	2,680	2,660	2,130	779	500	345
22	500	465	2,000	6,140	1,670	2,410	2,400	3,110	2,040	785	500	345
23	465	1,610	3,800	4,320	3,860	2,120	2,070	2,980	2,310	785	575	350
24	465	3,300	3,160	2,810	11,400	1,920	1,790	2,790	2,170	797	684	363
25	450	2,630	2,400	2,090	9,110	1,700	1,680	2,860	1,990	773	525	530
26	435	2,570	2,250	1,780	5,820	1,650	1,520	3,130	1,780	737	470	932
27	430	5,000	2,080	1,550	4,000	1,680	1,600	3,320	1,710	695	460	575
28	945	4,170	2,050	1,310	3,060	1,550	1,610	2,870	1,710	725	445	450
29	886	3,190	1,980	1,150	-	1,390	1,570	2,830	1,750	713	440	390
30	673	3,710	1,760	1,050	-	1,380	1,550	2,780	1,660	656	450	376
31	602	-	1,590	938	-	1,760	-	2,730	-	640	435	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	25,365	2,560	329	618	3.12	3.60	50,310
November	37,570	5,000	426	1,252	4.78	5.33	74,520
December	52,587	3,800	938	1,696	6.47	7.46	104,300
Calendar year 1949	516,054	9,150	329	1,414	5.40	73.23	1,024,000
January	48,475	6,140	668	1,584	5.97	6.88	96,150
February	75,215	11,400	815	2,686	10.3	10.68	149,200
March	77,880	5,550	1,210	2,512	9.59	11.05	154,500
April	69,390	4,500	1,520	2,213	8.45	9.42	131,700
May	80,860	3,920	1,590	2,608	9.95	11.48	160,400
June	73,470	3,300	1,660	2,449	9.35	10.43	145,700
July	29,417	1,560	640	949	3.62	4.18	58,350
August	16,496	684	435	532	2.03	2.34	32,720
September	12,381	932	345	413	1.58	1.76	24,560
Water year 1949-50	596,106	11,400	329	1,633	6.23	84.61	1,182,000

Peak discharge (base, 7,700 sec.-ft.)--Feb. 24 (2 p.m.) 14,000 sec.-ft.

Sandy River below Bull Run River, near Bull Run, Oreg.

Location.--Water-stage recorder, lat. 45°27', long. 122°15', in NW¹ sec. 30, T. 1 S., R. 5 E., 1 mile downstream from Bull Run River and 2 miles northwest of Bull Run. Altitude of gage, 202 feet (from river-profile map).

Drainage area.--440 square miles.

Records available.--October 1929 to September 1950. April 1910 to September 1914 at site three-quarters of a mile upstream.

Average discharge.--24 years (1910-11, 1912-14, 1929-50), 2,249 second-feet.

Extremes.--Maximum discharge during year, about 27,000 second-feet Feb. 24, occurred during period of no gage-height record; minimum, 113 second-feet Oct. 4 (gage height, 0.99 foot); minimum daily, 135 second-feet Oct. 2.

1910-14, 1929-50: Maximum discharge, 58,000 second-feet Mar. 31, 1931 (gage height, 20.6 feet), from rating curve extended above 18,000 second-feet; minimum, 53 second-feet Oct. 4, 1931 (gage height, 0.53 foot); minimum daily, 93 second-feet Oct. 7, 1945.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No diversion above station for irrigation; about 80,000 acre-feet annually diverted from Bull Run River by Portland Water Bureau. Flow slightly regulated by Bull Run Lake and Lake Ben Morrow Reservoir of Portland Water Bureau; considerable diurnal fluctuation by Bull Run power plant of Portland General Electric Co.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.0	115	3.4	1,300	8.0	7,900
1.1	140	4.0	1,810	9.5	11,500
1.5	275	5.0	2,840	11.5	17,700
2.0	485	6.0	4,200	12.8	22,300
2.7	840	7.0	5,960		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	252	1,060	4,840	2,590	1,600	4,430	8,100	2,630	4,450	2,330	744	576
2	135	982	5,010	2,100	1,500	4,300	7,940	2,860	4,480	1,800	765	586
3	576	932	3,820	2,170	1,400	8,500	5,760	2,700	4,740	2,020	753	558
4	625	796	2,980	1,940	1,500	8,000	4,240	3,070	4,910	1,480	706	308
5	1,670	666	3,080	1,820	1,500	7,500	3,670	4,010	4,620	1,930	704	671
6	3,060	258	2,770	2,320	1,700	6,000	3,430	3,750	3,860	1,820	620	674
7	2,620	820	2,370	2,230	1,600	5,000	3,090	3,290	4,290	1,720	715	588
8	1,540	861	2,100	1,900	1,700	4,000	3,060	2,970	5,310	1,480	608	528
9	3,440	858	2,020	1,800	1,700	3,500	2,850	2,770	4,200	965	530	479
10	5,440	868	1,800	1,900	1,800	3,000	2,640	3,040	4,390	1,540	651	205
11	3,190	1,130	1,270	1,760	1,800	2,700	2,560	4,000	4,550	1,380	642	649
12	2,640	2,060	1,620	1,640	1,900	2,500	3,130	5,640	5,450	1,310	641	644
13	2,260	1,110	2,160	1,500	3,500	2,200	3,900	6,240	4,920	1,230	315	586
14	1,770	1,350	2,120	1,400	5,500	2,000	3,670	5,920	4,000	1,200	672	690
15	1,490	1,260	2,160	1,400	7,000	1,900	4,000	5,400	3,600	1,140	668	462
16	1,140	1,660	2,280	1,400	6,500	5,000	5,010	4,840	3,520	540	673	480
17	1,190	1,080	2,420	1,300	6,000	10,000	6,110	4,160	4,140	1,190	672	208
18	1,140	976	2,420	1,200	5,000	7,500	4,830	4,370	3,450	1,150	654	640
19	1,050	576	2,150	2,500	4,500	7,500	4,260	3,660	3,610	1,260	662	478
20	993	586	1,890	6,000	3,800	5,500	4,240	3,520	3,520	1,220	394	488
21	934	900	2,040	10,000	3,460	4,500	4,310	3,890	3,310	1,010	658	472
22	626	884	5,480	13,000	3,200	4,100	3,920	4,630	3,200	831	680	446
23	279	2,500	10,200	10,000	7,000	3,800	3,390	4,480	3,910	471	776	284
24	898	9,070	7,380	5,000	22,000	3,500	2,920	4,160	3,590	1,030	822	521
25	826	6,420	5,440	4,500	17,000	3,000	2,670	4,440	2,930	996	760	756
26	740	5,380	4,470	3,500	10,600	2,800	2,470	5,060	2,920	954	732	1,250
27	709	9,260	4,370	2,800	7,660	2,900	2,550	5,190	2,750	980	580	955
28	1,470	7,820	4,200	2,400	5,740	2,700	2,700	4,240	2,650	958	673	750
29	1,870	6,190	3,940	2,000	-	2,500	2,540	4,200	2,640	964	648	698
30	726	6,930	3,350	1,800	-	2,430	2,340	4,060	2,540	860	571	580
31	1,180	-	3,030	1,600	-	2,820	-	4,070	-	792	576	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	46,479	5,440	135	1,499	3.41	3.93	92,190
November	74,743	9,260	258	2,491	5.66	6.32	148,300
December	105,180	10,200	1,270	3,393	7.71	8.89	208,600
Calendar year 1949	866,968	17,000	135	2,375	5.40	73.29	1,720,000
January	97,470	13,000	1,200	3,144	7.15	8.24	193,300
February	138,160	22,000	1,400	4,934	11.2	11.68	274,000
March	136,080	10,000	1,900	4,390	9.98	11.50	269,900
April	116,300	8,100	2,340	3,877	8.81	9.83	230,700
May	128,260	6,240	2,630	4,137	9.40	10.84	254,400
June	116,450	5,450	2,540	3,882	8.82	9.84	231,000
July	38,551	2,330	471	1,244	2.83	3.26	76,460
August	20,265	822	315	654	1.49	1.71	40,200
September	17,190	1,250	205	573	1.30	1.45	34,100
Water year 1949-50	1,035,128	22,000	135	2,636	6.45	87.49	2,053,000

Peak discharge (base, 17,000 sec.-ft.)--Feb. 24 (about 3 p.m.) about 27,000 sec.-ft.

Note.--No gage-height record Jan. 8-10, Jan. 13 to Feb. 20, Feb. 25, Mar. 2-23; discharge computed on basis of recorded range in stage when available, weather records, and records for station upstream near Marmot.

Salmon River near Government Camp, Oreg.

Location.--Water-stage recorder, lat. 45°16', long. 121°43', in sec. 31, T. 3 S., R. 9 E., near lower end of Red Top Meadows, 4 miles southeast of Government Camp. Datum of gage is 3,446.45 feet above mean sea level, datum of 1929.

Drainage area.--8.7 square miles.

Records available.--May 1910 to May 1912, April 1926 to September 1950.

Average discharge.--25 years (1910-11, 1926-50), 41.7 second-feet.

Extremes.--Maximum discharge during year, 248 second-feet June 16 (gage height, 2.29 feet); minimum, 14 second-feet Oct. 2, 3.

1910-12, 1926-50: Maximum discharge, 650 second-feet Dec. 22, 1933 (gage height, 3.61 feet); minimum, 12 second-feet Nov. 21, 1929, Oct. 19, 1930, Nov. 2, 10-12, Nov. 28 to Dec. 4, 1936.

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

Revisions.--W 769: Drainage area.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a15	23	49	29	26	48	80	45	120	117	52	31
2	a14	22	63	27	26	48	65	44	125	113	51	31
3	a14	22	43	26	*26	76	52	42	135	111	48	30
4	a20	22	39	26	27	75	47	42	140	109	46	30
5	a35	21	38	25	27	70	46	42	134	106	46	28
6												
7	a44	20	35	25	28	58	44	39	119	101	46	28
8	a53	20	35	25	27	52	42	38	144	98	45	27
9	a27	22	31	25	26	48	42	41	158	92	44	27
10	a50	24	30	25	26	46	41	46	125	92	44	27
11	a55	23	30	25	25	44	39	58	146	86	43	26
12												
13	a42	37	30	24	25	41	41	73	136	83	42	26
14	a40	33	31	24	25	40	44	89	168	81	42	26
15	34	26	37	b24	34	39	47	101	134	81	40	25
16	31	25	31	b23	41	37	44	104	121	79	40	25
17	30	24	30	b23	44	37	48	100	117	77	40	24
18												
19	28	24	30	23	39	49	57	95	148	74	39	24
20	27	22	28	23	36	77	59	93	160	72	37	24
21	27	21	28	22	34	58	54	77	144	71	37	24
22	26	21	27	24	33	51	57	76	146	76	36	24
23	25	21	26	32	32	46	63	86	142	68	36	24
24												
25	25	21	26	45	31	44	64	102	138	64	36	24
26	24	25	37	54	31	44	58	114	136	62	36	24
27	24	66	48	44	48	42	51	105	146	61	42	24
28	23	54	36	37	110	40	48	101	151	59	45	25
29	22	50	33	33	108	58	46	107	115	58	36	36
30												
31	22	62	31	32	78	37	44	116	110	58	34	56
32	22	125	33	30	61	37	42	120	114	57	33	28
33	52	75	34	28	*53	36	41	109	124	64	33	25
34	30	62	33	28	-	35	42	114	125	60	32	24
35	25	65	30	b27	-	35	44	109	122	56	32	24
36	24	-	*30	b26	-	44	-	111	-	54	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acres-feet
October	910	55	14	29.4	3.38	3.89	1,800
November	1,078	125	20	35.9	4.13	4.61	2,140
December	1,060	63	26	34.2	3.93	4.53	2,100
Calendar year 1949	17,429	169	14	47.8	5.49	74.50	34,570
January	884	54	22	28.5	3.28	3.78	1,750
February	1,127	110	25	40.2	4.62	4.82	2,240
March	1,472	77	35	47.5	5.46	6.29	2,920
April	1,492	80	39	49.7	5.71	6.38	2,980
May	2,539	120	38	81.9	9.41	10.85	5,040
June	4,003	168	110	133	15.3	17.11	7,940
July	2,440	117	54	78.7	9.05	10.43	4,840
August	1,244	52	31	40.1	4.61	5.32	2,470
September	821	56	24	27.4	3.15	3.51	1,650
Water year 1949-50	19,070	168	14	52.2	6.00	61.52	37,830

Peak discharge (base, 150 sec.-ft.)--Nov. 27 (9 a.m.) 212 sec.-ft.; June 12 (11 a.m.) 201 sec.-ft.; June 16 (7 p.m.) 248 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for stations below Linney Creek and above Boulder Creek, near Brightwood.

b Stage-discharge relation affected by ice.

Salmon River below Linney Creek, Oreg.

Location.--Water-stage recorder, lat. 45°13', long. 121°52', 200 feet downstream from Linney Creek, 9 miles southeast of Welches, and 11 miles downstream from station near Government Camp.

Drainage area.--54 square miles.

Records available.--October 1927 to September 1950 (discontinued).

Average discharge.--23 years, 205 second-feet.

Extremes.--Maximum discharge during year, 946 second-feet May 14 (gage height, 3.11 feet); minimum, 62 second-feet Oct. 2, 3.

1927-50: Maximum discharge, 4,070 second-feet Mar. 31, 1931 (gage height, 5.81 feet), from rating curve extended above 1,500 second-feet; minimum, 37 second-feet Nov. 2, 1936 (gage height, 0.22 foot).

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

Revisions (water years).--W 769: 1928, 1931(M).

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.5	57	1.5	250
.7	82	1.8	345
.9	114	2.2	500
1.1	152	3.0	885

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a64	73	289	142	144	366	458	317	695	317	128	81
2	a62	72	320	132	136	334	444	314	705	301	127	81
3	a62	69	250	125	134	512	362	304	735	292	123	81
4	a80	68	222	128	138	528	317	314	735	283	121	79
5	a120	67	210	125	142	516	307	320	710	271	119	78
6	a140	67	185	128	142	448	295	295	630	259	116	77
7	a110	67	168	125	132	388	283	280	700	248	114	77
8	a6	69	157	121	130	352	280	286	626	238	112	76
9	a63	79	152	116	123	320	277	320	572	232	111	74
10	198	76	144	116	123	298	271	412	603	222	107	74
11	132	97	132	112	119	274	274	536	598	212	106	74
12	128	107	144	109	116	250	259	695	670	202	104	73
13	109	82	159	106	152	238	314	820	567	198	100	73
14	94	77	144	104	200	228	292	874	516	192	100	73
15	90	74	136	107	235	218	324	841	488	188	99	72
16	84	72	132	111	230	716	376	785	508	180	97	70
17	81	69	128	102	230	488	412	750	549	173	94	70
18	79	69	128	99	218	408	404	616	504	168	92	69
19	a76	68	119	112	210	376	416	576	492	182	91	68
20	a75	67	116	142	200	334	496	603	484	168	90	68
21	a74	67	119	222	188	310	492	675	464	161	90	68
22	a72	70	159	324	180	307	464	770	452	154	90	68
23	a71	235	232	283	292	283	404	750	468	152	100	67
24	a70	238	215	235	720	265	362	720	456	150	114	70
25	a70	198	188	210	805	248	345	725	388	146	92	96
26	69	225	173	198	635	235	317	755	362	142	88	148
27	69	579	170	180	508	228	307	760	352	140	86	85
28	142	456	175	168	428	215	298	705	348	152	86	77
29	106	370	170	154	-	205	304	700	345	150	84	74
30	82	392	164	150	-	205	310	670	331	138	84	72
31	76	-	152	150	-	232	-	660	-	132	81	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-foot
October	2,934	198	62	94.6	1.75	2.02	5,820
November	4,319	579	67	144	2.67	2.97	6,570
December	5,352	320	116	173	3.20	3.69	10,620
Calendar year 1949	87,392	1,180	62	239	4.43	60.18	173,400
January	4,636	324	99	150	2.78	3.19	9,200
February	7,010	805	116	250	4.63	4.83	13,900
March	10,305	716	205	332	6.15	7.10	20,440
April	10,464	496	259	349	6.46	7.21	20,760
May	18,148	874	280	585	10.8	12.50	36,000
June	16,033	735	331	534	9.89	11.04	31,800
July	6,143	317	132	198	3.67	4.23	12,180
August	3,146	128	81	101	1.87	2.17	6,240
September	2,313	148	67	77.1	1.43	1.59	4,590
Water year 1949-50	90,803	874	62	249	4.61	62.54	180,100

Peak discharge (base, 710 sec.-ft.).--Nov. 27 (11 a.m.) 805 sec.-ft.; Feb. 25 (2 a.m.) 874 sec.-ft.; May 14 (7 to 9 p.m.) 945 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for stations near Government Camp and near Brightwood.

Salmon River above Boulder Creek, near Brightwood, Oreg.

Location.--Water-stage recorder, lat. 45°22', long. 122°01', in SW¹/₄SE¹/₄ sec. 25, T. 2 S., R. 6 E., 1 mile upstream from Boulder Creek, 1¹/₂ miles south of Brightwood, and 2¹/₂ miles upstream from mouth. Datum of gage is 1,089.2 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.--106 square miles.

Records available.--August 1936 to September 1950. October 1912 to March 1913 (gage heights only) at site at fish hatchery below Boulder Creek. August 1913 to September 1914, July 1920 to September 1921, and April 1925 to September 1936 at sites at or near Welches, about 5 miles above present site.

Average discharge.--14 years (1936-50), 442 second-feet.

Extremes.--Maximum discharge during year, 5,350 second-feet Feb. 24 (gage height, 5.02 feet); minimum, 97 second-feet Oct. 3, 4 (gage height, 0.58 foot).
1913-14, 1920-21, 1925-50: Maximum discharge, 13,000 second-feet Mar. 31, 1931 (gage height, 9.80 feet at Welches), from rating curve extended above 4,800 second-feet; minimum, 59 second-feet Nov. 30, Dec. 1, 1936, Sept. 25, 26, 1940.

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

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.5	80	1.4	386	3.0	1,750
.6	101	1.7	551	3.5	2,440
.8	152	2.1	835	4.0	3,280
1.1	252	2.5	1,190	4.5	4,240

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	167	883	442	329	875	1,730	650	1,180	522	202	128
2	99	152	1,030	386	329	907	1,470	650	1,180	492	195	125
3	97	147	760	343	329	1,820	1,070	615	1,220	464	189	125
4	118	158	596	334	329	1,700	851	708	1,260	448	185	125
5	372	133	570	311	306	1,530	768	820	1,190	427	182	123
6	527	130	522	367	343	1,230	715	745	1,040	406	179	120
7	352	128	442	381	329	958	650	664	1,060	391	176	118
8	237	130	391	338	348	820	664	615	1,050	372	173	118
9	649	144	376	316	352	722	643	650	958	362	170	115
10	899	144	338	343	362	650	583	775	1,050	348	170	115
11	492	195	302	316	372	570	602	1,060	1,040	329	164	113
12	422	277	316	293	367	516	730	1,440	1,130	316	161	113
13	338	198	437	272	773	486	828	1,530	1,010	302	158	113
14	264	176	422	256	1,150	459	745	1,490	883	293	158	113
15	230	164	396	256	1,360	437	820	1,380	820	285	155	111
16	198	152	391	252	1,190	932	974	1,270	843	281	152	111
17	182	144	427	252	1,010	2,140	1,060	1,280	958	272	147	108
18	173	138	412	248	830	1,500	924	1,060	859	268	147	106
19	161	136	348	830	790	1,490	883	932	843	298	144	106
20	155	130	316	892	685	1,060	1,010	940	828	272	141	106
21	149	128	362	1,690	589	883	1,050	1,090	775	252	141	103
22	141	136	685	2,110	539	867	940	1,270	745	245	141	101
23	138	642	1,390	1,330	1,560	745	812	1,220	820	237	158	101
24	133	1,160	1,120	867	4,130	671	708	1,140	782	234	208	103
25	128	875	805	650	3,080	602	657	1,160	722	226	161	147
26	125	875	775	564	1,970	577	596	1,270	636	219	147	348
27	125	2,110	692	492	1,420	589	629	1,320	602	215	141	195
28	334	1,610	692	427	1,070	539	650	1,170	596	241	141	144
29	298	1,170	671	376	-	492	636	1,140	589	241	138	128
30	212	1,380	596	338	-	481	629	1,120	551	222	130	123
31	182	-	516	311	-	657	-	1,100	-	212	130	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	8,033	899	97	259	2.44	2.82	15,930
November	13,209	2,110	128	440	4.15	4.63	26,200
December	17,979	1,390	302	580	5.47	6.31	35,660
Calendar year 1949	185,016	3,180	97	507	4.78	64.92	367,000
January	16,069	2,110	248	518	4.89	5.64	31,870
February	26,231	4,130	306	937	8.84	9.20	52,030
March	27,905	2,140	437	900	8.49	9.79	55,350
April	25,027	1,730	583	834	7.87	8.78	49,640
May	32,274	1,530	615	1,041	9.82	11.32	64,010
June	27,220	1,260	551	907	8.56	9.55	53,990
July	9,692	522	212	313	2.95	3.40	19,220
August	4,984	208	130	161	1.52	1.75	9,890
September	3,805	348	101	127	1.20	1.33	7,550
Water year 1949-50	212,428	4,130	97	582	5.49	74.52	421,300

Peak discharge (base, 2,900 sec.-ft.),--Feb. 24 (12 m.) 5,350 sec.-ft.

SANDY RIVER BASIN

Lake Ben Morrow Reservoir near Bull Run, Oreg.

Location.--Water-stage recorder, lat. 45°29', long. 122°05', in SW $\frac{1}{4}$ sec. 16, T. 1 S., R. 6 E., at Bear Creek Dam of city of Portland, 8 $\frac{1}{2}$ miles northeast of Bull Run. Datum of gage is at mean sea level (levels by Portland Water Bureau).

Records available.--October 1928 to September 1950.

Extremes.--Maximum contents during year, 29,710 acre-feet Feb. 24 (elevation, 1,042.97 feet); minimum, 20,020 acre-feet Sept. 24 (elevation, 1,016.51 feet).
1928-50: Maximum contents, 31,600 acre-feet Mar. 31, 1931 (elevation, 1,047.40 feet); minimum after first filling in May 1929, 17,270 acre-feet Sept. 26, 1940 (elevation, 1,007.78 feet).

Remarks.--Records good. Lake Ben Morrow Reservoir 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-feet at crest of spillway (elevation, 1,036 feet); dead storage, 213 acre-feet at elevation 890 feet (center of outlet valves).

Cooperation.--Water-stage recorder inspected and capacity table furnished by Portland Water Bureau.

Revisions (water years).--W 814: 1935(M).

Monthly elevation and contents, water year October 1949 to September 1950

Date	Elevation (feet)*	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30.....	1,036.47	27,110	-
Oct. 31.....	1,036.89	27,280	+170
Nov. 30.....	1,038.39	27,860	+580
Dec. 31.....	1,037.41	27,480	-380
Calendar year 1949....	-	-	+120
Jan. 31.....	1,036.95	27,300	-180
Feb. 28.....	1,037.92	27,680	+380
Mar. 31.....	1,037.61	27,560	-120
Apr. 30.....	1,037.34	27,450	-110
May 31.....	1,037.91	27,670	+220
June 30.....	1,037.49	27,510	-160
July 31.....	1,036.28	27,040	-470
Aug. 31.....	1,027.40	23,740	-3,300
Sept. 30.....	1,022.57	22,050	-1,690
Water year 1949-50....	-	-	-5,060

* Elevation at 12 p.m.

g Computed from graph based on observer's once-daily staff-gage readings.

Bull Run River below Lake Ben Morrow Reservoir, Oreg.

Location.--Water-stage recorder above crest of spillway, and scales indicating number of turns outlet needle valves are open, lat. 45°29', long. 122°05', in SW $\frac{1}{4}$ sec. 16, T. 1 S., R. 6 E., at Bear Creek Dam on Bull Run River, 500 feet downstream from Bear Creek, 1,000 feet upstream from Five-mile Creek, and 8 $\frac{1}{2}$ miles northeast of Bull Run. Datum of gage is at mean sea level (levels by Portland Water Bureau).

Drainage area.--74 square miles.

Records available.--October 1934 to September 1950. October 1929 to September 1934 at site half a mile downstream.

Average discharge.--21 years, 571 second-feet (adjusted).

Extremes.--Maximum discharge during year, 7,340 second-feet Feb. 24 (elevation, 1,042.97 feet); minimum daily, 102 second-feet Oct. 3.

1929-50: Maximum discharge at dam, 16,100 second-feet Mar. 31, 1931 (elevation, 1,047.40 feet with one valve open 30 turns); no flow part of Oct. 27, 1939.

Remarks.--Records good. Daily discharge determined by combining discharge through valves near base of dam and that over crest of spillway (elevation, 1,036 feet). Leakage at dam is less than 1 second-foot and is disregarded. No diversion above station. Flow regulated by Bull Run Lake and Lake Ben Morrow Reservoir; 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).--W 904: Drainage area, 1931(M).

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	288	1,190	581	g335	911	2,440	634	1,060	655	g213	181
2	106	253	1,510	496	g299	882	2,230	711	1,080	594	190	181
3	102	225	968	425	g277	2,580	1,460	679	1,210	555	187	180
4	140	205	732	392	g277	2,670	1,010	760	1,260	522	187	180
5	644	192	760	348	g354	2,590	843	1,140	1,150	487	187	180
6	1,090	178	746	401	g413	1,990	776	959	934	451	187	174
7	908	169	584	496	g413	1,320	676	784	1,100	413	187	166
8	588	169	496	413	g428	987	655	683	1,460	383	187	166
9	1,240	203	438	371	g458	808	627	627	1,180	371	190	164
10	1,710	245	395	365	g522	704	581	679	1,130	365	185	164
11	1,060	464	343	335	522	594	568	908	1,140	338	185	164
12	866	882	326	g316	529	516	728	1,330	1,280	319	185	164
13	669	662	464	g288	840	464	984	1,440	1,240	299	185	167
14	529	510	480	g266	1,700	438	950	1,320	1,000	282	185	164
15	425	425	470	g266	2,250	410	1,210	1,210	882	277	185	164
16	365	363	529	g245	2,390	735	1,540	1,100	866	266	188	163
17	304	316	516	g220	1,910	2,770	1,930	1,150	942	255	185	163
18	277	277	529	a210	1,310	2,300	1,380	1,030	891	272	200	163
19	258	250	444	a300	1,070	2,440	1,120	866	874	276	209	163
20	235	230	371	1,280	900	1,650	1,080	792	882	268	209	166
21	215	220	404	2,290	760	1,240	1,050	874	835	237	209	163
22	196	230	1,440	3,350	679	1,190	908	993	792	225	209	163
23	187	862	3,470	2,600	1,720	1,000	784	1,000	1,020	221	177	161
24	174	3,840	2,360	g1,570	5,960	848	669	919	968	213	156	161
25	164	2,260	1,380	g1,150	4,380	732	614	968	874	201	156	161
26	151	1,690	1,510	784	2,500	669	558	1,130	776	222	156	163
27	148	2,520	1,240	627	1,680	711	574	1,280	725	205	156	167
28	555	2,080	1,240	g529	1,210	662	627	1,130	721	205	156	164
29	607	1,760	1,030	g425	-	577	610	1,000	718	g220	154	164
30	407	1,790	832	g365	-	529	588	984	704	g208	171	164
31	332	-	697	g343	-	620	-	953	-	g186	184	-

Month	Observed				Change in contents of Lake Ben Morrow Reservoir (acre-feet)	Adjusted for change in contents			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October.....	1,710	102	476	29,280	+170	29,450	479	6.47	7.46
November.....	3,840	169	792	47,120	+580	47,700	802	10.8	12.09
December.....	3,470	326	887	54,510	-380	54,130	880	11.9	13.72
Calendar year 1949	4,810	102	598	433,200	+120	433,300	599	8.09	109.80
January.....	3,330	210	711	43,690	-180	43,510	708	9.57	11.02
February.....	5,960	277	1,287	71,500	+380	71,880	1,294	17.5	18.21
March.....	2,770	410	1,178	72,450	-120	72,330	1,176	15.9	18.33
April.....	2,440	558	992	59,050	-110	58,940	991	13.4	14.93
May.....	1,440	627	968	59,570	+220	59,790	972	13.1	15.15
June.....	1,460	704	990	58,900	-160	58,740	987	13.3	14.88
July.....	655	186	322	19,820	-470	19,350	315	4.26	4.90
August.....	213	154	184	11,310	-3,300	8,010	130	1.76	2.03
September.....	181	161	167	9,930	-1,690	8,240	138	1.86	2.09
Water year 1949-50	5,960	102	742	537,100	-5,060	532,000	735	9.93	134.81

Peak discharge (base, 4,800 sec.-ft.)--Nov. 24 (12 m.) 4,850 sec.-ft.; Feb. 24 (12 m.) 7,340 sec.-ft.

a No gage-height record; discharge computed on basis of records for station near Bull Run.

g Computed from graph based on observer's daily gage readings.

Bull Run River near Bull Run, Oreg.

Location.--Water-stage recorder, lat. 45°27', long. 122°07', in SE $\frac{1}{4}$ sec. 25, T. 1 S., R. 5 E., $\frac{1}{2}$ miles upstream from intake of pipe line for water supply of city of Portland and 5 miles east of Bull Run.

Drainage area.--102 square miles.

Records available.--January 1895 to September 1950.

Average discharge.--43 years (1907-50), 738 second-feet (adjusted, 1929-50).

Extremes.--Maximum discharge during year, 8,700 second-feet Feb. 24 (gage height, 8.35 feet); minimum, 141 second-feet Oct. 4.

1895-1950: Maximum discharge, 20,600 second-feet Mar. 31, 1931 (gage height, 13.8 feet), by computation of flow over dam; minimum, 63 second-feet Aug. 13-16, 1926.

Remarks.--Records excellent except those for period of no gage-height record, which are good. No diversion above station. Flow regulated by Bull Run Lake and Lake Ben Morrow Reservoir; adjustment applied only for storage in Lake Ben Morrow Reservoir; flow from Bull Run Lake is not artificially regulated but reaches river through surface and underground channels.

Cooperation.--Water-stage recorder inspected by Portland Water Bureau.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.6	134	2.1	570	6.0	4,470
1.0	184	2.7	895	7.0	8,090
1.8	203	3.4	1,410	7.6	7,200
1.3	277	4.1	2,150		
1.7	405	5.0	3,070		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	151	352	1,500	764	4,420	1,170	2,900	835	1,230	667	217	208
2	147	311	1,580	642	4,380	1,140	2,710	914	1,250	598	214	208
3	144	285	1,190	548	4,360	3,020	1,830	847	1,360	552	214	208
4	171	256	928	518	4,360	3,150	1,330	1,010	1,430	522	212	208
5	747	251	988	464	452	3,140	1,100	1,430	1,300	492	212	205
6	1,280	234	934	561	530	2,420	1,000	1,230	1,070	452	212	199
7	1,100	224	748	662	526	1,640	883	1,020	1,320	421	210	188
8	726	234	622	557	561	1,250	859	883	1,740	387	210	188
9	1,430	274	570	509	570	1,040	805	817	1,370	391	210	186
10	2,000	336	505	526	637	895	742	877	1,330	359	210	184
11	1,240	544	436	472	715	758	726	1,120	1,300	336	210	184
12	1,010	1,020	436	432	753	657	940	1,580	1,520	317	210	184
13	781	764	622	409	1,150	594	1,240	1,680	1,430	302	210	184
14	608	608	632	373	2,130	557	1,160	1,550	1,160	291	210	184
15	518	518	637	369	2,840	530	1,460	1,410	1,040	280	208	182
16	440	436	715	349	3,100	917	1,820	1,290	1,020	274	210	182
17	398	376	720	317	2,460	3,240	2,280	1,390	1,090	264	212	182
18	359	339	726	302	1,680	2,800	1,640	1,230	1,000	277	221	182
19	327	308	589	468	1,430	2,950	1,350	1,040	974	302	226	180
20	297	283	509	1,620	1,200	2,040	1,290	1,030	981	280	226	180
21	277	267	575	2,820	988	1,540	1,230	1,060	895	254	224	180
22	259	280	1,910	4,060	908	1,490	1,110	1,180	871	236	228	180
23	246	995	4,440	3,250	2,220	1,260	954	1,160	1,160	228	226	180
24	234	4,620	3,070	1,880	7,180	1,090	811	1,100	1,100	221	212	188
25	224	2,800	1,850	1,270	5,170	928	742	1,140	1,060	214	199	234
26	219	2,080	1,720	1,000	3,120	877	678	1,290	859	224	197	327
27	217	2,940	1,580	817	2,130	940	742	1,470	793	214	192	244
28	667	2,480	1,520	683	1,510	865	805	1,270	770	228	188	219
29	704	2,090	1,310	584	-	764	753	1,160	770	244	186	212
30	501	2,190	1,080	505	-	704	756	1,140	731	224	195	205
31	398	-	914	464	-	823	-	1,110	-	208	210	-

Month	Observed				Change in contents of Lake Ben Morrow Reservoir (acre-feet)	Adjusted for change in contents			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
October.....	2,000	144	575	35,350	+170	35,520	578	5.67	6.53
November.....	4,620	224	956	56,920	+580	57,500	966	9.47	10.57
December.....	4,440	436	1,147	70,520	-380	70,140	1,141	11.2	12.89
Calendar year 1949	5,740	144	719	520,900	+120	521,000	720	7.06	95.77
January.....	4,060	302	910	55,920	-180	55,740	907	8.89	10.25
February.....	7,180	360	1,624	90,210	+380	90,590	1,631	16.0	16.65
March.....	3,240	530	1,458	89,630	-120	89,510	1,456	14.3	16.45
April.....	2,900	678	1,221	72,650	-110	72,540	1,219	12.0	13.33
May.....	1,680	817	1,170	71,930	+220	72,150	1,173	11.5	13.26
June.....	1,740	731	1,131	67,290	-160	67,130	1,128	11.1	12.33
July.....	667	208	331	20,350	-470	19,880	323	3.17	3.65
August.....	228	186	210	12,930	-3,300	9,630	157	1.54	1.77
September.....	327	180	199	11,850	-1,690	10,160	171	1.68	1.87
Water year 1949-50	7,180	144	905	655,600	-5,060	650,500	899	8.81	119.56

Peak discharge (base, 5,400 sec.-ft.)--Nov. 24 (12:30 p.m.) 5,950 sec.-ft.; Feb. 24 (11:30 a.m.) 8,700 sec.-ft.

a No gage-height record; discharge computed on basis of comparison with station upstream below Lake Ben Morrow, and record of diversion by Portland Water Bureau.

Bull Run River at Bull Run, Oreg.

Location.--Water-stage recorder, lat. 45°26', long. 122°14', in NE¹ sec. 6, T. 2 S., R. 5 E., at Bull Run, 450 feet downstream from tailrace of Portland General Electric Co.'s power plant and 1.5 miles downstream from Little Sandy River.

Drainage area.--136 square miles.

Records available.--August 1949 to September 1950.

Extremes.--Maximum discharge during year, 11,400 second-feet Feb. 24 (gage height, 12.45 feet), from rating curve extended above 3,000 second-feet on basis of flow at station near Bull Run; minimum, 34 second-feet Aug. 18; minimum daily, 51 second-feet Sept. 10. 1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, that of Aug. 18, 1950; minimum daily, that of Sept. 10, 1950.

Remarks.--Records good except those for period of no gage-height record, which are fair. About 80,000 acre-feet annually diverted above station by Portland Water Bureau. Low and medium flows largely regulated by Portland General Electric Co.'s power plant but only slight regulation at high flows. Some water which passes through power plant is diverted from Sandy River.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.2	48	4.0	410	7.0	2,350
1.6	64	4.5	580	8.0	3,510
2.0	84	5.0	800	9.0	4,800
2.5	122	5.5	1,070	10.0	6,400
3.0	180	6.0	1,410	11.5	9,250
3.5	275	6.5	1,850		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	170	928	2,450	1,510	a950	2,110	3,870	1,430	1,860	1,190	580	474
2	61	868	2,450	1,220	a900	2,000	3,970	1,570	1,890	770	619	484
3	499	846	2,000	1,460	a800	4,400	2,840	1,520	2,020	1,050	617	456
4	560	690	1,670	1,230	a850	4,460	2,180	1,640	2,030	580	596	187
5	1,210	556	1,790	1,170	a850	4,460	1,910	2,200	1,950	1,080	589	604
6	2,170	132	1,710	1,370	a1,000	3,810	1,740	2,020	1,660	1,030	483	586
7	1,990	739	1,490	1,290	a950	2,720	1,630	1,770	1,930	1,030	608	502
8	1,250	752	1,340	844	a1,000	2,190	1,600	1,590	2,840	860	506	426
9	2,430	738	1,300	1,400	a1,000	1,860	1,490	1,480	2,110	300	398	371
10	3,150	734	1,190	1,300	a1,050	1,680	1,430	1,550	2,060	926	544	51
11	2,110	1,030	786	980	a1,100	1,460	1,390	1,830	2,070	865	545	564
12	1,820	1,650	1,120	998	1,300	1,220	1,660	2,340	2,410	851	536	558
13	1,610	891	1,350	1,060	1,800	1,300	2,050	2,460	2,280	783	174	494
14	1,330	1,220	1,370	1,050	3,160	1,240	1,980	2,280	1,920	764	576	624
15	1,160	1,130	1,370	810	4,180	1,200	2,250	2,130	1,750	726	567	350
16	892	1,040	1,500	1,090	4,510	1,600	2,750	2,610	1,690	128	556	382
17	1,010	970	1,470	900	3,760	4,540	3,350	2,140	1,810	794	578	64
18	985	834	1,440	898	2,710	4,060	2,560	1,970	1,490	745	549	562
19	932	432	1,360	1,220	2,310	4,160	2,200	1,730	1,710	824	579	384
20	912	438	1,310	2,530	2,010	3,210	2,010	1,610	1,660	822	266	390
21	844	774	1,300	4,030	1,680	2,470	1,970	1,640	1,560	708	560	374
22	515	785	2,850	5,340	1,550	2,610	1,850	1,860	1,620	543	592	349
23	145	1,690	6,130	5,060	2,910	2,080	1,650	1,830	2,000	166	672	154
24	810	6,030	4,570	3,310	9,210	2,080	1,500	1,750	1,830	740	679	433
25	733	3,980	2,980	2,340	7,610	1,640	1,410	1,860	1,330	719	657	674
26	642	3,100	2,350	1,910	4,480	1,430	1,340	2,060	1,570	718	642	833
27	603	4,050	2,380	1,600	3,350	1,700	1,410	2,040	1,460	786	444	754
28	1,090	3,560	2,420	1,370	2,590	1,620	1,480	1,630	1,390	732	599	688
29	1,320	3,080	2,300	a1,200	-	1,460	1,360	1,800	1,330	726	548	648
30	456	2,170	1,950	a1,100	-	1,380	1,170	1,620	1,280	661	452	516
31	1,020	-	1,750	a950	-	1,510	-	1,740	-	623	480	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	34,429	3,150	61	1,111	68,290
November.....	46,937	6,030	132	1,565	93,100
December.....	61,446	6,130	786	1,982	121,900
Calendar year.....	-	-	-	-	-
January.....	52,530	5,340	810	1,695	104,200
February.....	69,570	9,210	800	2,485	138,000
March.....	73,660	4,540	1,200	2,376	146,100
April.....	59,980	3,970	1,170	1,999	119,000
May.....	57,100	2,460	1,430	1,842	113,300
June.....	54,510	2,840	1,280	1,817	108,100
July.....	23,240	1,190	128	750	46,100
August.....	16,791	679	174	542	33,300
September.....	13,936	833	51	465	27,640
Water year 1949-50.....	564,129	9,210	51	1,546	1,119,000

Peak discharge (base, 6,000 sec.-ft.).--Nov. 24 (3 p.m.) 8,640 sec.-ft.; Dec. 23 (1:30 p.m.) 7,120 sec.-ft.; Jan. 22 (8 p.m.) 6,290 sec.-ft.; Feb. 24 (7:30 p.m.) 11,400 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for Sandy River near Marmot.

SANDY RIVER BASIN

Little Sandy River near Bull Run, Oreg.

Location.--Water-stage recorder, lat. 45°25', long. 122°10', in NE $\frac{1}{4}$ sec. 10, T. 2 S., R. 5 E., 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. Datum of gage is 710.51 feet above mean sea level, adjustment of 1924 (levels by Portland General Electric Co.).

Drainage area.--23 square miles.

Records available.--May 1911 to April 1913 (fragmentary), July 1919 to September 1950.

Average discharge.--31 years (1919-50), 139 second-feet.

Extremes.*--Maximum discharge during year, about 1,900 second-feet Feb. 24, occurred during period of no gage-height record; minimum observed, 14 second-feet Sept. 18-24.

1911-13, 1919-50: Maximum discharge, 3,950 second-feet Nov. 20, 1921 (gage height, 9.18 feet), from rating curve extended above 2,000 second-feet; minimum, 8 second-feet Aug. 20, Sept. 16, 17, 1940.

Remarks.--Records good except those for periods of fragmentary or no gage-height record and those based on staff-gage readings, which are fair. No diversion or regulation above station.

Cooperation.--Water-stage recorder graph furnished by Portland General Electric Co.

Revisions.--Revised figures of discharge, in second-feet, for the water year 1949, superseding those published in W 1154, are given herewith.

Oct. 4.....144 Oct. 8.....248
5.....275 9.....185
6.....498 11.....124
7.....416

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October.....	3,240	498	37	105	4.57	5.24	6,430
Calendar year 1948.....	80,004	1,520	17	164	7.13	97.03	119,000
Water year 1949.....	56,778	1,100	19	156	6.78	91.80	112,600

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	44	257	159	b85	239	f525	168	260	104	29	h18
2	23	41	292	135	b80	260	f464	177	260	90	26	h18
3	22	37	190	116	76	548	a320	159	281	81	25	h20
4	34	35	152	106	81	516	h245	254	295	73	26	h18
5	213	34	161	94	86	512	a210	295	254	65	26	h20
6	337	32	139	120	102	416	197	242	194	59	26	h18
7	216	31	118	133	94	298	177	219	365	55	26	h18
8	146	34	100	125	104	239	172	194	440	52	26	h18
9	434	42	97	114	109	200	159	184	295	57	25	h16
10	365	51	85	127	120	175	146	202	320	52	25	h16
11	225	90	73	*112	127	146	144	251	295	49	24	h16
12	188	129	82	100	135	131	205	334	448	h42	24	h16
13	134	86	150	94	251	118	245	337	354	h42	23	h16
14	100	74	135	82	456	107	222	306	257	h38	24	h16
15	90	64	150	81	595	100	278	267	230	h38	23	h16
16	77	56	154	74	626	207	323	239	224	h37	23	h18
17	48	50	168	67	489	548	268	239	236	a36	22	h16
18	61	45	163	64	354	468	278	230	208	h34	22	h16
19	55	42	133	144	312	460	239	192	200	59	22	h14
20	50	38	114	400	260	334	242	190	190	48	21	h14
21	46	37	146	580	216	264	230	219	159	31	21	h14
22	44	42	604	783	202	251	200	242	187	30	22	h14
23	41	279	861	600	*463	219	170	224	320	30	40	h14
24	39	.807	516	386	al,400	192	146	210	264	h30	44	h14
25	37	472	379	267	975	170	133	224	219	h30	29	57
26	36	372	354	213	575	163	122	257	177	h28	25	120
27	37	452	337	177	416	163	137	288	159	h27	23	53
28	114	379	309	146	298	152	146	233	148	h30	22	35
29	82	288	257	125	-	139	144	248	137	h26	21	30
30	57	432	208	106	-	h137	141	242	122	34	21	27
31	50	-	187	b100	-	a170	-	233	-	29	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October.....	3,441	434	22	111	4.83	5.56	6,820
November.....	4,615	807	31	154	6.70	7.46	9,150
December.....	7,071	861	73	228	9.91	11.43	14,030
Calendar year 1949.....	51,275	1,100	19	140	6.09	82.89	101,700
January.....	5,930	783	64	191	8.50	9.59	11,760
February.....	9,087	1,400	76	325	14.1	14.69	18,020
March.....	8,042	548	100	259	11.3	13.00	15,950
April.....	6,746	525	122	225	9.78	10.91	13,380
May.....	7,348	337	159	237	10.3	11.88	14,570
June.....	7,501	448	122	250	10.9	12.13	14,880
July.....	1,436	104	26	46.3	2.01	2.32	2,850
August.....	777	44	21	25.1	1.09	1.26	1,540
September.....	716	120	14	23.9	1.04	1.16	1,420
Water year 1949-50.....	62,710	1,400	14	172	7.48	101.39	124,400

Peak discharge (base, 1,400 sec.-ft.)--Feb. 24 (time unknown) about 1,900 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for other stations in Sandy River Basin.

b Stage-discharge relation affected by ice.

f Fragmentary gage-height record; discharge computed from partly estimated gage heights.

h Computed from once-daily staff-gage readings.

Washougal River near Washougal, Wash.

Location.--Staff gage, lat. 45°37'20", long. 122°18'00", in SE $\frac{1}{4}$ sec. 27, T. 2 N., R. 4 E., half a mile upstream from Cougar Creek and $5\frac{1}{2}$ miles northeast of Washougal.

Drainage area.--108 square miles.

Records available.--September 1944 to September 1950.

Extremes.--Maximum discharge during year, 27,100 second-feet Feb. 24 (gage height, 15.5 feet, from graph based on gage readings), from rating curve extended above 5,300 second-feet; minimum observed, 54 second-feet Sept. 23 (gage height, 1.46 feet).
1944-50: Maximum discharge, 27,100 second-feet Feb. 17, 1949, Feb. 24, 1950 (gage height, 15.5 feet, from graph based on gage readings), from rating curve extended above 5,300 second-feet; minimum observed, that of Sept. 23, 1950.

Remarks.--Records good except those above 7,500 second-feet, which are fair. Gage read twice daily. No diversion or regulation.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.4	47	2.3	258	4.0	1,140	8.0	5,770
1.6	73	2.6	383	5.0	1,890	10.0	9,600
1.8	113	3.0	580	6.0	2,880	12.0	14,700
2.0	164	3.5	845	7.0	4,200	14.0	21,200

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	392	1,320	1,110	402	1,650	3,630	1,020	360	178	89	58
2	73	347	2,020	990	374	1,650	2,880	1,140	352	176	86	61
3	72	288	1,350	845	354	5,940	2,020	960	321	164	86	60
4	140	258	1,140	790	304	7,170	1,490	1,050	313	148	84	61
5	402	227	1,350	735	277	5,770	1,380	1,460	300	137	87	61
6	702	218	1,240	1,350	273	3,240	1,240	1,180	277	137	87	58
7	590	202	990	1,320	465	1,980	1,140	900	288	135	84	58
8	430	208	818	960	708	1,570	1,240	845	304	145	80	58
9	510	416	762	900	675	1,420	1,110	790	285	148	80	56
10	1,020	585	675	1,110	735	1,210	1,050	872	277	137	75	56
11	1,210	1,770	595	930	960	1,050	1,110	1,020	273	127	73	58
12	930	2,660	645	790	1,110	930	1,460	1,140	262	120	73	57
13	630	1,350	724	735	2,070	845	1,690	1,110	251	113	73	56
14	450	990	696	713	2,660	818	1,530	930	244	115	73	58
15	392	708	762	635	3,630	790	2,250	818	231	115	73	58
16	288	605	790	530	5,600	1,690	2,680	790	224	115	75	56
17	269	500	900	500	3,770	7,920	2,550	735	224	111	70	56
18	238	425	930	580	2,500	4,500	1,890	640	224	109	68	56
19	218	374	790	1,240	2,300	2,880	1,420	525	221	120	67	56
20	202	358	724	1,990	1,890	2,020	1,350	520	205	113	64	58
21	187	317	735	4,350	1,570	1,890	1,180	610	193	102	64	58
22	181	304	2,770	4,500	1,460	2,070	1,020	600	170	98	77	56
23	173	713	7,170	3,240	5,600	1,730	872	540	231	95	127	54
24	164	6,110	3,770	2,020	18,400	1,570	790	525	313	91	113	70
25	156	3,370	2,660	1,920	8,520	1,320	713	535	273	89	84	378
28	159	3,630	2,600	1,050	4,350	1,350	708	535	258	87	73	670
27	173	5,440	2,770	900	3,120	1,690	872	515	238	102	68	234
28	1,980	2,550	3,000	713	1,940	1,320	990	440	218	137	66	159
29	1,050	2,020	2,120	696	-	1,110	872	421	202	148	66	127
30	625	1,570	1,530	515	-	1,080	845	383	190	113	64	104
31	470	-	1,420	430	-	2,120	-	356	-	100	62	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	14,157	1,980	72	457	4.23	4.87	28,080
November	38,885	6,110	202	1,296	12.0	13.39	77,130
December	49,766	7,170	595	1,605	14.9	17.14	98,710
Calendar year 1949	293,618	15,900	58	804	7.44	101.11	582,400
January	38,477	4,500	430	1,241	11.5	13.25	76,320
February	75,997	18,400	273	2,714	25.1	26.17	150,700
March	72,293	7,920	790	2,332	21.6	24.89	143,400
April	44,172	3,650	708	1,472	13.6	15.21	87,610
May	23,905	1,450	356	771	7.14	8.23	47,410
June	7,722	360	170	257	2.38	2.66	15,320
July	3,825	178	87	123	1.14	1.32	7,590
August	2,411	127	62	77.8	.720	.83	4,780
September	3,066	670	54	102	.944	1.06	6,080
Water year 1949-50	374,676	18,400	54	1,027	9.51	129.02	743,100

Peak discharge (base, 5,000 sec.-ft.).--Nov. 24 (8 a.m.) 11,600 sec.-ft.; Dec. 23 (5 p.m.) 8,320 sec.-ft.; Feb. 16 (11 a.m.) 6,280 sec.-ft.; Feb. 24 (3 a.m.) 27,100 sec.-ft.; Mar. 4 (7 a.m.) 7,920 sec.-ft.; Mar. 17 (6 a.m.) 11,000 sec.-ft.; Apr. 1 (9 a.m.) 5,440 sec.-ft.

Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.

Location.--Water-stage recorder, lat. 43°44', long. 122°26', in SW $\frac{1}{4}$ sec. 22, T. 21 S., R. 3 E., 400 feet upstream from Salt Creek and 2 miles southwest of Oakridge. Datum of gage is 1,202.8 feet above mean sea level (from river-profile survey).

Drainage area.--392 square miles.

Records available.--October 1913 to Spetember 1914, September 1935 to September 1950.

Average discharge.--16 years, 1,060 second-feet.

Extremes.--Maximum discharge during year, 7,720 second-feet Mar. 17 (gage height, 6.65 feet); minimum, 270 second-feet Oct. 3, 4 (gage height, 2.18 feet).
1913-14, 1935-50: Maximum discharge, 34,000 second-feet Dec. 28, 1945 (gage height, 12.06 feet), from rating curve extended above 13,000 second-feet by logarithmic plotting; minimum, 201 second-feet Nov. 27 to Dec. 2, 1936 (gage height, 1.53 feet).

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

Rating table, water*year 1949-50 (gage height, in feet,
and discharge, in second-feet)

2.1	230	3.2	970	5.0	3,410
2.3	330	3.6	1,350	5.5	4,460
2.5	440	4.0	1,820	6.0	5,760
2.8	635	4.5	2,560	6.3	6,620

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	275	290	1,150	635	934	2,280	2,320	1,440	2,560	1,500	470	330
2	275	290	1,040	607	853	2,160	2,770	1,500	2,560	1,420	458	330
3	270	285	880	552	799	2,690	2,360	1,440	2,380	1,350	452	330
4	280	280	742	532	853	3,050	2,040	1,340	2,410	1,300	440	330
5	470	280	880	500	1,150	3,070	1,900	1,340	2,410	1,220	440	330
6	429	280	862	558	1,610	2,900	2,060	1,320	2,180	1,130	440	330
7	429	280	718	506	1,650	2,360	1,890	1,240	1,820	1,060	440	330
8	352	300	658	513	1,470	2,040	1,740	1,150	1,560	979	434	325
9	368	396	628	513	1,570	1,790	1,570	1,130	1,450	961	434	325
10	552	402	579	665	1,570	1,650	1,450	1,170	1,450	916	424	325
11	526	434	526	680	1,520	1,480	1,360	1,470	2,140	835	418	325
12	458	458	506	586	1,390	1,350	1,520	2,040	3,360	790	412	320
13	390	380	506	572	1,610	1,260	1,880	2,640	2,740	782	402	320
14	346	346	526	579	2,410	1,170	1,720	2,780	2,280	766	396	320
15	350	346	539	539	3,160	1,110	1,570	2,560	2,100	726	390	320
16	320	341	579	506	3,970	1,340	1,500	2,340	2,140	702	385	320
17	315	336	742	539	3,160	5,850	1,630	2,400	2,410	672	385	325
18	315	320	997	3,290	2,410	4,630	1,680	2,140	2,110	642	385	325
19	305	310	808	4,030	2,260	4,600	1,790	1,860	2,040	628	380	320
20	300	305	642	3,700	2,110	3,250	2,350	1,770	2,100	628	374	320
21	300	305	579	5,290	1,610	2,610	2,530	1,960	2,000	593	374	315
22	300	295	558	6,820	1,630	3,120	2,360	2,290	1,820	579	374	310
23	295	618	658	5,650	1,850	2,740	2,040	2,440	1,640	565	358	310
24	295	862	1,100	3,490	4,200	2,500	1,730	2,260	1,540	558	390	310
25	290	579	898	2,380	5,730	2,170	1,570	2,180	1,420	558	385	320
26	290	586	898	1,860	4,250	1,920	1,450	2,290	1,330	532	368	385
27	290	2,380	790	1,820	3,430	1,860	1,430	2,580	1,330	513	352	385
28	295	2,220	710	1,560	2,720	1,700	1,350	2,350	1,380	506	346	336
29	320	1,400	734	1,330	-	1,570	1,280	2,110	1,540	500	341	330
30	300	1,490	734	1,160	-	1,500	1,250	2,280	1,570	500	336	325
31	295	-	672	1,040	-	1,620	-	2,400	-	488	330	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	10,575	552	270	341	0.870	1.00	20,980
November	17,594	2,380	280	586	1.49	1.67	34,900
December	22,839	1,150	506	737	1.88	2.17	45,300
Calendar year 1949	371,540	9,250	270	1,018	2.60	35.23	737,000
January	52,802	6,620	500	1,703	4.34	5.01	104,700
February	62,279	5,730	799	2,224	5.67	5.91	123,500
March	73,340	5,850	1,110	2,366	6.04	6.96	145,500
April	54,090	2,770	1,250	1,803	4.60	5.13	107,300
May	60,210	2,780	1,130	1,942	4.95	5.71	119,400
June	59,770	3,360	1,330	1,992	5.08	5.67	118,600
July	24,899	1,500	488	803	2.05	2.36	49,390
August	12,513	470	330	397	1.01	1.17	24,420
September	9,826	385	310	328	.837	.93	19,490
Water year 1949-50	460,537	6,620	270	1,262	3.22	43.69	913,500

Peak discharge (base, 4,800 sec.-ft.).--Jan. 22 (9 a.m.) 7,040 sec.-ft.; Feb. 25 (1 to 2 a.m.) 6,450 sec.-ft.; Mar. 17 (12 m.) 7,720 sec.-ft.

Middle Fork Willamette River at Eula, Oreg.

Location.--Water-stage recorder, lat. 43°50', long. 122°37', in sec. 18, T. 20 S., R. 2 E., a quarter of a mile southwest of Eula and 8 miles downstream from North Fork. Datum of gage is 861.65 feet above mean sea level, datum of 1929.

Drainage area.--941 square miles.

Records available.--July 1923 to September 1950.

Average discharge.--26 years (1923-26, 1927-50), 2,527 second-feet.

Extremes.--Maximum discharge during year, 15,800 second-feet Mar. 17 (gage height, 8.75 feet); minimum, 702 second-feet Oct. 3, 4 (gage height, 1.87 feet).

1923-50: Maximum discharge, 65,200 second-feet Dec. 28, 1945 (gage height, 18.8 feet, from floodmark), from rating curve extended above 39,000 second-feet; minimum observed, 450 second-feet Nov. 24, 25, Dec. 5, 6, 1929, Sept. 4-6, 16, 17, 1931.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No large diversions above station. Occasional diurnal fluctuation during periods of low flow caused by logging operations upstream.

Revisions (water years).--W 694: 1925-28. W 814: Drainage area.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.8	660	4.0	2,740	6.0	6,640
2.4	1,030	4.5	3,530	7.0	9,500
3.0	1,530	5.0	4,400	8.0	13,000
3.5	2,080	5.5	5,420	8.5	14,900

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	720	774	3,280	1,850	a2,500	6,040	5,970	3,750	6,290	3,700	1,100	864
2	714	762	2,960	1,720	a2,300	5,660	7,540	3,870	6,360	3,480	1,090	852
3	708	750	2,520	1,520	a2,300	7,460	6,670	3,700	6,000	3,280	1,070	846
4	720	744	2,180	1,520	a2,250	8,400	5,730	3,820	6,070	3,140	1,060	840
5	1,200	732	2,430	1,400	a2,400	8,320	5,350	3,900	6,040	a2,950	1,060	840
6	1,240	726	2,330	1,370	a4,200	7,900	5,470	3,720	5,540	a2,700	1,040	834
7	1,240	726	1,980	1,490	a4,000	6,590	5,100	3,460	4,790	a2,450	1,020	834
8	974	798	1,820	1,500	a3,900	5,660	4,750	3,200	4,150	a2,300	1,020	822
9	995	912	1,720	1,480	a4,100	4,990	4,350	3,120	3,820	a2,250	1,010	816
10	1,750	954	1,600	1,870	a4,100	4,620	4,010	3,200	3,890	a2,150	995	816
11	1,720	1,010	1,440	1,930	a4,100	4,180	3,850	3,890	5,190	2,010	988	816
12	1,440	1,160	1,380	1,710	a4,000	3,780	4,110	5,120	9,140	1,870	974	798
13	1,200	954	1,430	a5,900	3,550	4,970	6,590	7,950	1,840	954	788	788
14	1,030	888	1,480	1,670	a5,200	3,340	4,850	7,080	6,360	1,820	954	786
15	960	864	1,490	1,580	a7,200	3,180	4,400	6,620	5,540	1,730	942	792
16	912	846	1,630	1,460	a8,600	3,740	4,240	6,120	5,400	1,650	936	798
17	888	828	1,970	1,480	7,920	12,400	4,530	6,120	8,040	1,580	930	828
18	870	810	2,500	5,570	6,340	11,100	4,710	5,540	5,350	1,540	930	804
19	846	786	2,130	8,430	5,880	11,500	4,870	4,850	5,040	1,480	924	786
20	834	774	1,720	7,980	5,440	8,580	5,920	4,580	5,150	1,440	912	780
21	822	756	a1,650	10,900	4,770	7,000	6,390	4,890	4,950	1,400	906	768
22	810	756	a1,600	14,500	4,350	7,870	6,070	5,780	4,580	1,360	906	762
23	798	1,750	a1,600	13,200	4,810	6,980	5,300	6,190	4,200	1,340	930	756
24	786	2,200	a2,900	a9,000	9,570	6,420	4,660	5,780	3,970	1,300	1,030	750
25	774	1,480	a2,800	a6,400	13,100	5,680	4,240	5,470	3,680	1,260	995	780
26	774	1,490	a2,400	a4,800	10,700	5,120	3,900	5,780	3,380	1,230	942	988
27	768	1,420	a2,200	a4,500	8,790	5,060	3,870	6,440	3,330	1,200	912	988
28	798	6,090	2,030	a4,300	7,160	4,710	3,750	5,920	3,460	1,220	900	846
29	876	3,840	a3,700	-	-	4,260	3,530	5,240	3,750	1,220	894	816
30	816	4,040	2,020	a3,100	-	4,130	3,380	5,540	3,850	1,170	888	792
31	780	-	1,890	a2,700	-	4,260	-	5,880	-	1,130	876	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	29,763	1,750	708	960	1.02	1.18	59,030
November	44,120	6,090	726	1,471	1.56	1.74	87,510
December	63,100	3,280	1,380	2,035	2.16	2.49	125,200
Calendar year 1949	954,132	20,800	708	2,614	2.78	37.71	1,893,000
January	126,260	14,500	1,370	4,073	4.33	4.99	250,400
February	153,980	13,100	2,250	5,496	5.84	6.08	305,200
March	192,480	12,400	3,180	6,209	6.60	7.61	381,800
April	146,380	7,540	3,360	4,878	5.18	5.79	290,300
May	154,820	7,080	3,120	4,994	5.31	6.12	307,100
June	153,260	9,140	3,330	5,109	5.43	6.06	304,000
July	59,170	3,700	1,130	1,909	2.03	2.34	117,400
August	30,088	1,100	876	971	1.03	1.19	59,680
September	24,584	988	750	819	.870	.97	48,760
Water year 1949-50	1,177,905	14,500	708	3,227	3.43	46.56	2,336,000

Peak discharge (base, 11,000 sec.-ft.)--Jan. 22 (10:30 a.m.), 15,200 sec.-ft.; Feb. 25 (3 a.m.) 14,100 sec.-ft.; Mar. 17 (2 p.m.) 15,800 sec.-ft.

a No gage-height record; discharge computed on basis of records for station at Lowell and the sum of upstream stations.

Middle Fork Willamette River at Lowell, Oreg.

Location.--Water-stage recorder, lat. 43°55', long. 122°47', in NW¹ sec. 23, T. 19 S., R. 1 W., at bridge three-quarters of a mile south of Lowell and $\frac{1}{2}$ miles upstream from Lost Creek. Datum of gage is 667.68 feet above mean sea level, datum of 1929. Prior to Aug. 23, 1950, staff gage at same site and datum.

Drainage area.--994 square miles.

Records available.--October 1946 to September 1950.

Extremes.--Maximum discharge during year, 17,500 second-feet Mar. 17 (gage height, 8.3 feet, from graph based on gage readings); minimum observed, 716 second-feet Oct. 3 (gage height, 2.37 feet).

1946-50: Maximum discharge, 43,100 second-feet Jan. 7, 1948 (gage height, 12.75 feet, from floodmark), from rating curve extended above 23,000 second-feet; minimum observed, 716 second-feet Oct. 2, 1947, Oct. 3, 1949; minimum gage height, 2.12 feet, Oct. 2, 1947.

Maximum stage known, 13.9 feet Dec. 28, 1945 (discharge, 68,400 second-feet, estimated).

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are fair. No large diversions above station. Occasional diurnal fluctuations during periods of low flow caused by log ponds upstream.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Mar. 18-27)

Oct. 1 to Mar. 17

Mar. 18 to Sept. 30

2.3	660	4.3	3,440	2.4	810	4.5	3,930
2.5	820	5.0	5,000	2.7	1,060	5.0	5,270
2.8	1,100	6.0	7,800	3.0	1,380	5.5	6,880
3.2	1,560	7.0	11,500	3.5	2,040	6.0	8,800
3.7	2,330	8.3	17,500	4.0	2,880	7.0	13,300

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	724	820	43,700	1,920	2,500	6,030	5,620	43,900	a6,600	a4,000	1,230	d880
2	724	804	43,200	1,850	2,360	5,450	d8,000	d4,000	a7,000	3,610	1,220	d870
3	716	788	d2,800	1,730	2,300	6,720	d7,000	3,790	a6,500	3,360	1,200	d860
4	724	772	d2,300	1,640	2,190	7,900	d6,000	3,750	a6,500	d3,250	1,160	d860
5	d1,300	764	d2,500	1,560	2,460	8,220	d5,500	43,900	a6,500	d3,050	1,140	d860
6	d1,400	756	2,400	1,460	4,340	8,010	5,560	d3,800	a6,000	d2,850	1,120	d860
7	d1,300	756	2,190	1,530	4,250	6,660	5,210	d3,550	a5,000	d2,600	1,110	d850
8	d1,100	788	1,940	1,640	4,110	5,760	4,870	d3,400	a4,500	d2,450	1,100	d840
9	d1,000	901	1,790	1,700	4,310	5,080	4,760	d3,300	a4,000	d2,400	1,080	d830
10	d1,800	d1,000	1,690	2,210	4,340	4,590	4,600	d3,400	a4,000	2,220	1,060	d820
11	d1,750	d1,050	1,590	2,260	4,270	4,250	4,470	d4,000	a5,500	2,140	1,040	810
12	d1,500	d1,200	1,510	2,180	4,160	3,770	4,760	d5,300	a10,000	1,980	1,020	810
13	d1,300	d1,050	1,430	2,100	4,070	3,440	5,100	d6,800	a7,500	1,860	1,020	803
14	d1,100	964	1,470	2,000	d5,500	3,380	4,760	7,240	a8,000	1,790	1,010	810
15	1,020	946	1,510	1,940	d7,500	3,320	4,620	7,130	a6,000	1,740	1,010	818
16	d980	910	1,510	1,970	9,270	4,160	4,800	6,250	a5,500	1,670	997	818
17	d940	885	1,720	2,060	8,010	13,300	4,570	6,080	a6,500	1,600	988	858
18	d940	856	720	5,150	d6,500	12,600	4,620	5,530	a6,000	1,570	970	858
19	d920	820	2,000	9,200	d6,000	12,800	4,920	5,100	a5,500	1,520	954	850
20	d900	804	1,850	8,780	d5,500	9,250	5,990	4,600	a5,500	1,460	954	842
21	d860	788	1,790	13,400	4,710	7,240	6,880	d5,000	a5,500	1,400	954	842
22	d850	764	1,730	17,100	4,570	8,600	6,420	d6,000	a5,000	1,360	938	834
23	d850	1,020	1,730	15,500	4,640	7,430	6,250	d6,500	a4,600	1,340	938	834
24	d850	2,300	3,220	9,460	d10,500	6,700	5,800	d6,000	a4,200	1,340	1,030	842
25	d850	1,820	3,070	6,680	14,700	5,860	5,330	d5,500	a4,000	1,310	1,030	866
26	d800	1,550	2,570	5,120	11,200	5,530	4,810	d6,000	a3,500	1,290	938	1,010
27	d800	3,400	2,360	4,780	8,780	5,240	4,030	d6,800	a3,500	1,270	906	1,100
28	874	6,030	2,130	4,520	7,080	5,100	d3,900	d6,000	a3,700	1,300	d900	930
29	d900	3,890	2,030	3,890	-	4,920	d3,700	5,390	a4,000	1,290	d900	898
30	838	d4,200	2,160	3,220	-	4,700	d3,550	5,620	a4,300	1,270	d900	874
31	829	-	1,980	2,750	-	4,360	-	a6,200	-	1,230	d890	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-foot
October	31,439	1,800	716	1,014	1.02	1.18	62,360
November	43,394	6,030	756	1,446	1.45	1.62	86,070
December	66,690	3,700	1,430	2,151	2.16	2.50	132,300
Calendar year 1949	1,012,810	23,500	716	2,775	2.79	37.90	2,009,000
January	141,300	17,100	1,460	4,558	4.59	5.29	280,300
February	160,120	14,700	2,190	5,719	5.75	5.98	317,600
March	200,370	13,300	3,320	6,464	6.50	7.50	397,400
April	156,200	8,000	3,550	5,207	5.24	5.84	309,800
May	159,830	7,240	3,300	5,156	5.19	5.98	317,000
June	164,900	10,000	3,500	5,497	5.53	6.17	327,100
July	61,520	4,300	1,230	1,985	2.00	2.30	122,000
August	25,737	1,230	890	1,023	1.03	1.19	62,890
September	25,837	1,100	803	861	.866	.97	51,250
Water year 1949-50	1,243,307	17,100	716	3,406	3.43	46.53	2,466,000

Peak discharge (base, 12,000 sec.-ft.),--Jan. 22 (about 12 m.) 17,200 sec.-ft.; Feb. 25 (about 6 a.m.) 15,800 sec.-ft.; Mar. 17 (about 5 p.m.) 17,500 sec.-ft.

a No gage-height record; discharge computed on basis of records for station at Eula.

d Doubtful gage-height record; discharge computed as in footnote a.

Willamette River at Springfield, Oreg.

Location.--Water-stage recorder, lat. 44°02'45" long. 123°01'40", in SE $\frac{1}{4}$ sec. 34, T. 17 S., R. 3 W., at highway bridge at Springfield. Datum of gage is 423.47 feet above mean sea level, datum of 1929.

Drainage area.--2,030 square miles.

Records available.--November 1911 to December 1913, October 1928 to September 1950. June 1919 to September 1928 at site 4 miles downstream, published as Willamette River at Eugene; 1894 to 1950 (records of stage by U. S. Weather Bureau) at site at Eugene.

Average discharge.--32 years (1912-13, 1919-50), 5,096 second-feet.

Extremes.--Maximum discharge during year, about 43,000 second-feet Jan. 22 during period of no gage-height record; minimum, 818 second-feet Nov. 7 (gage height, 2.04 feet); minimum daily, 860 second-feet Nov. 7.

1911-13, 1919-50: Maximum discharge, 140,000 second-feet Dec. 29, 1945 (gage height, 20.9 feet), from rating curve extended above 93,000 second-feet; minimum, 500 second-feet Aug. 11, 1926.

Maximum stage recorded by U. S. Weather Bureau, 22.0 feet 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.

Slight diurnal fluctuation at low water caused by logging operations in basin of middle Fork Willamette River. Small diversions above station. Flow regulated at times by Cottage Grove Reservoir (see p. 126) and Dorena Reservoir (see p. 130).

Revisions (water years).--W 694: Drainage area. W 984: 1921, 1923, 1927.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Oct. 1-5, Nov. 23 to
Jan. 13, June 14 to Sept. 30)

2.1	860	4.0	3,400	7.0	13,900
2.5	1,200	4.5	4,550	9.0	24,100
3.0	1,750	5.0	6,050	11.3	38,200
3.5	2,500	6.0	9,700		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,340	1,000	6,250	5,510	6,280	11,100	10,100	5,240	7,200	4,690	1,400	1,100
2	1,250	956	5,480	5,150	a5,500	9,540	13,300	5,830	7,480	4,260	1,360	1,090
3	1,250	924	5,030	a4,600	a6,000	11,700	12,200	5,700	7,200	4,020	1,360	1,080
4	1,340	916	4,320	3,700	a6,500	13,800	10,000	6,220	7,000	3,790	1,340	1,060
5	1,910	916	5,480	3,400	a9,000	14,500	8,790	7,550	7,160	3,700	1,330	1,070
6	2,530	884	6,480	3,400	h14,900	16,100	9,030	8,070	6,750	3,480	1,340	1,070
7	3,160	860	5,060	5,730	a12,000	13,700	8,520	7,450	6,180	3,260	1,310	1,280
8	2,310	916	4,040	6,550	a11,500	11,100	7,920	6,520	5,580	3,020	1,290	1,620
9	1,890	1,150	3,560	6,050	13,900	9,700	7,240	5,860	4,890	2,880	1,270	1,680
10	3,360	1,390	3,520	10,500	13,600	8,990	6,580	5,580	5,000	2,810	1,250	1,670
11	3,300	1,330	3,070	9,940	13,200	8,030	6,220	5,890	5,450	2,620	1,230	1,670
12	3,020	1,740	2,670	6,860	11,500	6,860	6,280	7,300	12,200	2,430	1,210	1,650
13	2,490	1,480	2,840	6,930	11,800	6,380	a9,000	8,990	11,400	2,280	1,190	1,640
14	2,060	1,270	3,130	a7,000	15,800	6,250	a9,000	9,340	8,750	2,190	1,170	1,650
15	1,850	1,180	3,260	a5,500	15,800	6,220	a8,500	8,870	7,450	2,140	1,160	1,670
16	1,800	1,130	4,040	a4,700	17,200	6,750	7,960	7,770	6,790	2,050	1,160	1,650
17	1,730	1,090	5,610	a4,500	19,100	22,400	7,920	7,590	7,410	1,980	1,090	1,680
18	1,270	1,040	9,140	a10,000	14,700	26,500	7,880	7,700	6,890	1,890	1,160	1,690
19	1,170	1,010	7,960	a21,000	12,300	26,700	7,810	6,520	6,350	1,850	1,120	1,680
20	1,120	980	5,510	a24,000	10,900	20,600	8,410	5,890	6,350	1,790	1,120	1,650
21	1,100	948	4,260	a34,000	9,140	14,700	9,340	6,180	6,280	1,700	1,120	1,610
22	1,050	940	4,190	a38,000	8,070	16,400	8,990	7,030	6,020	1,650	1,120	1,590
23	1,020	1,260	4,750	a36,000	8,250	16,400	7,920	7,770	5,390	1,610	1,160	1,520
24	1,010	4,520	7,590	a26,000	15,000	14,300	6,550	7,450	5,210	1,560	1,310	1,530
25	996	2,810	6,890	a22,000	26,500	11,900	5,890	6,880	4,950	1,530	1,440	1,590
26	980	2,450	7,030	17,700	21,200	10,700	5,480	6,860	4,550	1,490	1,270	1,890
27	964	5,600	6,380	21,100	17,200	11,200	5,390	7,590	4,340	1,490	1,190	2,450
28	930	13,600	5,510	17,600	13,200	10,900	5,360	7,550	4,340	1,500	1,160	1,990
29	1,130	7,600	5,350	10,900	-	9,660	5,300	6,720	4,550	1,560	1,140	1,780
30	1,120	6,720	5,860	8,870	-	8,910	4,750	6,550	4,750	1,470	1,130	1,740
31	1,030	-	5,360	7,160	-	8,680	-	6,860	-	1,430	1,120	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	51,520	3,360	964	1,662	0.819	0.94	102,200
November	68,610	13,600	860	2,287	1.13	1.26	136,100
December	159,600	9,140	2,670	5,148	2.54	2.92	316,600
Calendar year 1949	1,742,696	38,900	860	4,775	2.35	31.93	3,457,000
January	394,350	38,000	3,400	12,720	6.27	7.22	782,200
February	360,040	26,500	5,500	12,860	6.33	6.60	714,100
March	390,670	26,700	6,220	12,600	6.21	7.18	774,900
April	237,360	13,300	4,750	7,912	3.90	4.35	470,800
May	217,200	9,340	5,240	7,006	3.45	3.98	430,800
June	193,960	12,200	4,340	6,465	3.18	3.55	384,700
July	74,120	4,690	1,430	2,391	1.18	1.36	147,000
August	38,030	1,440	1,090	1,227	.604	.70	75,430
September	47,040	2,450	1,060	1,568	.772	.86	93,300
Water year 1949-50	2,232,500	38,000	860	6,116	3.01	40.90	4,428,000

Peak discharge (base, 35,000 sec.-ft.).--Jan. 22 (about 6 p.m.) about 43,000 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage when available and summation of upstream records.

b Computed from wire-weight gage readings.

Willamette River at Harrisburg, Oreg.

Location.--Water-stage recorder, lat. 44°16'03", long. 123°10'24", in SW¹/₄SE¹/₄ sec. 16, T. 15 S., R. 4 W., at east end of State highway bridge at Harrisburg. Datum of gage is 290.07 feet above mean sea level, datum of 1929.

Drainage area.--3,420 square miles.

Records available.--October 1944 to September 1950. Gage-height records collected at same site since December 1927 (October to April only each year) available in records of U. S. Weather Bureau.

Extremes.--Maximum discharge during year, 70,200 second-feet Jan. 22 (gage height, 14.70 feet); minimum, 2,850 second-feet Nov. 6, 7.

1944-50: Maximum discharge, 210,000 second-feet Dec. 29, 1945 (gage height, 19.69 feet), from rating curve extended above 89,000 second-feet; minimum, 1,990 second-feet Oct. 30, 1944.

Flood of 1861 reached a stage of about 21 feet (present site and datum), from information by local residents. Flood of Jan. 1, 1943, reached a stage of 19.1 feet (present datum), from U. S. Weather Bureau records.

Remarks.--Records good except those for periods of shifting control, which are fair. Many small diversions above station for irrigation; about 15 second-feet diverted from McKenzie River for city of Eugene water supply. Flow regulated at times by Cottage Grove Reservoir (see p. 126) and Dorena Reservoir (see p. 130).

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,080	3,010	15,900	11,800	a13,000	28,200	19,100	10,500	16,300	9,380	4,190	3,710
2	3,040	2,990	13,100	11,300	a12,000	27,300	27,600	12,000	17,400	8,860	4,150	3,690
3	3,010	2,980	12,700	9,840	a12,700	27,300	27,100	12,100	16,900	8,370	4,150	3,670
4	3,040	2,950	11,000	8,760	a13,800	33,800	22,600	12,300	16,600	8,090	4,130	3,630
5	3,380	2,910	11,100	8,090	a18,000	33,100	19,400	14,200	16,900	7,550	4,110	3,610
6	4,550	2,900	14,000	7,730	21,500	35,700	18,800	16,000	16,200	7,280	4,090	3,590
7	5,080	2,880	11,900	19,200	25,500	31,400	18,300	14,900	14,800	7,040	4,070	3,590
8	4,480	2,900	9,740	13,500	22,000	26,900	16,700	13,300	13,300	6,770	3,990	3,830
9	3,930	3,150	8,760	12,500	25,200	23,400	15,200	11,700	11,900	6,410	3,990	3,930
10	4,810	3,570	8,370	15,500	25,200	21,400	13,800	11,500	11,600	6,350	3,970	3,930
11	5,450	3,630	7,670	20,700	24,500	19,800	12,700	11,700	12,900	6,020	3,950	3,930
12	5,320	4,330	6,920	15,000	22,500	17,300	12,500	14,400	22,200	5,880	3,950	3,910
13	4,730	4,150	7,100	12,700	17,200	15,600	16,600	18,400	27,500	5,720	3,930	3,870
14	4,210	3,730	7,460	15,500	29,800	15,000	19,900	20,300	21,400	5,480	3,910	3,850
15	3,950	3,490	7,580	12,400	34,100	14,500	18,100	19,800	17,900	5,400	3,870	3,850
16	3,750	3,360	8,790	10,900	35,200	14,600	16,000	18,000	16,100	5,350	3,850	3,850
17	3,710	3,290	10,900	9,740	38,700	12,300	15,600	17,200	16,800	5,280	3,830	3,850
18	3,400	3,220	17,300	9,350	33,000	53,200	16,000	17,100	16,300	5,020	3,810	3,870
19	3,220	3,160	17,800	22,000	27,800	49,800	15,500	15,200	14,700	4,980	3,790	3,870
20	3,150	3,130	12,800	30,400	24,800	45,100	16,600	13,500	14,600	4,930	3,790	3,830
21	3,110	3,060	9,880	43,700	21,200	35,800	19,100	13,500	14,400	4,850	3,770	3,790
22	3,060	3,040	9,070	62,900	18,600	33,400	18,800	15,200	13,400	4,670	3,750	3,770
23	3,040	3,530	9,980	66,300	19,100	35,500	17,300	17,300	12,200	4,650	3,790	3,750
24	3,010	9,000	15,700	53,800	29,200	30,800	14,800	17,000	11,200	4,490	4,070	3,710
25	2,990	6,530	16,000	40,200	55,400	26,700	12,800	15,800	10,700	4,430	4,250	3,790
26	2,960	5,450	15,400	34,900	52,200	23,400	11,600	15,500	9,490	4,370	4,010	4,090
27	2,950	15,600	14,800	36,400	42,200	23,500	10,900	17,000	9,000	4,350	3,910	4,830
28	2,960	31,000	12,600	33,400	34,000	23,600	11,100	17,700	8,820	4,330	3,830	4,490
29	3,200	21,000	11,700	24,500	-	20,600	10,500	16,000	9,140	4,350	3,790	4,230
30	3,230	16,200	12,800	19,000	-	18,500	9,940	15,000	9,420	4,310	3,750	4,190
31	3,080	-	11,500	a15,000	-	17,600	-	15,300	-	4,250	3,730	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	112,890	5,450	2,950	5,642	1.06	1.23	223,900
November	160,150	51,000	2,880	6,005	1.76	1.96	357,500
December	360,320	17,800	6,920	11,620	3.40	3.92	714,700
Calendar year 1949	3,804,550	71,200	2,620	10,420	3.05	41.38	7,546,000
January	698,110	66,300	7,730	22,520	6.58	7.59	1,385,000
February	747,400	55,400	12,000	26,690	7.80	8.13	1,482,000
March	852,100	53,200	14,500	27,490	8.04	9.27	1,690,000
April	494,740	27,600	9,940	16,490	4.82	5.38	981,500
May	469,400	20,300	10,500	15,140	4.43	5.10	931,000
June	440,070	27,500	8,820	14,670	4.29	4.79	872,800
July	179,190	9,380	4,230	5,780	1.63	1.95	355,400
August	122,170	4,250	3,730	3,941	1.15	1.33	242,300
September	116,500	4,830	3,590	3,883	1.14	1.27	231,100
Water year 1949-50	4,773,040	66,300	2,880	13,080	3.82	51.92	9,467,000

Peak discharge (base, 59,000 sec.-ft.)--Jan. 22 (11 p.m.) 70,200 sec.-ft.; Feb. 25 (7 p.m.) 62,100 sec.-ft.

a No gage-height record; discharge computed on basis of records for Willamette River at Springfield and McKenzie River near Coburg.

Note.--Shifting-control method used Nov. 29 to Jan. 19, Mar. 22, Mar. 24 to Sept. 30.

Willamette River at Albany, Oreg.

Location.--Water-stage recorder, lat. 44°38'20", long. 123°06'20", in SW $\frac{1}{4}$ sec. 6, T. 11 S., R. 3 W., at Albany, just downstream from Calapooya River. Datum of gage is 171.70 feet above mean sea level, datum of 1929.

Drainage area.--4,840 square miles.

Records available.--November 1878 to April 1882, 1883 to 1888 (fragmentary), January 1892 to September 1950.

Average discharge.--55 years (1895 to 1950), 13,790 second-feet.

Extremes.--Maximum discharge during year, 99,000 second-feet Jan. 24 (gage height, 22.00 feet); minimum, 3,030 second-feet Nov. 7.

1878-82, 1892-1950: Maximum discharge, 266,000 second-feet Jan. 14, 1881 (gage height, 32.8 feet); minimum, 1,840 second-feet Sept. 1, 2, 1940.

Maximum stage known, 36.0 feet Dec. 4, 1861 (discharge, 340,000 second-feet, from rating curve extended above 220,000 second-feet). Flood of Feb. 4, 1890, reached a stage of 33.9 feet (discharge, 291,000 second-feet).

Remarks.--Records good. Flow regulated at times by Cottage Grove, Fern Ridge, and Dorena Reservoirs (see pp.126,145,130). Albany power canal diverts water from South Santiam River into Willamette River above station; small diversions for irrigation.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).--W 694: Drainage area. W 904: 1939. W 964: 1862(M), 1881, 1890, 1894, 1897, 1901, 1903, 1907, 1908, 1910, 1916, 1923, 1927, 1932(M). W 984: 1916.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Feb. 28 to May 23)

Oct. 1 to Jan. 24

Jan. 25 to Sept. 30

-0.8	3,000	3.0	10,900	15.0	57,200	-0.8	3,400	1.0	6,370	10.0	37,200
0.0	4,200	5.0	17,000	19.0	78,200	-0.4	3,880	2.0	8,820	14.0	56,200
1.0	5,980	8.0	27,200	22.0	99,000	0.0	4,480	4.0	14,800	19.0	84,400
2.0	8,240	11.0	39,000			.5	5,350	7.0	25,400		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,570	3,380	19,000	16,800	25,300	39,300	22,700	12,600	16,700	11,700	4,720	3,570
2	4,520	3,200	16,200	16,500	22,400	30,900	26,700	13,600	17,500	11,400	4,660	3,570
3	4,460	3,260	15,100	15,000	20,200	28,500	31,200	14,400	18,100	10,600	4,620	3,560
4	4,440	3,200	13,600	13,100	19,900	35,400	28,700	14,300	17,400	10,100	4,500	3,500
5	4,630	3,160	12,400	11,700	21,500	37,400	24,500	15,300	17,500	9,750	4,540	3,480
6	5,460	3,110	14,700	12,000	29,600	37,900	22,500	17,500	17,600	9,360	4,530	3,430
7	6,490	3,040	15,300	20,600	43,500	38,600	22,300	17,700	16,800	8,820	4,480	3,420
8	7,140	3,040	12,700	27,400	47,100	33,100	21,100	16,400	15,300	8,420	4,460	3,490
9	6,110	3,180	10,800	27,800	45,100	28,400	19,800	14,900	14,100	8,020	4,370	3,730
10	5,660	3,650	9,970	31,400	43,900	25,800	18,000	13,900	13,000	7,760	4,320	3,830
11	7,400	4,310	9,540	40,600	40,300	24,700	16,600	13,500	13,100	7,610	4,230	3,820
12	7,530	4,830	8,620	36,400	37,500	22,400	15,900	14,600	16,300	7,180	4,050	3,830
13	7,100	5,720	7,970	26,500	34,500	19,300	17,200	17,800	26,500	6,830	3,950	3,850
14	5,780	4,920	8,240	26,300	36,800	18,100	22,300	21,000	28,900	6,700	3,980	4,010
15	4,920	4,340	8,420	25,700	44,200	17,100	23,100	21,900	20,900	6,590	3,990	4,300
16	4,580	4,060	8,800	21,600	50,000	17,000	21,000	20,900	18,100	6,370	3,910	4,290
17	4,360	3,860	11,400	18,300	52,600	25,100	19,200	19,200	17,200	6,140	a3,850	4,300
18	4,180	3,710	16,900	17,600	53,200	47,900	19,000	19,000	18,200	5,970	a3,800	4,320
19	3,850	3,620	24,000	19,700	43,800	63,100	18,600	18,200	16,700	5,830	a3,800	4,320
20	3,640	3,480	21,200	31,000	36,300	62,800	18,300	16,200	15,800	5,710	a3,800	4,300
21	3,540	3,460	16,200	45,000	32,000	58,500	20,300	15,200	15,800	5,570	a3,800	4,260
22	3,480	3,380	13,000	68,200	27,800	44,100	21,600	15,800	15,400	5,430	a3,800	4,230
23	3,420	3,650	12,800	88,800	25,100	42,800	20,700	17,600	14,500	5,310	a3,800	4,220
24	3,380	6,700	15,500	95,900	29,200	42,200	18,600	18,800	13,700	5,160	3,880	4,220
25	3,340	10,400	21,300	84,900	49,900	37,500	16,200	17,800	13,200	5,160	4,120	4,260
26	3,290	7,750	20,500	60,000	74,600	32,900	14,900	16,900	12,600	5,030	4,200	4,350
27	3,260	7,920	20,100	54,200	76,600	30,800	13,900	17,300	11,700	4,980	3,950	4,860
28	3,240	19,200	17,500	57,800	55,800	31,800	13,700	18,900	11,300	4,680	5,750	5,590
29	3,290	28,800	15,500	50,800	-	30,000	13,500	18,100	11,200	4,930	3,730	-
30	3,600	20,300	18,000	36,200	-	26,500	12,900	16,600	11,600	4,930	3,690	4,620
31	3,590	-	17,100	29,700	-	23,800	-	16,300	-	4,610	3,610	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	144,230	7,530	3,240	4,653	0.961	1.11	286,100
November	186,630	28,800	3,040	6,221	1.29	1.43	370,200
December	450,360	24,000	7,970	14,530	3.00	3.46	895,300
Calendar year 1949	4,762,430	101,000	2,870	13,050	2.70	36.61	9,446,000
January	1,127,500	95,900	11,700	36,370	7.51	8.66	2,236,000
February	1,118,700	76,600	19,900	39,950	8.25	8.60	2,219,000
March	1,049,700	63,100	17,000	33,860	7.00	8.07	2,082,000
April	595,000	31,200	12,900	19,830	4.10	4.57	1,180,000
May	522,000	21,900	12,600	16,840	3.48	4.01	1,035,000
June	483,700	26,500	11,200	16,120	3.33	3.72	959,400
July	217,030	11,700	4,810	7,001	1.45	1.67	430,500
August	126,890	4,720	3,610	4,093	.846	.98	251,700
September	122,470	5,590	3,420	4,082	.843	.94	242,900
Water year 1949-50	6,144,210	95,900	3,040	16,830	3.48	47.22	12,190,000

Peak discharge (base, 59,000 sec.-ft.).--Jan. 24 (4 a.m.) 99,000 sec.-ft.; Feb. 27 (2 a.m.) 81,200 sec.-ft.; Mar. 19 (2 p.m.) 64,400 sec.-ft.

a No gage-height record; discharge computed on basis of records for station at Harrisburg.

WILLAMETTE RIVER BASIN

Willamette River at Salem, Oreg.

Location.--Water-stage recorder, lat. 44°56'40", long. 123°02'30", in SW $\frac{1}{4}$ sec. 22, T. 7 S., R. 3 W., 300 feet upstream from highway bridge at Salem. Datum of gage is 113.61 feet above mean sea level, datum of 1929.

Drainage area.--7,280 square miles.

Records available.--October 1909 to December 1916, October 1927 to September 1950. Gage-height records collected at about the same site since 1892 are contained in reports of U. S. Weather Bureau.

Average discharge.--30 years, 22,370 second-feet.

Extremes.--Maximum discharge during year, 153,000 second-feet Jan. 24 (gage height, 20.57 feet); minimum, 3,960 second-feet Sept. 8 (gage height, -3.82 feet).

1909-16, 1927-50: Maximum discharge observed, 315,000 second-feet Nov. 25, 1909 (gage height, 30.5 feet); minimum, 2,470 second-feet Aug. 27, 1940 (gage height, -4.45 feet).

Maximum discharge known, 500,000 second-feet Dec. 4, 1861 (gage height, about 39 feet), from rating curve extended above 250,000 second-feet in 1916.

Flood of Feb. 5, 1890, reached a stage of 37.1 feet.

Remarks.--Records excellent except those for periods of doubtful or no gage-height record, which are fair. 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 Cottage Grove, Fern Ridge, and Dorena Reservoirs (see pp. 126, 145, 130).

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 23

Jan. 24 to Sept. 30

-3.4	4,640	3.0	25,900	-3.8	4,000	1.0	19,300	15.0	99,500
-2.8	5,850	6.0	41,000	-2.8	6,300	3.0	28,400	18.0	126,000
-2.0	7,800	12.0	77,900	-2.0	8,900	7.0	49,400	21.0	158,000
-1.5	12,500	16.0	108,000	-1.6	12,900	11.0	72,300		
1.0	17,800	20.0	146,000						

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,720	6,030	40,000	31,000	a36,000	75,500	39,700	22,600	26,800	18,300	6,500	4,400
2	5,650	5,590	33,400	28,600	a32,000	58,300	49,800	24,000	28,700	17,700	6,300	4,340
3	5,570	5,330	30,800	25,400	a29,500	57,300	54,900	25,600	29,400	16,800	6,100	4,240
4	5,490	5,130	26,300	22,500	a29,500	67,900	51,400	25,500	29,000	15,600	6,020	4,200
5	5,630	4,980	22,900	20,000	a32,500	70,600	44,900	27,100	29,500	14,800	5,860	4,060
6	8,640	4,870	25,100	21,600	a47,000	70,900	40,800	29,900	29,100	14,100	5,750	4,020
7	11,700	4,770	25,800	40,100	a65,000	68,000	39,300	30,200	27,000	13,300	5,720	4,040
8	11,700	4,640	22,500	49,400	d72,000	59,600	37,400	27,900	25,300	12,600	5,600	4,000
9	10,200	4,810	19,500	46,700	d70,000	52,700	35,000	25,600	23,700	12,000	5,450	4,140
10	11,300	5,900	18,100	52,200	d65,000	47,100	32,100	23,800	22,400	11,600	5,320	4,380
11	14,100	7,740	18,900	63,900	d60,000	44,100	29,600	23,800	24,000	11,200	5,200	4,440
12	14,600	13,200	15,600	56,700	d56,500	40,100	26,700	27,100	27,500	10,500	5,200	4,440
13	13,200	14,600	15,000	44,400	55,100	35,500	32,600	33,200	36,800	9,960	5,100	4,460
14	11,200	11,700	15,700	40,100	59,800	32,600	38,400	36,200	40,500	9,570	5,000	4,440
15	9,240	9,620	15,600	38,500	70,500	30,600	40,000	38,800	33,500	9,530	4,880	4,880
16	8,130	8,370	16,800	33,200	d82,000	30,200	39,000	36,600	28,600	9,030	4,800	5,050
17	7,290	7,520	19,200	29,900	d90,000	50,000	37,600	33,800	27,500	8,730	4,780	5,050
18	8,950	7,030	25,600	26,500	d88,000	82,300	37,200	32,900	28,600	8,570	4,700	5,080
19	6,580	6,570	54,600	25,500	73,000	93,300	35,500	31,000	27,000	8,160	4,620	5,150
20	5,940	6,200	32,800	43,400	62,200	95,600	34,600	27,300	25,900	7,950	4,520	5,120
21	5,610	5,920	25,900	74,800	54,000	86,800	37,100	25,000	25,500	7,750	4,480	5,050
22	5,410	5,760	21,500	108,000	47,700	75,400	39,000	26,100	24,400	7,520	4,460	5,000
23	5,210	6,250	25,300	144,000	42,600	68,900	37,200	30,000	23,000	7,420	4,500	4,880
24	5,100	17,300	39,400	150,000	50,800	67,300	33,700	31,100	21,900	7,300	4,780	4,980
25	5,000	24,600	42,300	130,000	89,300	61,800	29,400	29,800	20,700	7,180	5,880	5,100
26	4,920	20,900	40,400	98,000	128,000	55,600	26,600	28,400	19,600	7,050	6,300	5,450
27	4,850	23,900	37,000	d85,000	123,000	52,500	24,800	29,400	16,300	6,880	5,720	6,920
28	4,870	48,700	33,200	d88,000	101,000	54,900	24,400	a31,000	17,700	6,720	5,120	8,070
29	5,940	55,200	30,000	a69,000	-	50,900	24,200	a30,000	17,900	6,700	4,850	7,220
30	7,550	45,300	30,100	a51,000	-	45,600	23,200	27,500	18,500	6,850	4,640	6,400
31	6,740	-	31,800	a42,000	-	41,400	-	26,100	-	6,720	4,500	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	239,810	14,600	4,830	7,736	1.06	1.23	475,700
November	398,430	55,200	4,640	13,280	1.82	2.04	790,300
December	829,300	42,300	15,000	26,750	3.67	4.24	1,645,000
Calendar year 1949	7,813,480	174,000	3,590	21,410	2.94	39.93	15,500,000
January	1,777,200	150,000	20,000	57,330	7.88	9.08	3,525,000
February	1,812,000	128,000	29,500	64,710	8.69	9.26	3,594,000
March	1,822,400	95,600	30,200	58,790	8.08	9.31	3,615,000
April	1,076,300	54,900	23,200	35,940	4.94	5.51	2,139,000
May	899,300	38,800	22,600	29,010	3.98	4.59	1,784,000
June	780,300	40,500	17,700	26,010	3.57	3.99	1,548,000
July	317,690	18,300	6,700	10,250	1.41	1.62	630,100
August	162,650	6,500	4,460	5,247	.721	.83	322,600
September	149,020	6,070	4,000	4,967	.682	.76	295,600
Water year 1949-50	10,266,400	150,000	4,000	28,130	3.86	52.46	20,360,000

Peak discharge (base, 95,000 sec.-ft.),--Jan. 24 (4 a.m.) 153,000 sec.-ft.; Feb. 26 (4 p.m.) 151,000 sec.-ft.; Mar. 20 (5 a.m.) 98,000 sec.-ft.

a No gage-height record; discharge computed on basis of weather records, records for station at Albany, and summation of records upstream.

d Doubtful gage-height record; discharge computed as explained in footnote a.

Willamette River at Wilsonville, Oreg.

Location.--Staff gage, lat. 45°17'30", long. 122°46'30", in SW¹/₄ sec. 23, T. 3 S., R. 1 W., 1 mile downstream from Corral Creek, 3 miles upstream from Molalla River, at Boones Ferry, town of Wilsonville. Auxiliary staff gage at Butteville 4 miles upstream. Datum of Wilsonville gage is at mean sea level, datum of 1929; datum of Butteville gage is 50 feet above mean sea level, datum of 1929 (gage heights have been reduced to elevation above mean sea level). Records for entire water year 1950 obtained from gage at Butteville.

Drainage area.--8,400 square miles.

Records available.--October 1948 to September 1950.

Extremes.--Maximum discharge observed during year, 162,000 second-feet Jan. 25 (elevation at Butteville, 81.03 feet); minimum daily, 4,000 second-feet Sept. 6-8 (computed from records for station at Salem and South Yamhill River near Whiteson).

1948-50: Maximum discharge, 196,000 second-feet Feb. 20, 1949 (elevation at Butteville, 85.20 feet; elevation at Wilsonville, 83.20 feet); minimum daily, 3,700 second-feet Sept. 5-8, 1949 (computed from records for station at Salem).

Maximum elevation known, about 105 feet at Wilsonville, Dec. 4, 1861.

Remarks.--Records good except those for periods of backwater from stop logs, gates and locks at dam, and period of indefinite stage-discharge relation, which are fair. Flow slightly regulated by Cottage Grove, Fern Ridge, and Dorena Reservoirs. Many small diversions for irrigation above station.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,000	6,500	47,000	41,500	44,000	108,000	44,000	24,000	27,000	19,000	6,500	4,600
2	6,000	6,000	39,700	39,100	37,900	78,300	50,000	25,000	28,000	18,000	6,500	4,400
3	6,000	5,500	33,000	35,000	33,500	64,400	55,000	27,000	29,000	17,000	6,000	4,400
4	6,000	5,500	33,900	30,500	31,000	70,600	55,000	28,000	29,000	16,000	6,000	4,200
5	6,000	5,000	29,500	27,200	31,800	79,600	50,000	28,000	29,000	15,000	6,000	4,200
6	9,000	5,000	29,800	27,000	36,900	80,900	46,000	30,000	30,000	15,000	6,000	4,000
7	12,000	5,000	31,700	47,100	56,700	78,200	42,000	32,000	28,000	14,000	6,000	4,000
8	12,000	5,000	28,900	62,500	75,900	70,300	42,000	30,000	26,000	13,000	5,500	4,000
9	11,000	5,500	24,800	61,400	81,200	60,000	40,000	28,000	25,000	12,000	5,500	4,200
10	12,000	7,000	22,500	65,300	78,700	53,000	38,000	26,000	24,000	12,000	5,500	4,400
11	13,000	9,500	20,700	75,100	71,500	49,000	34,000	25,000	24,000	11,000	5,500	4,400
12	14,000	16,000	19,100	74,100	66,200	44,800	32,000	28,000	26,000	11,000	5,500	4,400
13	13,000	18,000	18,000	61,700	64,700	39,700	34,000	32,000	32,000	10,000	5,000	4,600
14	12,000	14,000	18,700	51,100	68,000	36,000	40,000	38,000	36,000	10,000	5,000	4,600
15	10,000	11,000	18,900	48,300	76,700	33,800	42,000	38,000	36,000	9,500	5,000	5,000
16	8,500	9,500	19,400	43,000	88,100	32,600	42,000	38,000	30,000	9,500	5,000	5,000
17	7,500	8,500	22,700	38,200	94,900	42,600	42,000	34,000	29,000	9,000	4,800	5,000
18	7,000	8,000	29,900	34,000	93,900	73,500	40,000	34,000	29,000	8,500	4,800	5,000
19	6,500	7,000	38,000	31,400	85,400	91,500	40,000	32,000	28,000	8,500	4,800	5,000
20	6,000	6,500	40,500	44,200	73,300	98,300	38,000	30,000	27,000	8,000	4,600	5,000
21	6,000	6,500	34,200	74,100	61,900	98,100	38,000	28,000	26,000	8,000	4,600	5,000
22	5,500	6,000	28,400	108,000	53,500	90,000	40,000	28,000	25,000	8,000	4,600	5,000
23	5,500	7,000	30,300	132,000	47,600	80,000	40,000	30,000	24,000	7,500	4,600	5,000
24	5,500	14,100	45,600	151,000	56,700	75,000	38,000	32,000	23,000	7,500	5,000	5,000
25	5,000	27,700	52,600	158,000	89,100	70,000	32,000	32,000	22,000	7,500	6,000	5,500
26	5,000	29,000	52,400	156,000	119,000	65,000	30,000	30,000	21,000	7,000	6,500	6,000
27	5,000	30,500	49,000	105,000	138,000	60,000	27,000	30,000	20,000	7,000	6,000	7,500
28	5,000	46,600	44,700	88,600	131,000	60,000	26,000	32,000	19,000	7,000	5,500	8,000
29	6,000	58,400	40,300	82,900	-	55,000	26,000	30,000	18,000	7,000	5,000	7,500
30	8,000	54,200	39,400	70,100	-	50,000	25,000	29,000	18,000	7,000	4,800	6,500
31	7,000	-	41,200	53,600	-	48,000	-	27,000	-	7,000	4,600	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	247,000	14,000	5,000	7,968	0.949	1.09	489,900
November	444,000	58,400	5,000	14,800	1.76	1.97	880,700
December	1,024,800	52,600	18,000	33,060	3.94	4.54	2,035,000
Calendar year 1949	8,825,220	192,000	3,700	24,180	2.88	39.09	17,500,000
January	2,095,000	158,000	27,000	67,580	8.05	9.28	4,155,000
February	1,987,100	138,000	31,000	70,970	8.45	8.80	3,941,000
March	2,036,200	108,000	32,600	65,680	7.82	9.02	4,039,000
April	1,168,000	55,000	25,000	38,930	4.63	5.17	2,317,000
May	955,000	38,000	24,000	30,160	3.59	4.14	1,855,000
June	790,000	38,000	18,000	26,330	3.13	3.50	1,567,000
July	328,500	19,000	7,000	10,530	1.25	1.45	647,600
August	166,700	6,500	4,600	5,377	.640	.74	330,600
September	151,400	8,000	4,000	5,047	.601	.67	300,300
Water year 1949-50	11,371,700	158,000	4,000	31,160	3.71	50.37	22,560,000

Note.--Backwater from stop logs, gates and locks at dam in Oregon City Oct. 1 to Nov. 23, July 4 to Sept. 30; discharge computed on basis of combined records for Willamette River at Salem and South Yamhill River near Whiteson. Stage-discharge relation indefinite Mar. 22 to July 3; discharge computed as described above. Computed discharge for all these periods represents flow into gage pool, which because of pondage, may not represent flow passing gage.

Salt Creek near Oakridge, Oreg.

Location.--Water-stage recorder, lat. 43°44', long. 122°25', in SW $\frac{1}{4}$ sec. 23, T. 21 S., R. 3 E., 0.7 mile upstream from mouth and 2 miles southeast of Oakridge. Datum of gage is 1,245.67 feet above mean sea level, datum of 1929.

Drainage area.--113 square miles.

Records available.--July 1913 to September 1914, October 1933 to September 1950.

Average discharge.--18 years, 286 second-feet.

Extremes.--Maximum discharge during year, 1,300 second-feet June 12 (gage height, 4.64 feet); minimum, 118 second-feet Oct. 3, 4.
1913-14, 1933-50: Maximum discharge, 4,320 second-feet Dec. 28, 1945 (gage height, 7.70 feet), from rating curve extended above 2,600 second-feet; minimum, 55 second-feet Jan. 8, 1937 (computed on basis of records for Salmon Creek near Oakridge).

Remarks.--Records fair. In spring of 1948, a small diversion was begun around gage to new millpond downstream and has been used intermittently since. No record kept of diversion.

Revisions (water years).--W 1014: 1943.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

2.1	118	3.0	425
2.2	142	3.5	670
2.4	199	4.0	945
2.6	267	4.6	1,280

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	120	128	345	206	260	495	525	389	835	585	175	135
2	120	128	325	193	250	470	625	389	846	550	166	132
3	120	128	278	181	242	495	575	381	824	525	163	132
4	125	125	256	181	250	545	515	389	835	505	163	130
5	206	125	267	178	278	585	500	413	824	475	158	130
6	190	123	246	175	349	570	500	409	764	448	156	130
7	169	123	225	184	337	505	461	385	645	421	156	130
8	150	140	209	181	321	456	430	369	560	397	156	130
9	184	147	206	181	345	425	401	369	520	385	156	130
10	246	142	193	209	353	409	377	377	535	361	150	130
11	275	145	175	206	341	377	369	430	813	337	150	128
12	222	147	181	193	333	349	397	530	1,260	309	147	130
13	190	140	190	193	365	333	438	650	1,070	301	145	130
14	169	135	193	190	434	321	421	736	896	297	142	130
15	156	132	193	187	520	313	413	714	796	286	142	130
16	150	130	202	184	575	333	413	681	813	275	142	135
17	147	130	225	187	535	708	430	698	862	267	140	135
18	142	128	250	489	470	720	448	615	774	260	140	132
19	140	128	232	655	452	698	461	565	764	253	137	132
20	137	125	206	640	425	590	535	550	791	239	137	130
21	137	123	196	830	393	545	575	600	764	225	137	130
22	135	123	199	1,070	369	590	560	692	681	222	137	128
23	132	236	222	1,020	401	555	505	742	625	216	142	128
24	132	236	267	720	635	525	452	703	585	209	156	128
25	130	196	256	530	830	480	425	681	535	202	147	135
26	130	196	264	434	764	448	405	720	495	193	142	175
27	130	524	242	409	655	438	397	791	505	190	137	158
28	137	236	226	369	560	413	391	725	550	190	135	145
29	142	389	225	333	-	393	365	681	595	190	135	140
30	132	434	219	301	-	389	365	752	605	181	135	137
31	130	-	212	271	-	401	-	791	-	178	135	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	4,825	275	120	156	1.38	1.59	9,570
November	5,701	595	123	190	1.68	1.88	11,310
December	7,124	345	175	230	2.04	2.34	14,130
Calendar year 1949	106,764	1,660	120	292	2.58	35.15	211,800
January	11,280	1,070	175	364	3.22	3.71	22,370
February	12,042	830	242	430	3.61	3.96	25,890
March	14,874	720	313	480	4.25	4.90	29,500
April	13,664	625	365	455	4.03	4.50	27,100
May	17,917	791	369	578	5.12	5.90	35,540
June	21,967	1,260	495	732	6.48	7.23	43,570
July	9,672	585	178	312	2.76	3.18	19,180
August	4,559	175	135	147	1.30	1.50	9,040
September	4,025	175	128	134	1.19	1.32	7,980
Water year 1949-50	127,650	1,260	120	350	3.10	42.01	253,200

Peak discharge (base, 800 sec.-ft.).--Nov. 27 (7 p.m.) 857 sec.-ft.; Jan. 23 (3:30 a.m.) 1,140 sec.-ft.; Feb. 25 (7 to 9 a.m.) 846 sec.-ft.; Mar. 17 (5 p.m.) 852 sec.-ft.; June 2 (1 to 2 a.m.) 879 sec.-ft.; June 12 (6 p.m.) 1,300 sec.-ft.

Salmon Creek near Oakridge, Oreg.

Location.--Water-stage recorder, lat. 43°45', long. 122°23', in SW $\frac{1}{4}$ sec. 7, T. 21 S., R. 4 E., a quarter of a mile upstream from Slide Creek and 4 miles east of Oakridge.

Drainage area.--117 square miles at cable a quarter of a mile above gage, where all discharge measurements are made.

Records available.--October 1933 to September 1950. February 1913 to September 1914 at site 2 miles downstream, below Flat Creek; October 1914 to October 1919 at site 1 mile downstream.

Average discharge.--17 years (1933-50), 385 second-feet.

Extremes.--Maximum discharge during year, 1,650 second-feet June 12 (gage height, 4.20 feet); minimum, 140 second-feet Oct. 4, Nov. 7 (gage height, 1.45 feet).
1913-19, 1933-50: Maximum discharge, 8,040 second-feet Dec. 28, 1945 (gage height, 8.40 feet), from rating curve extended above 4,000 second-feet by logarithmic plotting; minimum, 63 second-feet Jan. 8, 1937 (gage height, 0.87 foot).

Remarks.--Records good. No regulation. 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, 9.5 second-feet measured July 27, 1950.

Revisions (water years).--W 794: 1934. W 814: Drainage area. W 1124: 1935, 1942(M), 1943, 1946(M).

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.4	130	2.3	385	3.5	1,050
1.7	195	2.6	520	4.0	1,460
2.0	280	3.0	740	4.2	1,650

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	148	480	268	357	860	890	550	1,000	560	223	180
2	142	146	483	256	354	812	1,190	555	1,010	530	220	180
3	142	144	381	238	324	1,040	1,050	535	959	500	220	178
4	150	144	358	238	331	1,160	908	545	972	485	218	178
5	259	142	357	226	369	1,160	842	586	959	461	218	178
6	229	142	328	220	438	1,080	838	560	866	434	215	178
7	205	142	301	229	443	940	782	520	752	413	215	175
8	180	170	286	220	430	824	716	490	652	397	212	175
9	250	180	274	218	438	740	652	480	614	385	210	175
10	304	175	259	238	452	664	598	490	642	365	210	172
11	314	200	238	241	452	592	560	592	931	342	208	170
12	259	190	232	232	443	535	630	794	1,560	324	208	170
13	220	172	238	226	480	500	734	1,040	1,290	310	208	172
14	200	166	241	223	658	475	704	1,120	1,040	304	205	170
15	188	160	244	212	884	452	658	1,040	896	295	205	170
16	178	158	259	208	966	546	642	972	908	286	202	172
17	172	154	286	215	940	1,280	674	972	940	277	200	172
18	168	152	310	507	824	1,260	704	866	848	271	198	172
19	164	150	283	850	764	1,400	740	776	618	265	198	170
20	162	148	259	846	716	1,120	890	740	824	259	195	168
21	160	144	250	1,050	647	978	959	806	776	253	195	168
22	158	146	247	1,500	592	1,040	902	933	704	247	195	166
23	156	302	289	1,430	692	940	806	985	652	244	200	166
24	154	286	365	1,050	1,170	854	710	914	620	244	223	164
25	152	244	334	806	1,520	764	642	884	565	241	205	172
26	150	271	328	664	1,370	704	586	933	530	238	195	212
27	150	329	301	586	1,180	674	586	1,020	530	235	192	190
28	162	782	289	505	992	614	555	926	550	238	190	175
29	170	555	292	456	-	565	530	842	581	238	185	172
30	158	614	289	425	-	550	515	890	586	232	182	170
31	150	-	277	389	-	560	-	940	-	226	182	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	5,750	314	142	185	1.58	1.83	11,400
November	7,156	782	142	239	2.04	2.27	14,190
December	9,298	480	232	300	2.56	2.96	18,440
Calendar year 1949	143,836	2,670	142	394	3.37	45.71	285,300
January	14,954	1,500	208	482	4.12	4.75	29,660
February	19,206	1,520	324	686	5.86	6.10	38,090
March	25,683	1,400	452	828	7.08	8.16	50,940
April	22,191	1,190	515	740	6.32	7.05	44,020
May	24,296	1,120	480	784	6.70	7.72	48,740
June	24,575	1,560	530	819	7.00	7.81	48,740
July	10,099	560	226	326	2.79	3.21	20,030
August	6,332	223	182	204	1.74	2.01	12,560
September	5,230	212	164	174	1.49	1.66	10,370
Water year 1949-50	174,770	1,560	142	479	4.09	55.53	346,600

Peak discharge (base, 1,500 sec.-ft.)--Jan. 23 (2 a.m.) 1,600 sec.-ft.; Feb. 25 (6:30 a.m.) 1,560 sec.-ft.; June 12 (4 p.m.) 1,850 sec.-ft.

WILLAMETTE RIVER BASIN

Waldo Lake Outlet near Oakridge, Oreg.

Location.--Water-stage recorder and artificial control on lake outlet, lat. 43°46', long. 122°03', in NW¼ sec. 7, T. 21 S., R. 6 E., on artificial outlet channel of Waldo Lake, 20 miles east of Oakridge. Altitude of water surface of lake and gage, 5,410 feet (from topographic map).

Drainage area.--30 square miles.

Records available.--October 1936 to September 1950.

Average discharge.--14 years, 29.0 second-feet.

Extremes.--Maximum discharge during year, 87 second-feet Mar. 27 (gage height, 2.13 feet); no flow Oct. 3, 4.
1936-50: Maximum discharge, 144 second-feet Jan. 2, 1943 (gage height, 2.98 feet), from rating curve extended above 90 second-feet; no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are fair, and those below 3 second-feet, which are poor. At times seiches on Waldo Lake cause rapid changes in stage at gage several times per hour. Lake not artificially regulated. Diversion tunnel into head of Black Creek, near south end of lake, built about 1914, is not used; but there is leakage past control gates, 9.5 second-feet measured July 27, 1950.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.3	10	24	a75	64	82	58	50	71	40	16
2	.1	.3	11	26	a75	67	83	60	50	71	39	16
3	0	.3	11	25	a70	67	83	62	50	71	37	15
4	.1	.3	10	26	a70	66	82	62	50	71	36	14
5	.9	.1	11	26	a65	67	80	63	51	71	35	14
6	2.1	.1	12	25	a70	68	79	63	51	70	34	13
7	1.9	.1	11	26	a70	66	78	62	53	69	33	13
8	1.5	.1	11	26	a65	66	78	61	53	68	32	12
9	1.7	.1	11	28	a70	66	77	60	53	68	31	11
10	2.6	.1	12	31	a70	68	75	58	53	67	30	11
11	3.0	.3	11	33	a65	68	73	57	58	66	29	10
12	2.8	.3	11	33	a65	67	72	56	67	65	28	9.4
13	2.6	.1	12	36	a65	66	72	56	70	63	27	8.5
14	1.9	.1	11	41	a70	65	72	55	70	62	26	8.0
15	1.7	.1	11	41	a70	63	70	55	70	62	26	7.4
16	1.3	.1	13	41	68	67	70	54	70	60	25	6.9
17	1.0	.1	14	42	67	73	69	54	71	59	24	6.6
18	.8	.1	17	52	65	76	67	54	71	57	24	6.3
19	.5	.1	18	53	64	78	65	53	70	56	24	6.3
20	.5	.1	17	53	64	78	64	52	71	55	22	5.8
21	.4	.1	18	54	62	77	63	52	71	54	22	5.3
22	.3	.1	17	58	62	80	62	51	71	53	21	5.1
23	.3	.6	17	64	65	81	61	51	71	51	20	4.8
24	.1	1.0	21	68	68	81	60	51	72	50	21	4.4
25	.1	1.0	21	68	68	81	59	50	73	48	21	4.6
26	.1	1.5	23	70	67	83	58	50	72	47	20	6.6
27	.1	4.8	22	74	67	85	58	49	71	45	19	6.3
28	.3	8.0	22	77	65	86	59	50	71	45	19	5.8
29	.4	8.5	21	76	-	85	58	50	71	44	18	5.3
30	.3	10	22	77	-	82	56	50	71	42	17	5.1
31	.1	-	23	77	-	81	-	50	-	42	17	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	29.6	3.0	0	0.95	59
November.....	38.8	10	.1	1.29	77
December.....	472	23	10	15.2	936
Calendar year 1949	11,375.3	65	0	31.2	22,560
January.....	1,451	77	24	46.8	2,880
February.....	1,887	75	62	67.4	3,740
March.....	2,268	86	63	73.2	4,500
April.....	2,085	83	56	69.5	4,140
May.....	1,709	63	49	55.1	3,390
June.....	1,916	73	50	63.9	3,800
July.....	1,823	71	42	58.8	3,620
August.....	817	40	17	26.4	1,620
September.....	263.5	16	4.4	8.78	523
Water year 1949-50	14,759.9	86	0	40.4	29,280

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for Odell Creek near Crescent.

North Fork of Middle Fork Willamette River near Oakridge, Oreg.

Location.--Water-stage recorder, lat. 43°45', long. 122°30', in SW¼ sec. 7, T. 21 S., R. 3 E., 1 mile upstream from mouth and 2½ miles northeast of Oakridge. Datum of gage is 1,029.6 feet above mean sea level (from river-profile survey).

Drainage area.--246 square miles.

Records available.--October 1909 to September 1912 (fragmentary), September 1935 to September 1950. October 1913 to February 1916 at site half a mile upstream, above a small tributary.

Average discharge.--15 years (1935-50), 747 second-feet.

Extremes.--Maximum discharge during year, 4,710 second-feet Mar. 17 (gage height, 8.74 feet); minimum, 91 second-feet Nov. 24 (gage height, 2.74 feet); minimum daily, 116 second-feet Oct. 2, 3.
1909-16, 1935-50: Maximum discharge, 17,000 second-feet Dec. 28, 1945 (gage height, 16.6 feet), from rating curve extended above 8,000 second-feet by logarithmic plotting; minimum, 26 second-feet Oct. 14, 1939.

Remarks.--Records good. Tunnel and control gates that were built to divert part of outflow from Waldo Lake into Salmon Creek Basin were not used during year. Occasional diurnal fluctuation during low-water periods caused by log pond above station.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Backwater from debris Nov. 9-27)

2.7	102	4.5	820
2.9	145	5.0	1,120
3.2	229	6.0	1,870
3.6	365	7.0	2,800
3.9	490	8.5	4,420

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	118	177	922	481	754	1,840	1,810	1,140	1,730	898	275	168
2	116	171	890	454	694	1,770	2,410	1,170	1,750	832	261	171
3	116	171	749	421	666	2,930	2,130	1,110	1,650	778	261	168
4	120	171	634	421	678	3,100	1,830	1,090	1,700	738	258	166
5	312	166	666	393	749	2,900	1,710	1,150	1,650	694	261	166
6	334	166	628	381	886	2,600	1,710	1,100	1,480	650	251	163
7	295	166	546	417	880	2,130	1,570	1,020	1,300	606	239	158
8	226	188	486	409	880	1,800	1,470	964	1,130	562	235	155
9	304	211	468	393	940	1,570	1,340	952	1,050	535	235	148
10	468	208	445	463	958	1,420	1,250	982	1,110	510	235	153
11	476	255	401	450	946	1,260	1,200	1,200	1,540	481	232	150
12	365	275	385	413	928	1,120	1,300	1,630	2,820	458	229	150
13	285	211	413	409	1,050	1,050	1,570	2,100	2,460	445	223	145
14	245	188	421	401	1,460	988	1,500	2,190	1,830	433	223	143
15	217	179	421	393	1,880	940	1,400	2,020	1,560	413	220	143
16	205	177	445	393	2,100	1,250	1,370	1,830	1,480	405	217	140
17	193	263	500	397	2,050	3,870	1,480	1,850	1,550	377	211	153
18	196	158	578	716	1,740	3,340	1,580	1,710	1,390	373	202	150
19	182	158	490	1,260	1,590	3,460	1,610	1,440	1,330	369	199	145
20	174	165	425	1,120	1,470	2,700	1,880	1,340	1,340	362	196	143
21	171	168	405	1,950	1,330	2,210	2,050	1,440	1,260	354	193	138
22	171	171	409	3,290	1,250	2,310	1,920	1,700	1,140	340	193	134
23	166	474	520	3,070	1,470	2,050	1,690	1,810	1,070	330	199	134
24	166	450	754	2,140	3,060	1,860	1,470	1,650	1,010	323	261	134
25	166	337	650	1,590	4,260	1,640	1,330	1,570	952	316	229	150
26	166	365	656	1,330	3,400	1,510	1,210	1,670	886	309	202	239
27	153	1,220	682	1,240	2,710	1,490	1,220	1,850	874	292	191	214
28	182	1,610	535	1,070	2,180	1,360	1,180	1,890	886	309	182	163
29	217	1,020	535	952	-	1,250	1,100	1,460	940	309	177	153
30	196	1,110	505	886	-	1,200	1,070	1,490	946	292	171	150
31	182	-	486	790	-	1,200	-	1,600	-	285	171	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-foot
October	6,883	476	116	222	0.902	1.04	13,650
November	10,647	1,610	158	355	1.44	1.61	21,120
December	16,920	922	385	546	2.22	2.56	33,560
Calendar year 1949	270,601	6,340	116	741	3.01	40.92	536,700
January	28,693	3,290	381	926	3.76	4.34	56,910
February	42,959	4,260	666	1,534	6.24	6.49	85,210
March	60,118	3,870	940	1,939	7.88	9.09	119,200
April	46,340	2,410	1,070	1,545	6.28	7.01	91,910
May	45,918	2,190	952	1,481	6.02	6.94	91,080
June	41,814	2,820	874	1,394	5.67	6.32	82,940
July	14,378	898	285	464	1.89	2.17	28,520
August	6,832	275	171	220	.894	1.03	13,550
September	4,685	239	134	156	.634	.71	9,290
Water year 1949-50	326,187	4,260	116	894	3.63	49.31	646,900

Peak discharge (base, 3,500 sec.-ft.).--Jan. 22 (2 p.m.) 3,560 sec.-ft.; Feb. 25 (2 to 3 a.m.) 4,800 sec.-ft.; Mar. 17 (12 m.) 4,710 sec.-ft.

WILLAMETTE RIVER BASIN

Fall Creek below Winberry Creek, near Fall Creek, Oreg.

Location.--Water-stage recorder, lat. 43°57', long. 122°47', near center of sec. 2, T. 19 S., R. 1 W., 1½ miles downstream from Winberry Creek and 2½ miles southeast of Fall Creek. Datum of gage is 637.80 feet above mean sea level, datum of 1929. Prior to Aug. 4, 1950, staff gage at same site and datum.

Drainage area.--190 square miles.

Records available.--October to December 1911 (gage heights only), September 1935 to September 1950.

Average discharge.--15 years, 539 second-feet.

Extremes.--Maximum discharge during year, 6,210 second-feet Jan. 22 (gage height, 9.7 feet, from graph based on gage readings); minimum observed, 32 second-feet Oct. 4 (gage height, 1.10 feet).

1935-50: Maximum discharge, 22,500 second-feet Dec. 28, 1945 (gage height, 18.0 feet, from floodmark), from rating curve extended above 6,500 second-feet by logarithmic plotting; minimum observed, 19 second-feet Dec. 1, 1936.

Remarks.--Records good. Gage read once daily, oftener during periods of high water. No diversion above station.

Revisions (water years).--W 1094: 1946(M).

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 16

Mar. 17 to Sept. 30

1.1	32	2.6	300	6.0	2,150	1.1	32	2.4	280	6.0	2,280
1.3	49	3.0	425	7.0	3,000	1.3	55	3.0	480	7.0	3,180
1.5	72	3.5	615	8.0	4,050	1.5	84	3.6	735	8.0	4,220
1.7	101	4.0	850	9.3	5,690	1.8	135	4.2	1,040	9.0	5,400
1.9	136	4.6	1,180			2.1	200	5.0	1,540		
2.2	197	5.3	1,650								

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	49	559	539	453	1,050	1,910	614	334	191	72	47
2	34	49	765	488	432	1,170	2,010	855	322	177	69	45
3	33	48	519	404	425	2,390	1,720	627	310	164	a66	45
4	32	47	418	360	470	1,940	1,460	940	298	155	63	45
5	425	46	611	324	810	2,180	1,220	1,530	286	143	63	45
6	238	45	696	306	1,640	1,860	1,210	1,260	262	135	63	45
7	378	44	488	519	1,280	1,470	1,030	1,030	316	131	62	45
8	206	60	384	495	1,280	1,070	940	810	322	124	61	45
9	98	86	357	456	1,640	965	576	712	274	131	58	45
10	511	125	318	925	1,520	920	712	658	256	128	56	45
11	414	104	270	682	1,460	780	658	717	540	100	55	45
12	285	98	294	519	1,430	705	825	722	1,390	110	54	45
13	218	89	467	527	2,080	624	1,290	780	975	107	54	45
14	155	80	453	543	1,680	669	1,230	735	618	107	53	45
15	129	70	422	439	2,930	696	1,020	632	488	103	51	45
16	115	65	587	390	2,610	1,340	920	572	452	97	51	45
17	86	60	915	336	2,140	5,340	920	576	424	94	50	44
18	83	58	1,260	327	1,680	3,140	870	508	382	90	48	47
19	72	53	830	1,340	1,650	3,560	860	438	340	90	45	44
20	67	51	515	2,330	1,450	2,410	970	417	310	90	45	42
21	60	49	456	4,730	1,050	1,760	880	424	322	87	45	41
22	58	47	567	5,620	945	2,400	753	452	310	84	44	40
23	57	587	835	4,490	1,140	1,960	654	414	256	81	48	39
24	53	422	1,590	2,750	3,130	1,600	576	403	304	80	97	38
25	51	306	1,470	1,450	3,380	1,050	500	392	298	76	87	51
26	49	260	1,250	1,020	2,520	1,300	473	382	274	75	62	220
27	49	1,310	900	1,500	1,960	1,600	492	389	240	72	54	164
28	56	1,400	770	1,220	1,120	1,480	532	364	225	78	51	78
29	101	624	633	820	-	1,260	484	228	216	97	50	58
30	65	985	664	646	-	1,190	466	322	205	90	49	54
31	58	-	559	503	-	1,220	-	322	-	72	48	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	4,270	511	32	138	0.726	0.84	8,470
November	7,317	1,400	44	244	1.28	1.43	14,510
December	20,822	1,590	270	672	3.54	4.08	41,300
Calendar year 1949	163,244	6,020	30	447	2.35	31.96	323,800
January	36,998	5,620	306	1,193	6.28	7.24	73,580
February	45,285	3,380	425	1,617	8.51	8.86	89,820
March	51,089	5,340	624	1,648	8.67	10.00	101,300
April	28,161	2,010	466	939	4.94	5.51	55,860
May	19,325	1,530	322	623	3.28	3.78	38,330
June	11,548	1,390	205	385	2.03	2.26	22,910
July	3,359	191	72	108	.568	.66	6,660
August	1,774	97	44	57.2	.301	.35	3,520
September	1,682	220	38	56.1	.295	.33	3,340
Water year 1949-50	231,630	5,620	32	635	3.34	45.34	459,400

Peak discharge (base, 3,100 sec.-ft.).--Nov. 27 (about 6 p.m.) 3,610 sec.-ft.; Jan. 22 (about 7 a.m.) 6,210 sec.-ft.; Feb. 24 (about 8 p.m.) 4,290 sec.-ft.; Mar. 17 (about 12 m.) 6,050 sec.-ft. a No gage-height record; discharge interpolated.

Coast Fork Willamette River at London, Oreg.

Location.--Water-stage recorder, lat. 43°39', long. 123°05', in SW¹/₄ sec. 20, T. 22 S., R. 3 W., 0.6 mile north of London and 11 miles south of Cottage Grove. Datum of gage is 852.65 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.--69 square miles.

Records available.--September 1935 to September 1950.

Average discharge.--15 years, 193 second-feet.

Extremes.--Maximum discharge during year, 2,790 second-feet Jan. 23 (gage height, 7.07 feet); minimum not determined; minimum daily, 13 second-feet Sept. 8, 9, 11, 16. 1935-50: Maximum discharge, 8,800 second-feet Dec. 28, 1945 (gage height, 13.25 feet), from rating curve extended above 4,000 second-feet; minimum, 10 second-feet on several days in 1936, 1938, 1939, and 1940.

Remarks.--Records good except those for periods of ice effect, no gage-height record, shifting control, or backwater from debris, which are fair. No diversion above station; millpond 3 miles above station may cause slight regulation at times.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	21	187	266	*269	357	413	178	76	39	22	16
2	19	20	189	225	237	341	397	216	75	38	20	15
3	19	20	180	184	222	458	337	192	70	37	20	16
4	21	19	135	170	318	445	290	237	68	35	20	15
5	72	18	472	150	643	598	286	514	67	34	20	14
6	62	18	361	160	950	656	304	300	67	34	20	15
7	70	19	231	269	685	508	280	249	85	32	20	14
8	36	29	170	280	735	409	258	216	68	31	20	13
9	29	81	152	262	930	373	234	187	61	32	18	13
10	65	83	142	735	780	377	210	173	62	33	18	14
11	47	128	121	458	680	345	192	170	121	31	18	13
12	46	78	109	300	616	308	243	175	184	30	18	14
13	38	50	109	370	656	283	357	164	119	29	18	14
14	32	58	105	345	755	282	413	154	94	28	17	14
15	28	34	107	240	830	249	337	140	81	28	18	14
16	26	30	204	204	930	333	290	133	75	27	17	13
17	24	27	413	207	740	1,370	258	124	70	27	17	14
18	24	26	638	b650	589	1,100	234	115	65	26	16	16
19	22	24	397	b1,200	526	1,080	228	105	59	26	16	15
20	22	23	*255	b1,400	468	695	234	99	57	26	15	15
21	22	22	219	b2,550	397	580	216	99	58	26	15	15
22	22	22	234	2,380	349	770	189	103	52	25	15	15
23	22	191	276	2,300	405	705	164	99	55	24	17	14
24	21	130	450	1,200	720	634	147	94	68	24	25	14
25	20	86	365	760	775	544	135	92	57	23	23	25
26	20	85	369	830	643	535	126	94	51	23	19	40
27	20	647	294	890	530	625	130	94	50	22	18	50
28	22	433	237	856	421	568	124	85	46	24	17	35
29	33	231	269	486	-	468	113	79	43	25	17	25
30	26	272	275	393	-	405	113	76	41	23	18	20
31	22	-	258	308	-	385	-	76	-	22	17	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	972	72	19	31.4	0.455	0.52	1,930
November	2,905	647	18	96.8	1.40	1.57	5,760
December	7,904	638	105	255	3.70	4.28	15,680
Calendar year 1949	58,876	2,060	12	161	2.33	31.72	116,800
January	20,628	2,550	150	665	9.64	11.12	40,920
February	16,829	950	222	601	8.71	9.07	33,580
March	16,764	1,370	249	541	7.84	9.04	33,250
April	7,252	413	113	242	3.51	3.91	14,580
May	4,632	314	76	149	2.16	2.50	9,190
June	2,145	184	41	71.5	1.04	1.16	4,250
July	864	39	22	28.5	.413	.48	1,750
August	569	25	15	18.4	.267	.31	1,130
September	540	50	13	18.0	.261	.29	1,070
Water year 1949-50	82,024	2,550	13	225	3.26	44.23	162,700

Peak discharge (base, 1,900 sec.-ft.).--Jan. 23 (4:30 a.m.) 2,790 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--Backwater from debris Oct. 1 to Nov. 22, May 22 to Aug. 31. No gage-height record Aug. 31 to Sept. 30; discharge computed on basis of records for Mosby Creek at mouth and Row River at Star. Shifting-control method used Nov. 27 to Jan. 20.

Cottage Grove Reservoir near Cottage Grove, Oreg.

Location.--Water-stage recorder, lat. 43°43', long. 123°03', in NE $\frac{1}{4}$ sec. 28, T. 21 S., R. 3 W., in east abutment of dam on Coast Fork Willamette River, 5 $\frac{1}{2}$ miles south of Cottage Grove. Gage readings are elevations above mean sea level (surveys by Corps of Engineers).

Drainage area.--104 square miles.

Records available.--October 1942 to September 1950.

Extremes.--Maximum contents during year, 33,820 acre-feet May 6 (elevation, 791.63 feet); minimum, 2,350 acre-feet Nov. 8 (elevation, 747.49 feet).
1942-50: Maximum contents, 34,750 acre-feet May 3, 1949 (elevation, 792.42 feet); minimum observed since first filling, 646 acre-feet Jan. 26, 1944 (elevation, 738.74 feet).

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 second-feet, capacity of outlets). Capacity, 33,090 acre-feet between elevations 719.0 feet (outlet conduit) and 791.0 feet (crest of spillway). Dead storage negligible. Reservoir used for flood control and improvement of navigation below Albany. Daily contents computed from reservoir elevation at 12 p.m.

Cooperation.--Gage readings furnished and recorder inspected by Corps of Engineers.

Contents, in acre-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16,060	2,610	3,220	3,090	3,390	12,610	23,540	32,500	33,090	32,980	31,250	28,840
2	15,210	2,550	3,170	2,980	3,520	13,050	24,030	32,970	33,120	32,950	31,170	28,760
3	14,320	2,500	3,040	2,840	3,440	13,990	24,340	33,370	33,150	32,910	31,080	28,670
4	13,390	2,430	2,910	3,010	3,250	14,960	24,540	33,600	33,160	32,880	31,000	28,580
5	12,560	2,400	3,120	3,140	3,270	15,370	24,740	33,800	33,160	32,860	30,920	28,480
6	11,780	2,380	3,040	3,250	3,250	15,420	24,890	33,810	33,180	32,810	30,850	28,180
7	11,020	g2,360	3,020	3,510	3,100	15,100	25,080	33,750	33,120	32,760	30,770	27,700
8	10,150	g2,360	2,970	4,030	3,520	15,000	25,370	33,680	33,040	32,720	30,690	27,160
9	9,310	g2,460	3,100	4,020	3,990	15,020	25,730	33,110	33,090	32,680	30,620	26,590
10	8,520	g2,590	3,180	4,160	3,450	15,670	26,170	32,950	33,130	32,640	30,540	26,020
11	7,710	2,770	3,200	3,270	3,150	16,480	26,590	40,000	33,090	32,590	30,470	25,480
12	6,880	2,890	3,200	3,160	3,140	17,180	27,180	33,130	32,700	32,540	30,390	24,920
13	6,080	2,940	3,190	3,030	3,320	17,830	27,620	33,060	32,750	32,490	30,300	24,370
14	5,280	2,960	3,170	3,000	3,760	18,160	27,640	32,910	32,680	32,440	30,220	23,810
15	4,530	2,970	3,160	3,060	4,410	18,310	27,810	32,860	32,980	32,400	30,130	23,260
16	3,870	2,980	3,300	3,000	5,350	18,690	28,060	32,860	33,060	32,300	30,060	22,710
17	3,510	2,980	3,440	2,930	5,770	19,490	28,500	32,850	33,150	32,260	29,990	22,170
18	3,430	2,980	3,610	3,370	5,760	18,580	29,050	32,910	33,170	32,200	29,910	21,640
19	3,340	2,980	3,220	3,790	6,320	18,760	29,530	33,060	33,170	32,150	29,800	21,060
20	3,260	2,970	3,180	3,950	7,330	19,170	30,030	33,190	33,040	32,080	29,720	20,530
21	3,210	2,960	3,350	5,580	8,280	19,920	30,220	33,250	32,670	32,000	29,620	20,010
22	3,150	2,950	3,510	9,910	8,120	20,900	30,190	33,290	32,810	31,930	29,520	19,470
23	3,100	3,420	3,660	12,820	10,070	20,750	30,350	33,290	32,880	31,880	29,470	18,940
24	3,030	3,670	3,820	13,530	11,010	20,000	30,620	33,160	32,950	31,800	29,450	18,410
25	2,980	3,680	3,970	11,380	11,370	19,930	30,880	33,030	32,980	g31,710	29,410	17,930
26	2,920	3,560	4,030	8,130	12,060	20,360	31,110	32,910	33,010	g31,660	29,340	17,270
27	2,870	3,780	3,720	5,830	12,470	21,050	31,370	32,820	33,030	g31,590	29,250	16,370
28	2,820	3,120	3,280	3,880	12,620	21,750	31,600	32,830	33,030	g31,510	29,180	15,610
29	2,770	3,030	2,900	3,410	-	22,280	31,600	32,910	33,030	31,450	29,090	14,920
30	2,720	3,260	3,230	3,080	-	22,660	32,050	g32,970	33,020	31,380	29,000	14,060
31	2,670	-	3,140	3,310	-	23,050	-	g33,040	-	31,320	28,920	-

g Computed from graph constructed on basis of observer's readings of wire-weight gage.

Monthly elevation and contents, water year October 1949 to September 1950

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30.....	774.75	16,940	-
Oct. 31.....	748.70	2,670	-14,270
Nov. 30.....	750.74	3,260	+590
Dec. 31.....	750.36	3,140	-120
Calendar year 1949.....	-	-	-470
Jan. 31.....	750.91	3,310	+170
Feb. 28.....	769.08	12,620	+9,310
Mar. 31.....	781.58	23,050	+10,430
Apr. 30.....	790.10	32,050	+9,000
May 31.....	790.96	33,040	+990
June 30.....	790.94	33,020	-20
July 31.....	789.45	31,320	-1,700
Aug. 31.....	787.28	28,920	-2,400
Sept. 30.....	771.08	14,060	-14,860
Water year 1949-50.....	-	-	-2,880

† Elevation at 12 p.m.

Coast Fork Willamette River below Cottage Grove Dam, Oreg.

Location.--Water-stage recorder, lat. 43°43', long. 123°03', in NE $\frac{1}{4}$ sec. 28, T. 21 S., R. 3 W., at bridge a quarter of a mile downstream from Cottage Grove Dam and $5\frac{1}{4}$ miles south of Cottage Grove. Datum of gage is 711.00 feet above mean sea level (Corps of Engineers bench mark).

Drainage area.--104 square miles.

Records available.--October 1944 to September 1950. January 1939 to September 1944 at site 0.8 mile downstream, published as Coast Fork Willamette River near Cottage Grove.

Average discharge.--11 years (1939-50), 263 second-feet (adjusted).

Extremes.--Maximum discharge during year, 2,680 second-feet Jan. 25 (gage height, 8.33 feet); minimum, 23 second-feet Nov. 5 (gage height, 2.54 feet).

1939-50: Maximum discharge recorded, 3,340 second-feet Jan. 4, 1943 (gage height, 10.06 feet, site and datum then in use); practically no flow July 5-7, 1945, Aug. 24, 1947.

Remarks.--Records excellent. No diversions above station. Flow regulated by Cottage Grove Reservoir.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

2.6	27	3.2	94	4.7	555
2.7	33	3.4	134	5.3	840
2.9	52	3.6	180	6.0	1,210
3.0	65	3.9	260	7.0	1,800
3.1	77	4.3	390	8.2	2,590

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	458	54	263	372	383	474	281	56	56	56	54	55
2	454	54	263	372	272	232	281	56	56	55	54	54
3	478	54	260	212	354	86	281	73	66	54	54	54
4	519	54	260	134	519	84	281	210	71	54	54	54
5	510	37	526	134	850	569	281	355	73	54	54	54
6	510	32	549	136	1,400	805	338	422	76	54	54	172
7	502	32	320	141	1,080	805	269	394	140	54	54	248
8	490	32	252	297	890	595	202	338	122	54	54	278
9	474	32	139	466	1,160	490	134	556	54	54	54	296
10	474	33	139	1,240	1,460	221	71	311	56	54	55	296
11	462	34	139	1,110	1,170	87	56	202	215	54	54	296
12	454	33	139	573	890	89	56	159	442	54	54	293
13	438	33	139	559	890	89	341	243	112	54	54	293
14	434	33	139	581	915	212	573	263	52	54	54	293
15	426	33	139	383	830	278	377	196	52	54	54	293
16	410	33	178	380	790	281	260	162	58	54	54	293
17	183	33	459	215	800	1,430	130	164	58	54	54	293
18	73	33	855	549	805	2,000	52	100	63	54	54	293
19	73	33	800	1,260	416	1,410	52	56	69	54	54	290
20	64	33	345	1,940	121	785	52	63	139	54	55	290
21	58	33	210	1,890	58	455	178	85	173	54	54	287
22	58	33	210	1,980	59	902	254	105	54	54	54	287
23	58	34	283	2,070	80	1,110	128	113	59	54	54	284
24	58	35	386	2,320	498	1,260	54	178	61	54	54	284
25	58	88	390	2,550	799	776	54	162	59	55	54	281
26	55	180	514	2,470	470	532	54	157	60	55	54	427
27	55	646	573	2,320	470	532	54	157	59	54	54	490
28	55	925	555	1,720	474	438	54	90	59	54	54	402
29	55	319	317	910	-	372	54	56	58	54	54	372
30	55	218	318	571	-	372	54	56	58	54	54	369
31	55	-	372	380	-	311	-	56	-	54	54	-

Month	Observed				Change in contents in Cottage Grove Reservoir in acre-feet	Adjusted for change in contents			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October.....	519	55	274	16,870	-14,270	2,600	42.3	0.407	0.47
November.....	925	32	109	6,460	+590	7,050	118	1.13	1.27
December.....	855	139	336	20,690	-120	20,570	335	3.22	3.71
Calendar year 1949	2,260	32	213	154,300	-470	153,800	212	2.04	27.73
January.....	2,550	134	976	59,990	+170	60,160	978	9.40	10.85
February.....	1,460	58	674	37,450	+9,310	46,760	842	8.10	8.43
March.....	2,000	84	574	35,270	+10,430	45,700	743	7.14	8.24
April.....	573	52	177	10,520	+9,000	19,520	328	3.15	3.52
May.....	556	56	180	11,100	+990	12,090	197	1.89	2.18
June.....	442	52	92.6	5,510	-20	5,490	92.3	.887	.99
July.....	56	54	54.2	3,330	-1,700	1,630	26.5	.255	.29
August.....	55	54	54.1	3,320	-2,400	920	15.0	.144	.17
September.....	490	54	266	15,810	-14,860	950	16.0	.154	.17
Water year 1949-50	2,550	32	313	226,300	-2,880	223,400	309	2.97	40.22

Coast Fork Willamette River at Saginaw, Oreg.

Location.--Water-stage recorder, lat. 43°50'05", long. 123°02'30", in NW $\frac{1}{4}$ sec. 15, T. 20 S., R. 3 W., at Saginaw, 1 mile downstream from Row River. Datum of gage is 595.47 feet above mean sea level, datum of 1929.

Drainage area.--529 square miles.

Records available.--October 1923 to September 1950.

Average discharge.--24 years (1925-26, 1927-50), 1,197 second-feet.

Extremes.--Maximum discharge during year, 13,600 second-feet Jan. 21 (gage height, 5.40 feet); minimum 83 second-feet Nov. 7, 8.

1923-50: Maximum discharge, 32,900 second-feet Dec. 28, 1945 (gage height, 12.38 feet), from rating curve extended above 16,000 second-feet; minimum observed, 7 second-feet July 31, 1928.

Remarks.--Records good except those for period of shifting control, which are fair. Small diversions and regulation by log ponds above station; regulation by Cottage Grove Reservoir (see p. 126); and Dorena Reservoir (see p. 130).

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).--W 794: 1934.

Rating tables, water year 1949-50, except period of shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 27

Nov. 28 to Sept. 30

0.3	85	0.7	265	1.1	700	0.3	135	1.0	770	3.0	5,400
.4	110	.8	345	1.3	1,000	.4	182	1.2	1,060	4.0	8,640
.5	150	.9	445	1.7	1,800	.5	248	1.5	1,590	4.8	11,400
.6	200	1.0	565	2.2	2,800	.6	330	2.0	2,860		
						.8	525	2.5	3,960		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	445	114	1,350	1,510	1,510	2,110	2,560	494	640	273	168	173
2	435	118	1,200	1,440	1,040	1,550	3,020	536	640	228	173	163
3	457	118	1,170	1,040	1,480	1,900	2,360	628	640	195	173	163
4	517	118	1,040	751	1,730	2,360	1,650	970	640	173	168	163
5	565	105	1,940	705	3,590	3,660	1,360	1,690	640	177	168	163
6	715	95	2,270	744	7,170	4,550	1,460	2,270	560	173	163	235
7	940	90	1,380	1,330	5,190	4,070	1,380	2,130	560	168	163	484
8	715	88	1,030	1,810	4,660	2,780	1,260	1,460	582	168	158	692
9	606	118	925	1,690	6,170	2,110	1,170	1,260	484	163	158	718
10	745	160	955	4,070	5,920	1,730	1,060	1,020	484	177	154	731
11	700	190	812	3,610	5,250	1,260	1,000	1,040	653	173	154	718
12	646	206	679	1,980	4,130	980	828	1,570	2,660	158	149	718
13	606	150	692	1,980	4,490	925	1,870	1,710	1,160	158	149	718
14	578	126	882	2,270	5,010	1,110	2,450	1,350	757	154	144	718
15	565	118	940	1,590	2,700	1,290	1,810	1,040	640	149	149	705
16	686	118	1,190	1,240	4,960	1,530	1,400	594	560	149	154	705
17	362	108	2,000	1,000	6,910	7,460	1,260	798	548	149	154	705
18	155	98	3,640	3,650	4,550	9,860	1,110	1,000	536	149	158	692
19	150	98	2,700	8,540	3,140	9,540	1,080	606	414	149	158	692
20	146	98	1,420	9,750	2,200	7,500	1,440	606	454	149	163	679
21	110	100	1,090	11,100	1,630	3,330	1,590	812	515	154	168	679
22	108	100	1,120	10,300	1,420	5,010	1,420	1,020	454	154	168	679
23	118	297	1,440	10,500	1,500	5,370	1,080	1,090	358	154	173	692
24	110	517	2,590	9,960	4,470	4,410	560	985	395	154	182	679
25	110	313	2,020	9,960	7,500	3,200	494	653	414	154	189	692
26	108	415	2,240	10,000	5,220	2,590	484	718	376	154	189	784
27	110	2,650	1,980	10,800	3,820	2,850	464	940	330	158	177	910
28	114	4,410	1,630	8,160	2,680	2,850	443	882	305	163	168	840
29	114	2,640	1,530	3,270	-	2,540	433	798	305	163	168	798
30	126	1,670	1,630	2,430	-	2,380	414	653	297	163	168	798
31	122	-	1,400	1,670	-	2,270	-	640	-	168	168	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	11,984	940	108	387	0.732	0.84	23,770
November	15,546	4,410	88	518	.979	1.09	30,840
December	46,885	3,640	679	1,512	2.86	3.30	93,000
Calendar year 1949	382,517	12,800	83	1,047	1.98	26.89	758,400
January	138,830	11,100	705	4,478	8.47	9.76	275,400
February	109,840	7,500	1,040	3,923	7.42	7.72	217,900
March	105,075	9,860	925	3,390	6.41	7.39	208,400
April	38,908	3,020	414	1,297	2.45	2.74	77,170
May	31,963	2,270	494	1,031	1.95	2.25	63,400
June	18,001	2,660	297	600	1.13	1.27	35,700
July	5,171	273	149	167	.316	.36	10,260
August	5,096	189	144	164	.310	.36	10,110
September	18,286	910	163	610	1.15	1.29	36,270
Water year 1949-50	545,585	11,100	88	1,495	2.83	38.37	1,082,000

Peak discharge (base, 12,000 sec.-ft.).--Jan. 21 (6 a.m.) 13,600 sec.-ft.

Note.--Shifting-control method used Jan. 10 to June 11.

Row River above Pitcher Creek, near Dorena, Oreg.
(Formerly published as Row River at Star)

Location.--Water-stage recorder, lat. 43°44', long. 122°53', in NW¹ sec. 24, T. 21 S., R. 2 W., half a mile west of Star and 3 miles upstream from Teeter Creek. Datum of gage is 856.16 feet above mean sea level, datum of 1929.

Drainage area.--211 square miles.

Records available.--15 years, 560 second-feet.

Extremes.--Maximum discharge during year, 7,330 second-feet Jan. 22 (gage height, 9.86 feet); minimum, 16 second-feet Sept. 23 (gage height, 1.45 feet).

1935-50: Maximum discharge, 19,600 second-feet Dec. 28, 1945 (gage height, 14.33 feet), from rating curve extended above 9,300 second-feet; minimum, 12 second-feet Sept. 2, 1940.

Remarks.--Records good except those for period of backwater from debris, which are fair.

No diversion above station. Possibly slight regulation at times by log ponds.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating tables, water year 1949-50, except period of backwater from debris
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 16					Mar. 17 to Sept. 30						
1.6	23	3.3	267	7.0	2,740	1.4	14	2.6	140	5.0	1,080
1.8	37	3.7	394	8.0	3,940	1.5	19	2.9	190	7.0	2,800
2.0	53	4.2	600	8.8	5,180	1.6	25	3.2	257	8.0	3,980
2.3	83	4.8	905	9.5	6,550	1.7	33	3.6	375	8.8	5,180
2.6	121	5.4	1,310			2.0	65	4.0	535		
2.9	172	6.0	1,770			2.3	100	4.5	780		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	41	564	550	470	1,080	1,750	576	512	176	52	25
2	23	39	550	443	416	1,090	1,850	680	470	160	47	26
3	23	39	470	346	416	1,630	1,390	655	414	146	45	26
4	23	42	352	311	582	1,760	1,070	735	426	136	44	25
5	155	39	687	267	1,310	1,840	1,010	1,040	396	129	45	21
6	215	39	672	248	2,080	1,920	1,140	1,020	339	117	45	21
7	323	39	450	356	1,510	1,370	972	906	318	116	43	20
8	182	51	366	390	1,320	1,090	846	765	285	112	43	20
9	155	106	339	352	1,710	917	730	700	257	108	42	21
10	256	165	302	744	1,590	863	640	740	265	105	40	22
11	201	497	254	668	1,440	750	610	960	582	99	38	20
12	147	243	232	470	1,250	672	816	1,210	1,350	94	36	20
13	102	127	323	462	1,700	632	1,130	1,210	755	90	35	20
14	65	97	450	506	2,550	600	1,070	1,030	544	84	34	20
15	55	83	439	387	2,880	582	918	852	438	80	33	21
16	49	75	528	326	3,290	970	852	765	389	78	33	21
17	45	65	775	345	2,260	5,160	918	755	446	77	30	22
18	40	56	984	2,940	1,690	3,590	912	625	369	75	28	24
19	58	49	845	3,980	1,670	3,490	972	499	327	70	27	22
20	56	45	424	4,140	1,390	2,140	1,300	478	312	68	26	21
21	37	42	342	6,080	1,070	1,620	1,140	590	285	66	26	21
22	36	41	439	6,380	923	2,360	942	715	260	65	26	20
23	35	393	710	4,850	1,140	1,900	735	665	247	63	28	18
24	34	305	1,240	2,650	2,740	1,730	590	548	285	60	53	18
25	31	142	828	1,580	3,230	1,390	504	544	277	56	65	27
26	29	151	1,060	1,160	2,450	1,190	454	620	247	54	45	76
27	29	1,920	725	1,260	1,840	1,310	458	655	230	54	37	89
28	35	1,480	604	1,040	1,320	1,210	478	508	214	61	34	50
29	57	700	695	790	-	1,040	422	430	208	67	32	35
30	53	818	695	672	-	1,060	414	478	194	56	31	31
31	44	-	573	532	-	1,210	-	486	-	54	27	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	2,576	323	23	83.1	0.394	0.45	5,110
November	7,929	1,920	39	264	1.25	1.40	15,730
December	17,717	1,240	232	572	2.71	3.12	35,140
Calendar year 1949	162,406	5,140	17	445	2.11	28.62	322,130
January	45,225	6,380	248	1,459	6.91	7.97	89,700
February	46,227	3,290	416	1,651	7.82	8.15	91,690
March	48,066	5,160	582	1,551	7.35	8.47	95,340
April	27,093	1,850	414	903	4.28	4.78	53,740
May	22,420	1,210	430	723	3.43	3.95	44,470
June	11,641	1,350	194	388	1.84	2.05	23,090
July	2,776	176	54	89.5	0.424	.49	5,510
August	1,170	65	26	37.7	.179	.21	2,320
September	823	89	18	27.4	.130	.15	1,630
Water year 1949-50	233,663	6,380	18	640	3.03	41.19	463,470

Peak discharge (base, 4,800 sec.-ft.).--Jan. 22 (7:30 a.m.) 7,330 sec.-ft.; Mar. 17 (10:30 a.m.) 7,240 sec.-ft.

Note.--Backwater from debris Oct. 6 to Nov. 27.

Dorena Reservoir near Cottage Grove, Oreg.

Location.--Water-stage recorder, lat. 43°47', long. 122°57', in SE¼ sec. 32, T. 20 S., R. 2 W., in concrete shelter over 42" circular well in concrete portion of dam across Row River, 5 miles east of Cottage Grove. Datum of gage is at mean sea level (levels by Corps of Engineers).

Drainage area.--265 square miles.

Records available.--October 1949 to September 1950.

Extremes.--Maximum contents during year 72,570 acre-feet May 27 (elevation, 832.36 feet); minimum observed, 22 acre-feet Oct. 1, 1949 (elevation, 739.7 feet).

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, 131,000 acre-feet between elevations 739.0 feet (sill of outlet gates) and 860.0 feet (maximum planned pool elevation). Crest of spillway at elevation 835.0 feet. Dead storage, 8 acre-feet below elevation 739.0 feet. Reservoir used for flood control and improvement of navigation. Daily contents computed from elevations at 12 p.m. Capacity table computed by Corps of Engineers.

Cooperation.--Water-stage recorder inspected by Corps of Engineers.

Contents, in acre-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	1,790	6,850	7,050	7,420	25,000	44,000	61,570	72,150	71,910	70,390	65,660
2	28	1,810	6,970	6,750	7,890	26,290	44,140	62,760	72,190	71,950	70,210	65,500
3	28	1,840	6,890	6,710	7,010	27,810	44,500	63,570	72,080	72,010	70,040	65,310
4	34	1,840	6,800	6,950	7,060	28,900	45,160	64,450	72,010	72,080	69,880	65,140
5	172	1,860	7,020	7,020	7,380	29,530	46,200	65,140	71,880	72,130	69,720	64,960
6	272	1,860	6,830	7,100	6,950	29,750	47,410	65,160	71,840	72,150	69,580	64,770
7	226	1,880	6,840	7,190	7,050	29,030	48,340	64,870	72,040	72,170	69,420	64,090
8	214	1,930	6,990	6,850	7,170	29,170	48,920	65,310	72,020	72,190	69,260	65,190
9	214	1,950	6,960	6,880	7,160	29,890	49,210	66,140	71,950	72,180	69,100	62,280
10	473	2,500	6,790	7,380	7,160	30,820	49,300	66,850	71,910	72,100	68,940	61,380
11	1,250	2,890	6,770	7,010	6,990	32,060	49,400	67,960	72,430	72,060	68,780	60,470
12	1,840	3,370	6,850	6,890	6,920	33,340	50,320	68,120	72,010	72,040	68,640	59,590
13	1,910	3,480	6,970	7,010	7,370	34,530	50,930	68,410	71,990	72,020	68,490	58,700
14	1,910	3,620	7,000	6,870	10,560	35,280	51,240	68,990	72,060	71,950	68,320	57,820
15	1,890	3,710	6,930	6,740	16,900	35,820	51,750	69,740	72,040	71,900	68,180	56,920
16	1,340	3,840	6,930	6,760	20,110	36,790	52,360	70,980	72,010	71,840	68,020	56,040
17	1,320	3,910	7,070	6,940	18,100	42,890	53,060	71,530	72,060	71,770	67,860	55,140
18	1,340	4,000	6,900	8,240	17,880	42,260	53,700	71,530	71,990	71,680	67,680	54,260
19	1,320	4,060	6,700	7,350	18,720	41,400	54,460	71,910	72,120	71,600	67,550	53,380
20	1,360	4,120	6,910	7,880	19,640	37,980	54,990	72,100	72,170	71,530	67,350	52,570
21	1,400	4,160	6,920	15,740	20,480	38,800	55,250	72,080	72,080	71,460	67,160	51,620
22	1,400	4,200	7,040	25,540	21,100	39,060	55,520	71,990	71,990	71,370	62,020	50,790
23	1,420	5,250	7,120	31,350	22,170	39,110	55,910	71,770	72,020	71,280	66,920	49,950
24	1,450	6,000	7,030	29,060	23,750	40,010	56,690	71,620	72,080	71,180	66,810	49,110
25	1,470	6,370	6,970	23,470	23,240	40,800	57,500	72,120	72,040	71,070	67,720	48,560
26	1,490	6,710	7,080	16,900	23,160	41,570	58,100	72,480	71,990	70,950	66,570	47,730
27	1,510	8,200	6,930	11,220	23,570	42,520	58,760	72,560	72,010	70,860	66,520	47,040
28	1,550	6,890	6,850	6,950	24,140	43,010	59,460	72,320	72,010	70,800	66,310	46,290
29	1,660	6,970	6,820	6,850	-	43,090	60,050	72,010	71,990	70,730	66,150	45,510
30	1,680	6,900	6,890	6,870	-	43,100	60,580	72,020	71,930	70,620	66,000	44,700
31	1,750	-	7,080	6,990	-	43,590	-	72,060	-	70,510	65,930	-

Monthly elevation and contents, water year October 1949 to September 1950

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Oct. 31.....	755.9	1,750	+1,720
Nov. 30.....	770.35	6,900	+5,150
Dec. 31.....	770.70	7,080	+180
Calendar year 1949.....	-	-	+7,080
Jan. 31.....	770.53	6,990	-90
Feb. 28.....	795.52	24,140	+17,150
Mar. 31.....	813.34	43,390	+19,250
Apr. 30.....	825.42	60,580	+17,190
May 31.....	832.08	72,060	+11,480
June 30.....	832.01	71,930	-130
July 31.....	831.23	70,510	-1,420
Aug. 31.....	828.57	65,930	-4,680
Sept. 30.....	814.38	44,700	-21,130
Water year 1949-50.....	-	-	+44,680

† Elevation at 12 p.m.

Row River near Cottage Grove, Oreg.

Location.--Water-stage recorder, lat. 43°48', long. 123°00', in NE $\frac{1}{4}$ sec. 36, T. 20 S., R. 3 W., $\frac{1}{2}$ miles upstream from Mosby Creek, 2 miles (revised) downstream from Dorena Dam, and 3 miles east of Cottage Grove. Datum of gage is 685.24 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.--270 square miles.

Records available.--January 1939 to September 1950. Prior to October 1947, published as Row River near Dorena.

Average discharge.--11 years, 699 second-feet (adjusted).

Extremes.--Maximum discharge during year, 5,630 second-feet Jan. 19 (gage height, 8.67 feet); minimum, 6.7 second-feet Oct. 1 (gage height, 0.93 foot); minimum daily, 18 second-feet Oct. 1.

1939-50: Maximum discharge, 21,400 second-feet Dec. 28, 1945 (gage height, 18.20 feet); minimum, that of Oct. 1, 1949; minimum daily, 14 second-feet Aug. 29 to Sept. 1, 1940.

Remarks.--Records good. No diversion above station; regulation by Dorena Reservoir (see preceding page).

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 19

Mar. 20 to Sept. 30

1.3	18	2.0	129	5.0	1,870	1.8	77	3.5	780
1.4	24	2.2	190	6.0	2,710	1.9	102	4.0	1,080
1.5	32	2.4	262	7.0	3,660	2.1	158	5.0	1,800
1.6	43	2.8	433	8.3	5,150	2.3	222	6.0	2,650
1.7	58	3.3	690			2.5	295	7.0	3,600
1.8	77	4.0	1,130			3.0	520	7.7	4,350

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	36	706	787	452	910	1,660	212	475	180	102	102
2	26	36	596	781	352	701	2,020	212	470	149	105	102
3	25	36	596	518	900	1,180	1,460	332	470	107	105	105
4	22	36	495	343	757	1,560	924	560	470	97	105	102
5	50	36	799	343	1,620	2,210	690	1,010	470	102	105	102
6	167	36	1,000	352	3,020	2,360	690	1,290	362	102	100	102
7	339	32	589	624	2,100	2,170	690	1,260	324	100	100	342
8	161	27	401	847	1,920	1,360	690	705	332	97	100	466
9	107	29	461	596	2,560	859	695	430	328	121	100	470
10	262	33	490	1,060	2,290	728	695	430	332	135	100	470
11	171	44	343	1,240	2,160	405	660	575	509	107	102	466
12	152	48	255	775	1,810	251	500	1,180	1,840	97	102	461
13	118	48	318	769	2,090	255	1,090	1,160	976	97	100	461
14	121	48	530	910	1,940	415	1,180	828	650	97	100	456
15	118	48	591	690	270	515	822	560	535	97	100	456
16	283	48	701	515	2,590	772	700	222	490	97	102	461
17	77	42	976	452	3,940	3,010	700	490	485	97	100	466
18	60	32	1,500	2,620	2,390	4,510	705	655	448	97	100	461
19	58	32	1,010	5,050	1,710	4,710	705	376	328	97	100	461
20	44	32	530	4,930	1,290	4,260	1,110	420	328	100	105	443
21	34	32	510	4,560	969	1,560	1,090	615	371	100	107	452
22	34	32	560	3,850	904	2,720	894	774	324	100	107	448
23	36	64	859	4,230	910	2,290	615	792	272	100	107	448
24	35	138	1,620	4,850	2,800	1,640	276	650	311	100	107	452
25	36	87	1,180	4,980	4,220	1,300	232	316	332	100	105	452
26	38	107	1,340	5,010	3,100	1,120	240	443	280	100	107	452
27	36	1,430	1,060	4,970	2,060	1,220	219	635	232	100	102	452
28	36	2,430	835	3,690	1,390	1,300	209	635	222	100	105	452
29	36	850	950	1,240	-	1,300	212	605	222	97	105	448
30	38	1,030	928	950	-	1,300	212	480	222	102	105	443
31	38	-	706	690	-	1,300	-	475	-	100	102	-

Month	Observed				Change in contents in Dorena Reservoir (acre-feet)	Adjusted for change in contents			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mun	Mini- mun	Mean				Mean	Per square mile	
October.....	339	18	89.5	5,510	+1,720	7,230	118	0.437	0.50
November.....	2,430	27	232	13,800	+5,150	18,950	318	1.18	1.32
December.....	1,620	255	755	46,440	+180	46,620	758	2.81	3.24
Calendar year 1949	6,360	18	555	402,000	+7,080	409,100	565	2.09	28.42
January.....	5,050	343	2,039	125,400	-90	125,300	2,038	7.55	8.70
February.....	4,220	270	1,876	104,200	+17,150	121,400	2,186	8.10	8.43
March.....	4,710	251	1,619	99,550	+19,250	118,800	1,932	7.16	8.25
April.....	2,020	209	753	44,800	+17,190	61,990	1,042	3.86	4.30
May.....	1,290	212	623	38,330	+11,480	49,810	810	3.00	3.46
June.....	1,840	222	444	26,400	-130	26,270	441	1.63	1.82
July.....	180	97	106	6,490	-1,420	5,070	82.5	0.306	.35
August.....	107	100	103	6,330	-4,680	1,650	26.8	.099	.11
September.....	470	102	382	22,720	-21,130	1,590	26.7	.099	.11
Water year 1949-50	5,050	18	746	540,000	+44,680	584,700	808	2.99	40.59

WILLAMETTE RIVER BASIN

Mosby Creek at mouth, near Cottage Grove, Oreg.

Location.--Water-stage recorder, lat. 43°46'10" (revised), 123°00'10" (revised), in sec. 1, T. 21 S., R. 3 W., two-thirds of a mile upstream from mouth and $3\frac{1}{2}$ miles southeast of Cottage Grove.

Drainage area.--96 square miles.

Records available.--September 1946 to September 1950.

Extremes.--Maximum discharge during year, 3,230 second-feet Jan. 23 (gage height, 6.68 feet); minimum, 6 second-feet Sept. 8, 9, 15, 16.
1946-50: Maximum discharge, 6,020 second-feet Jan. 6, 1948 (gage height, 9.85 feet); minimum, 6 second-feet Sept. 9-15, 1946, Aug. 29-31, Sept. 3-5, 1949, Sept. 8, 9, 15, 16, 1950.

Remarks.--Records good except those for period of no gage-height record, which are fair. Small diversions above station for irrigation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9	15	217	260	234	372	407	155	84	35	15	10
2	8	14	191	230	208	347	411	217	84	32	14	10
3	8	13	161	200	204	474	343	201	76	29	14	10
4	9	12	133	180	278	483	274	234	75	27	13	10
5	39	12	416	160	699	575	259	343	73	27	14	8
6	55	13	389	180	1,200	694	292	351	73	25	13	9
7	78	13	238	250	837	528	270	300	78	25	14	8
8	35	18	170	280	783	434	258	252	69	24	13	8
9	23	37	141	280	1,130	380	214	217	60	25	12	7
10	46	65	139	700	909	376	194	198	58	25	12	8
11	40	90	128	500	795	380	173	201	94	24	11	7
12	39	84	108	310	655	335	217	217	242	23	10	8
13	32	44	108	370	754	308	339	211	141	22	9	8
14	25	29	116	350	964	285	389	191	126	21	10	8
15	20	24	118	250	964	266	331	170	82	20	10	8
16	20	19	217	210	1,130	813	281	153	73	19	9	7
17	16	17	394	210	837	1,780	266	144	67	18	9	8
18	15	16	625	700	610	1,380	238	130	62	18	8	9
19	15	15	442	1,100	546	1,430	231	110	53	17	8	8
20	14	14	274	1,450	474	795	248	104	50	17	8	9
21	14	13	211	2,500	385	600	234	104	52	16	8	8
22	13	12	240	2,400	339	909	204	118	50	16	8	9
23	12	160	320	2,000	368	849	170	118	49	16	9	8
24	12	150	440	1,200	748	716	144	106	62	15	16	8
25	12	73	380	780	897	565	126	97	55	16	20	12
26	12	71	360	630	666	506	116	101	49	16	15	23
27	12	635	300	830	565	585	123	106	44	14	12	28
28	12	496	240	540	438	585	118	97	39	15	10	20
29	20	245	260	400	-	483	110	66	37	17	10	15
30	21	296	270	320	-	420	106	84	36	15	10	12
31	19	-	260	266	-	394	-	84	-	15	10	-

Mouth	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	704	78	8	22.7	0.236	0.27	1,400
November	2,715	625	12	90.5	.943	1.05	5,390
December	8,006	625	108	258	2.69	3.10	15,880
Calendar year 1949	61,314	2,500	6	168	1.75	23.72	121,600
January	20,036	2,500	160	646	6.73	7.76	39,740
February	18,637	1,200	204	666	6.94	7.22	36,970
March	19,027	1,780	266	614	6.40	7.37	37,740
April	7,066	411	106	236	2.46	2.74	14,020
May	5,200	351	84	168	1.75	2.01	10,310
June	2,193	242	36	73.1	.761	.85	4,350
July	644	35	14	20.8	.217	.25	1,280
August	354	20	8	11.4	.119	.14	702
September	311	28	7	10.4	.108	.12	617
Water year 1949-50	84,893	2,500	7	233	2.43	32.88	168,400

Peak discharge (base, 2,500 sec.-ft.).--Jan. 23 (about 5 a.m.) 3,230 sec.-ft.; Mar. 17 (12:30 p.m.) 2,800 sec.-ft.

Note.--No gage-height record Dec. 22 to Jan. 30; discharge computed on basis of recorded range in stage, weather records, and records for Coast Fork Willamette River at London, Row River at Star, Row River near Cottage Grove, and Long Tom River near Neti.

McKenzie River at outlet of Clear Lake, Oreg.

Location.--Water-stage recorder, lat. 44°22', long. 122°00', in SE $\frac{1}{4}$ sec. 8, T. 14 S., R. 7 E., on west bank of Clear Lake in narrow channel 150 feet above outlet. Datum of gage is 3,015.32 feet above mean sea level (levels by Eugene Water and Electric Board).

Drainage area.--101 square miles.

Records available.--June 1912 to July 1915, October 1947 to September 1950.

Extremes.--Maximum discharge during year, 1,400 second-feet June 12 (gage height, 4.96 feet); minimum, 247 second-feet Nov. 7, 10 (gage height, 1.72 feet).
1912-15, 1947-50: Maximum discharge, 2,320 second-feet Jan. 7, 1948 (gage height, 6.75 feet), from rating curve extended above 1,400 second-feet by logarithmic plotting; minimum daily discharge, 201 second-feet July 31, 1915.
A discharge of 165 second-feet was measured Sept. 28, 1915.

Remarks.--Records excellent. Flow regulated by natural storage in lake.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.6	225	3.0	610
1.9	285	4.0	1,000
2.5	445	5.0	1,420

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	270	259	528	325	451	740	572	617	1,100	1,080	512	421
2	267	259	578	318	451	728	603	606	1,160	1,040	508	418
3	267	257	592	310	451	788	610	600	1,160	1,020	502	412
4	267	255	600	305	445	860	603	586	1,170	1,000	496	406
5	272	253	614	300	439	888	595	575	1,180	980	490	403
6	274	249	606	298	436	872	589	561	1,180	956	484	397
7	270	247	592	298	430	840	586	550	1,130	936	481	394
8	270	249	572	292	424	808	582	536	1,100	912	478	388
9	274	251	554	290	412	776	572	530	1,090	888	472	382
10	278	249	522	292	409	744	561	530	1,150	864	469	378
11	283	257	502	285	406	704	554	536	1,300	828	469	372
12	290	253	490	278	397	662	550	575	1,370	788	466	370
13	300	257	466	281	397	631	550	670	1,350	760	466	365
14	305	267	445	274	397	596	550	776	1,270	732	463	362
15	302	274	436	270	394	564	550	820	1,220	700	460	358
16	300	278	430	265	397	554	554	828	1,250	676	457	355
17	298	281	427	263	397	634	561	860	1,290	659	454	352
18	292	281	421	261	400	724	575	888	1,260	645	454	348
19	288	278	406	259	403	748	586	880	1,240	634	448	345
20	283	276	394	261	406	736	603	880	1,260	617	445	342
21	281	272	388	261	409	724	638	904	1,250	603	442	340
22	278	270	380	318	412	740	670	976	1,240	592	439	338
23	276	290	380	352	424	748	680	1,040	1,250	582	442	335
24	270	283	372	391	469	740	673	1,020	1,170	572	442	332
25	267	295	368	415	540	716	666	1,020	1,130	564	433	332
26	263	322	358	439	920	696	659	1,030	1,110	554	430	335
27	261	375	350	451	888	673	656	1,100	1,100	547	436	328
28	263	362	345	445	784	642	645	1,110	1,100	540	436	328
29	257	409	340	448	-	610	628	1,080	1,110	533	433	328
30	259	457	338	451	-	586	617	1,060	1,100	526	427	325
31	259	-	332	451	-	564	-	1,060	-	516	424	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	8,578	305	257	277	2.74	3.16	17,010
November	8,585	457	247	266	2.83	3.16	17,030
December	14,124	614	332	456	4.51	5.20	28,010
Calendar year 1949	177,186	1,510	238	485	4.80	65.25	351,400
January	10,165	451	259	328	3.25	3.74	20,160
February	13,188	920	394	471	4.66	4.86	26,160
March	22,036	888	554	711	7.04	8.11	43,710
April	18,039	680	550	601	5.95	6.64	35,780
May	24,804	1,110	530	800	7.92	9.13	49,200
June	35,800	1,370	1,090	1,193	11.8	13.18	71,010
July	22,644	1,080	516	737	7.30	8.41	45,310
August	14,258	512	424	460	4.55	5.25	28,280
September	10,889	421	325	363	3.59	4.01	21,600
Water year 1949-50	203,310	1,370	247	557	5.51	74.85	403,300

Peak discharge (base, 750 sec.-ft.).--Feb. 26 (3:30 p.m.) 1,020 sec.-ft.; June 12 (10 to 11 p.m.) 1,400 sec.-ft.

McKenzie River at McKenzie Bridge, Oreg.

Location.--Water-stage recorder, lat. 44°11', long. 122°07', in NE $\frac{1}{4}$ sec. 18, T. 16 S., R. 6 E., 1.7 miles east of village of McKenzie Bridge. Datum of gage is 1,419.04 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Drainage area.--345 square miles at measuring section three-quarters of a mile upstream from gage.

Records available.--August 1910 to September 1950.

Average discharge.--34 years (1910-14, 1915-16, 1918-21, 1923-25, 1926-50), 1,608 second-foot.

Extremes.--Maximum discharge during year, 5,800 second-feet Feb. 25 (gage height, 4.59 feet); minimum, 1,100 second-feet Oct. 27, Nov. 5-7.
1910-50: Maximum discharge, 18,000 second-feet Jan. 6, 1923 (gage height, 8.3 feet, from floodmarks at former gage at highway bridge), from rating curve extended above 2,400 second-feet; minimum, 805 second-feet Oct. 20, 1931.

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

Revisions.--W 814: Drainage area.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Oct. 5 to Nov. 11)

1.1	1,040
1.5	1,380
2.0	1,890
3.0	3,150
4.2	5,110

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,210	1,110	1,940	1,450	1,550	2,730	2,520	2,110	3,000	2,780	1,660	1,430
2	1,210	1,110	2,040	1,420	1,500	2,640	2,740	2,110	3,000	2,700	1,650	1,420
3	1,200	1,110	1,910	1,410	1,500	3,320	2,610	2,100	2,950	2,650	1,650	1,420
4	1,220	1,110	1,850	1,400	1,500	3,510	2,470	2,060	3,050	2,580	1,640	1,420
5	1,280	1,100	1,850	1,360	1,550	3,380	2,380	2,060	3,100	2,520	1,630	1,410
6	1,260	1,100	1,770	1,360	1,600	3,150	2,350	2,020	3,050	2,440	1,620	1,400
7	1,220	1,100	1,710	1,360	1,550	2,900	2,290	1,980	3,000	2,380	1,610	1,390
8	1,190	1,110	1,650	1,340	1,560	2,710	2,230	1,930	2,850	2,320	1,600	1,380
9	1,200	1,140	1,630	1,330	1,550	2,530	2,160	1,910	2,750	2,260	1,590	1,380
10	1,240	1,140	1,570	1,340	1,560	2,400	2,100	1,940	2,850	2,220	1,580	1,370
11	1,240	1,260	1,520	1,310	1,550	2,250	2,050	2,100	3,050	2,160	1,570	1,360
12	1,220	1,350	1,500	1,300	1,540	2,140	2,110	2,420	4,000	2,130	1,560	1,360
13	1,190	1,280	1,470	1,290	1,630	2,060	2,220	2,770	3,680	2,110	1,560	1,350
14	1,180	1,250	1,450	1,270	1,890	1,980	2,190	2,870	3,340	2,070	1,550	1,340
15	1,180	1,240	1,440	1,260	2,170	1,910	2,190	2,800	3,180	2,040	1,540	1,340
16	1,170	1,240	1,440	1,260	2,320	2,060	2,220	2,750	3,240	2,000	1,530	1,340
17	1,170	1,240	1,470	1,240	2,340	3,510	2,310	2,780	3,270	1,960	1,520	1,350
18	1,170	1,230	1,470	1,250	2,190	3,390	2,320	2,650	3,200	1,930	1,520	1,340
19	1,150	1,220	1,450	1,240	2,070	3,440	2,320	2,540	3,100	1,900	1,510	1,330
20	1,150	1,210	1,420	1,400	2,000	3,120	2,470	2,520	3,150	1,870	1,500	1,320
21	1,140	1,200	1,420	2,370	1,910	2,900	2,560	2,650	3,200	1,840	1,490	1,320
22	1,140	1,200	1,420	3,620	1,870	2,940	2,540	2,900	3,020	1,810	1,490	1,320
23	1,130	1,590	1,550	2,920	2,040	2,800	2,430	2,940	2,990	1,790	1,500	1,310
24	1,120	1,570	1,660	2,470	4,260	2,660	2,320	2,840	2,910	1,770	1,560	1,310
25	1,110	1,470	1,610	2,350	5,110	2,530	2,250	2,840	2,820	1,760	1,500	1,330
26	1,110	1,600	1,580	2,100	4,070	2,430	2,180	2,990	2,750	1,740	1,480	1,420
27	1,100	3,340	1,550	2,000	3,520	2,370	2,170	3,120	2,750	1,720	1,470	1,340
28	1,150	2,660	1,530	1,900	3,030	2,260	2,140	2,970	2,800	1,720	1,460	1,320
29	1,140	2,100	1,530	1,800	-	2,180	2,110	2,870	2,870	1,700	1,450	1,310
30	1,120	2,170	1,500	1,700	-	2,120	2,070	2,860	2,680	1,680	1,450	1,300
31	1,110	-	1,480	1,600	-	2,080	-	2,920	-	1,670	1,440	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	36,420	1,280	1,100	1,175	3.41	3.93	72,240
November	42,550	3,340	1,100	1,418	4.11	4.59	84,400
December	49,380	2,040	1,420	1,593	4.62	5.32	97,940
Calendar year 1949	636,960	6,590	1,100	1,745	5.06	68.67	1,263,000
January	51,470	3,620	1,240	1,660	4.81	5.55	102,100
February	60,930	5,110	1,500	2,176	6.31	6.57	120,900
March	82,400	3,510	1,910	2,658	7.70	8.88	163,400
April	69,020	2,740	2,050	2,301	6.67	7.44	136,900
May	78,320	3,120	1,910	2,526	7.32	8.44	155,300
June	91,780	4,000	2,750	3,059	8.87	9.89	182,000
July	64,220	2,780	1,670	2,072	6.01	6.92	127,400
August	47,880	1,660	1,440	1,544	4.48	5.16	94,970
September	40,730	1,430	1,300	1,358	3.94	4.39	80,790
Water year 1949-50	715,100	5,110	1,100	1,959	5.68	77.08	1,418,000

Peak discharge (base, 3,000 sec.-ft.)--Nov. 27 (1 p.m.) 4,410 sec.-ft.; Jan. 22 (6 a.m.) 4,120 sec.-ft.; Feb. 25 (3:30 a.m.) 5,800 sec.-ft.; Mar. 3 (11 to 12 p.m.) 3,600 sec.-ft.; Mar. 17 (12:30 p.m.) 4,020 sec.-ft.; May 27 (12:50 to 2 a.m.) 3,160 sec.-ft.; June 12 (3 to 5 p.m.) 4,230 sec.-ft.
Note.--No gage-height record Jan. 25 to Feb. 6, June 1-11, 19-21; discharge computed on basis of recorded range in stage and records for McKenzie River near Vida.

McKenzie River near Vida, Oreg.

Location.--Water-stage recorder, lat. 44°07', long. 122°28', in NE¼ sec. 5, T. 17 S., R. 3 E., 1 mile upstream from head of Martin Rapids and 5 miles east of Vida. Datum of gage is 855.56 feet above mean sea level, datum of 1929.

Drainage area.--930 square miles.

Records available.--September 1924 to September 1950. June 1910 to March 1911 (gage heights only) at site at Martin Rapids.

Average discharge.--26 years, 3,738 second-feet.

Extremes.--Maximum discharge during year, 25,600 second-feet Feb. 24 (gage height, 8.85 feet); minimum, 1,680 second-feet Oct. 26 (gage height, 0.80 foot).
1924-50: Maximum discharge, 64,400 second-feet Dec. 28, 1945 (gage height, 17.70 feet), from rating curve extended above 32,000 second-feet by logarithmic plotting; minimum, 1,260 second-feet Nov. 7, 1930, Sept. 17, Oct. 4, 8, 9, 1931 (gage height, 0.36 foot).

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

Cooperation.--Water-stage recorder inspected by employee of Eugene Water Board.

Revisions (water year).--W 1124: 1943.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.8	1,680	2.5	4,650	5.5	13,000
1.2	2,260	3.5	6,950	7.0	18,200
1.8	3,280	4.5	9,750	8.0	22,200

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,750	1,810	4,920	3,480	3,800	7,820	8,400	5,300	7,820	5,430	2,700	2,200
2	1,740	1,780	5,030	3,260	3,650	7,620	9,660	5,400	7,920	5,150	2,660	2,200
3	1,720	1,780	4,520	3,030	3,540	11,900	8,310	5,300	7,780	4,960	2,630	2,170
4	1,760	1,780	4,040	2,890	3,500	12,200	7,180	5,100	7,950	4,800	2,630	2,160
5	2,500	1,760	4,240	2,850	3,800	11,300	6,780	5,000	7,880	4,610	2,610	2,160
6	2,560	1,750	4,040	2,840	4,460	10,300	6,720	4,900	7,280	4,420	2,580	2,110
7	2,400	1,740	3,710	3,030	4,320	8,550	6,380	4,800	6,550	4,240	2,550	2,110
8	2,050	1,830	3,440	2,870	4,300	7,480	6,020	4,700	6,100	4,060	2,530	2,110
9	2,220	2,050	3,320	2,820	4,520	6,720	5,680	4,700	5,840	4,000	2,500	2,100
10	2,940	2,100	3,170	3,100	4,520	6,280	5,350	5,000	6,420	3,880	2,470	2,060
11	2,850	2,500	2,960	3,010	4,500	5,680	5,220	5,400	8,430	3,710	2,450	2,050
12	2,600	2,700	2,900	2,850	4,380	5,240	5,770	6,600	12,100	3,610	2,420	2,050
13	2,290	2,280	2,940	2,850	5,220	4,960	6,950	8,000	10,200	3,560	2,400	2,050
14	2,110	2,110	2,990	2,800	7,620	4,760	7,100	8,700	8,220	3,500	2,400	2,050
15	2,000	2,020	2,960	2,700	9,480	4,570	7,100	7,880	7,300	3,410	2,370	2,050
16	1,930	1,980	3,210	2,660	9,720	6,280	7,100	7,550	7,480	3,330	2,370	2,050
17	1,890	1,930	3,670	2,630	9,060	17,200	7,500	7,650	7,680	3,280	2,340	2,100
18	1,860	1,890	3,860	2,680	7,580	13,500	7,400	7,080	7,150	3,210	2,310	2,060
19	1,820	1,860	3,440	3,630	7,100	13,900	7,300	6,600	7,080	3,190	2,310	2,040
20	1,760	1,850	3,080	5,050	6,580	10,500	7,600	6,050	7,180	3,120	2,310	2,040
21	1,750	1,820	2,990	11,200	5,880	8,910	8,000	6,600	6,950	3,050	2,290	2,020
22	1,740	1,820	3,080	17,000	5,520	9,780	8,000	7,580	6,480	3,030	2,310	2,000
23	1,720	3,690	3,980	12,700	6,620	8,490	7,800	7,780	6,200	2,970	2,360	1,990
24	1,710	3,760	5,260	8,910	18,000	7,680	7,100	7,300	5,980	2,940	2,660	1,990
25	1,690	3,060	4,400	6,800	21,200	6,950	6,500	7,100	5,700	2,900	2,420	2,060
26	1,680	3,280	4,320	5,950	14,800	6,620	6,100	7,450	5,430	2,870	2,320	2,610
27	1,690	10,100	3,860	5,700	11,500	6,700	5,600	8,190	5,390	2,840	2,280	2,420
28	1,820	8,370	3,740	4,990	9,270	5,130	5,400	7,550	5,480	2,870	2,250	2,110
29	1,930	5,590	3,730	4,520	-	5,630	5,300	6,950	5,680	2,840	2,230	2,040
30	1,850	6,080	3,670	4,320	-	5,500	5,200	6,950	5,630	2,770	2,240	2,020
31	1,810	-	3,570	3,920	-	5,590	-	7,250	-	2,720	2,200	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	62,200	2,940	1,680	2,006	2.16	2.49	123,400
November	87,050	10,100	1,740	2,902	3.12	3.48	172,700
December	115,040	5,260	2,900	3,711	3.99	4.60	228,200
Calendar year 1949	1,460,920	24,100	1,680	4,003	4.30	58.42	2,898,000
January	147,140	17,000	2,630	4,746	5.10	5.88	291,800
February	204,440	21,200	3,500	7,301	7.85	8.18	405,500
March	254,590	17,200	4,570	8,213	8.83	10.18	505,000
April	204,520	9,650	5,200	6,817	7.33	8.18	405,700
May	202,410	8,700	4,700	6,529	7.02	8.09	401,500
June	213,280	12,100	5,390	7,109	7.64	8.53	423,000
July	111,270	5,430	2,720	3,589	3.86	4.45	220,700
August	75,110	2,700	2,200	2,423	2.61	3.00	149,000
September	63,180	2,610	1,990	2,106	2.26	2.53	125,300
Water year 1949-50	1,740,230	21,200	1,680	4,768	5.13	69.59	3,452,000

Peak discharge (base, 16,000 sec.-ft.).--Jan. 22 (9 a.m.) 18,600 sec.-ft.; Feb. 24 (11:30 p.m.) 25,600 sec.-ft.; Mar. 17 (11:30 a.m.) 20,300 sec.-ft.

Note.--No gage-height record Apr. 14 to May 14; May 49; discharge computed on basis of recorded range in stage and records for station at McKenzie Bridge.

WILLAMETTE RIVER BASIN

McKenzie River near Coburg, Oreg.

Location.--Water-stage recorder, lat. 44°06'48", long. 123°02'49", in NE 1/4 sec. 9, T. 17 S., R. 3 W., at Armitage Bridge, 2 miles southeast of Coburg and 3 miles upstream from mouth. Datum of gage is 395.96 feet above mean sea level, datum of 1929.

Drainage area.--1,310 square miles.

Records available.--October 1944 to September 1950.

Extremes.--Maximum discharge during year, 37,600 second-feet Feb. 25 (gage height, 11.87 feet); minimum, 1,840 second-feet Oct. 27, Nov. 6; minimum gage height, 1.63 feet Oct. 3, 1944-50: Maximum discharge, 88,200 second-feet Dec. 29, 1945 (gage height, 17.36 feet), from rating curve extended above 36,000 second-feet; minimum daily, 1,310 second-feet Oct. 29, 1944.

Remarks.--Records good except those for period of backwater from debris, which are fair. Slight diurnal fluctuation caused by log ponds and power plants upstream. Water supply for city of Eugene is diverted about 10 miles upstream; small diversions above station for irrigation.

Cooperation.--Wire-weight gage read once daily during fall and winter months by employees of U. S. Weather Bureau.

Rating tables, water year 1949-50, except period of backwater from debris
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 15 to Aug. 22)

Oct. 1 to Mar. 17

Mar. 18 to Sept. 30

1.5	1,710	5.5	11,100	1.9	2,110	5.0	8,870
2.0	2,510	7.0	16,800	2.2	2,540	6.0	12,400
3.0	4,340	9.0	24,800	3.0	3,900	7.0	16,400
4.0	6,600	11.4	35,400	4.0	6,090	8.4	22,300

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,970	2,000	6,940	5,440	5,810	12,900	9,990	6,320	8,200	5,350	2,720	2,380
2	1,950	1,970	6,520	5,050	5,380	11,600	13,200	6,780	8,560	5,100	2,690	2,360
3	1,970	1,970	6,150	4,580	5,070	15,500	11,900	6,600	8,260	4,900	2,690	2,350
4	2,210	1,950	5,400	4,580	5,070	17,800	10,200	6,630	8,350	4,730	2,660	2,320
5	2,380	1,920	5,640	4,080	5,860	16,500	9,240	7,150	8,470	4,540	2,640	2,310
6	2,870	1,900	5,880	4,040	7,720	16,300	9,340	7,180	7,970	4,360	2,640	2,290
7	3,150	1,950	5,200	5,180	8,060	13,500	8,780	6,600	7,320	4,220	2,600	2,290
8	2,400	2,000	4,720	5,310	8,120	11,500	8,320	6,060	6,810	4,080	2,580	2,280
9	2,170	2,330	4,380	4,960	9,170	10,500	7,740	5,820	6,320	4,020	2,570	2,250
10	3,270	2,660	4,220	6,200	8,810	9,880	7,180	5,740	6,570	3,940	2,570	2,260
11	3,200	2,750	3,940	6,470	8,780	9,020	7,120	6,340	7,770	3,770	2,570	2,260
12	3,040	3,670	3,760	7,330	8,390	8,180	7,230	7,650	8,680	3,650	2,560	2,240
13	2,600	2,970	3,980	5,200	9,320	7,610	9,240	9,280	12,600	3,560	2,540	2,240
14	2,330	2,630	3,980	5,420	13,300	7,330	9,280	9,850	9,790	3,520	2,520	2,240
15	2,170	2,460	3,920	4,620	16,700	6,910	8,590	9,560	8,140	3,380	2,520	2,220
16	2,060	2,330	4,600	4,520	16,800	7,380	8,290	8,810	7,800	3,320	2,510	2,220
17	2,080	2,270	5,420	4,180	16,500	21,200	8,500	8,650	8,260	3,240	2,500	2,240
18	2,060	2,210	7,780	4,020	13,400	21,700	8,590	8,230	7,680	3,170	2,480	2,250
19	2,000	2,160	6,370	5,110	12,200	21,900	8,320	7,370	7,260	3,170	2,480	2,220
20	1,970	2,130	5,140	7,970	11,100	17,500	9,120	6,910	7,400	3,150	2,450	2,210
21	1,950	2,080	4,540	18,100	9,820	14,100	9,660	7,040	7,180	3,050	2,450	2,170
22	1,930	2,060	4,440	31,700	8,930	14,800	9,370	8,030	6,760	3,000	2,440	2,140
23	1,920	3,450	5,200	27,200	9,260	13,600	8,530	8,680	6,290	2,950	2,440	2,140
24	1,900	5,880	8,000	18,900	19,600	12,200	7,510	8,200	6,090	2,950	2,860	2,120
25	1,870	4,100	6,850	13,500	34,700	10,800	6,910	7,820	5,820	2,860	2,810	2,220
26	1,850	5,930	6,940	10,800	25,300	10,200	6,520	8,030	5,420	2,860	2,560	2,630
27	1,840	9,230	6,050	11,700	19,800	10,800	6,440	8,900	2,820	2,510	2,980	
28	1,830	14,200	5,600	9,470	18,500	10,200	6,550	8,560	5,280	2,840	2,450	2,420
29	2,350	8,450	5,490	7,890	-	9,120	6,220	7,710	5,460	2,870	2,440	2,310
30	2,170	8,090	5,620	7,130	-	8,580	5,990	7,600	5,510	2,800	2,400	2,260
31	2,050	-	5,440	6,150	-	8,230	-	7,680	-	2,740	2,390	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	69,410	3,270	1,840	2,239	1.71	1.97	137,700
November	109,680	14,200	1,900	3,656	2.79	3.11	217,500
December	168,110	8,000	3,760	5,423	4.14	4.77	333,400
Calendar year 1949	1,891,800	35,000	1,840	5,183	3.96	53.70	3,752,000
January	264,380	31,700	4,020	8,528	6.51	7.51	524,400
February	358,470	34,700	5,070	12,090	9.23	9.61	671,300
March	587,340	21,900	6,910	12,490	9.53	11.00	768,300
April	253,870	13,200	5,990	8,462	6.46	7.21	503,500
May	235,780	9,850	5,740	7,606	5.81	6.69	467,700
June	221,300	12,600	5,280	7,377	5.63	6.28	438,900
July	110,910	5,350	2,740	3,578	2.73	3.15	220,000
August	79,320	2,860	2,390	2,559	1.95	2.25	157,300
September	68,820	2,980	2,120	2,294	1.75	1.95	136,500
Water year 1949-50	2,307,390	34,700	1,840	6,322	4.83	65.50	4,576,000

Peak discharge (base, 24,000 sec.-ft.),--Jan. 22 (2 to 3 p.m.) 33,500 sec.-ft.; Feb. 25 (9 a.m.) 37,600 sec.-ft.; Mar. 17 (8:30 p.m.) 28,000 sec.-ft.
Note.--Backwater from debris Oct. 5 to Nov. 27.

South Fork McKenzie River near Rainbow, Oreg.

Location.--Water-stage recorder, lat. 44°08', long. 122°15', in NW¼ sec. 31, T. 16 S., R. 5 E., 0.2 mile upstream from Cougar Creek and 2 miles south of Rainbow and mouth of river. Datum of gage is 1,236.42 feet above mean sea level (surveys by Public Roads Administration).

Drainage area.--211 square miles.

Records available.--October 1947 to September 1950. December 1945 to August 1947 (discharge measurements only). December 1945 to September 1947, fragmentary records of stage only, in files of Corps of Engineers.

Extremes.--Maximum discharge during year, 6,480 second-feet Feb. 24 (gage height, 5.45 feet); minimum, 214 second-feet Oct. 2-4 (gage height, 0.91 foot).

1947-50: Maximum discharge, 10,700 second-feet Dec. 12, 1948; minimum, about 210 second-feet Oct. 1, 1947.

Maximum discharge known, 24,500 second-feet Dec. 28, 1945 (gage height, 8.8 feet, from floodmarks at former site and datum; corresponding gage height at present site, about 9.3 feet), by slope-area method.

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

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.9	210	1.7	645	3.5	2,750
1.1	295	2.1	975	4.5	4,450
1.4	450	2.7	1,600	5.0	5,440

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	218	246	1,020	556	690	1,690	2,160	1,250	2,300	1,090	350	268
2	214	238	1,030	504	631	1,630	2,500	1,300	2,300	1,000	545	264
3	214	234		480	589	2,800	1,940	1,200	2,180	839	545	264
4	226	234	712	474	603	3,040	1,610	1,150	2,260	868	340	264
5	395	226	752	456	652	2,770	1,480	1,100	2,200	808	340	264
6	406	226	690	444	784	2,420	1,470	1,050	1,900	744	340	264
7	365	222	624	456	792	1,900	1,400	1,050	1,560	698	335	259
8	310	250	575	412	784	1,590	1,300	1,000	1,370	645	335	259
9	350	272	542	395	817	1,350	1,200	1,100	1,300	624	325	254
10	504	272	498	444	834	1,230	1,100	1,200	1,470	589	325	254
11	516	360	468	434	792	1,090	1,040	1,400	2,180	549	320	254
12	444	355	456	417	792	968	1,240	2,700	3,910	510	320	250
13	330	310	462	428	966	903	1,520	2,200	3,150	492	315	250
14	330	286	468	428	1,590	851	1,750	2,400	2,300	480	310	246
15	310	268	468	412	2,140	800	1,750	2,120	1,930	468	310	246
16	295	264	504	406	2,220	1,310	1,750	2,040	1,930	456	310	250
17	290	254	575	422	1,990	4,200	1,900	2,120	1,970	439	305	259
18	286	250	631	504	1,610	3,180	1,800	1,800	1,740	434	300	250
19	272	250	530	903	1,500	3,330	1,800	1,550	1,730	428	295	246
20	272	250	486	1,270	1,360	2,390	1,900	1,470	1,740	412	290	242
21	268	246	468	2,460	1,200	1,930	2,000	1,690	1,630	406	290	242
22	268	254	486	4,340	1,120	2,090	2,000	2,100	1,450	395	290	238
23	264	687	652	2,960	1,400	1,800	1,900	2,180	1,330	390	300	238
24	259	638	826	1,900	4,520	1,580	1,700	1,940	1,250	385	350	238
25	254	498	682	1,370	5,050	1,380	1,500	1,870	1,150	375	310	259
26	250	568	698	1,170	3,590	1,280	1,400	2,090	1,090	370	295	406
27	242	1,990	638	1,080	2,700	1,240	1,300	2,340	1,080	365	285	320
28	264	1,760	617	903	2,060	1,140	1,250	2,060	1,130	380	290	272
29	282	1,150	610	817	-	1,040	1,200	1,820	1,190	380	286	268
30	259	1,380	603	768	-	1,030	1,200	1,890	1,170	365	282	264
31	250	-	582	712	-	1,160	-	2,060	-	360	277	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	9,447	516	214	305	1.45	1.67	18,740
November	14,438	1,990	222	481	2.28	2.54	28,640
December	19,204	1,030	456	619	2.93	3.38	38,090
Calendar year 1949	300,406	6,800	214	823	3.90	52.94	595,800
January	28,705	4,340	395	926	4.39	5.06	56,940
February	43,776	5,050	589	1,563	7.41	7.72	86,850
March	55,100	4,200	800	1,777	8.42	9.71	109,300
April	48,080	2,500	1,040	1,802	7.59	8.47	95,350
May	52,240	2,400	1,000	1,685	7.99	9.21	103,600
June	53,890	3,910	1,080	1,796	8.51	9.50	106,900
July	16,844	1,090	360	543	2.57	2.97	33,410
August	9,720	350	277	314	1.49	1.71	19,280
September	7,852	406	238	262	1.24	1.38	15,570
Water year 1949-50	359,276	5,050	214	984	4.66	63.32	712,600

Peak discharge (base, 3,000 sec.-ft.)--Nov. 27 (4 p.m.) 3,170 sec.-ft.; Jan. 22 (8 to 9 a.m.) 4,890 sec.-ft.; Feb. 24 (8:30 p.m.) 6,480 sec.-ft.; Mar. 4 (12:30 a.m.) 3,280 sec.-ft.; Mar. 17 (11:50 a.m.) 4,950 sec.-ft.; June 12 (4:30 p.m.) 4,290 sec.-ft.

Note.--No gage-height record Apr. 7-10, Apr. 14 to May 14; discharge computed on basis of recorded range in stage and records for McKenzie River near Vida.

WILLAMETTE RIVER BASIN

Blue River above Quentin Creek, Oreg.

Location.--Water-stage recorder, lat. 44°16', long. 122°12', about 1½ miles upstream from Quentin Creek, right bank tributary, 7 miles north of town of McKenzie Bridge, and 11 miles northeast of town of Blue River.

Drainage area.--11.5 square miles.

Records available.--October 1947 to September 1950.

Extremes.--Maximum discharge during year, 1,410 second-feet Feb. 24 (gage height, 3.87 feet), from rating curve extended above 530 second-feet by logarithmic plotting; minimum, 3.1 second-feet Oct. 3, 4 (gage height, 0.65 foot).
1947-50: Maximum discharge, that of Feb. 24, 1950; minimum, 2.7 second-feet Sept. 23-28, 1949 (gage height, 0.64 foot).

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

Cooperation.--Gage-height record and 7 discharge measurements furnished by Corps of Engineers.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.5	6.2	96	48	52	135	114	79	208	83	15	5.7
2	3.5	6.2	94	42	50	123	160	86	213	73	15	5.2
3	3.1	5.2	78	39	48	312	137	83	208	66	15	5.2
4	4.7	5.2	67	36	49	349	110	77	213	62	15	5.2
5	17	4.7	66	33	56	264	97	79	205	55	14	5.2
6	17	4.7	58	33	66	213	95	73	160	50	14	5.2
7	12	4.7	52	33	64	170	88	60	130	50	13	4.7
8	9.2	7.4	45	28	64	140	79	54	120	43	13	4.3
9	20	17	44	27	62	110	69	53	114	41	12	4.3
10	30	18	39	29	62	90	62	60	142	37	12	4.3
11	28	52	35	28	60	70	58	108	208	34	11	4.3
12	20	41	34	27	58	60	74	196	320	32	11	4.3
13	15	25	34	25	80	50	114	272	250	30	11	3.9
14	12	20	35	27	163	45	110	280	171	28	10	3.9
15	10	17	35	25	269	40	112	232	145	27	9.6	3.9
18	9	16	35	24	304	120	118	205	145	25	9.2	3.9
17	8	14	36	23	297	500	130	196	137	25	9.2	5.7
18	8	13	34	28	220	350	125	155	130	24	8.6	4.3
19	7	12	30	60	175	300	125	125	135	24	8.0	3.9
20	7	10	28	100	148	250	171	120	140	22	8.0	3.9
21	6	9.6	28	340	128	160	190	145	128	22	7.4	3.9
22	6	10	34	646	117	170	174	202	108	21	7.4	3.9
23	5.5	72	76	396	138	140	137	205	97	20	12	3.9
24	5.2	61	92	244	704	110	112	176	90	19	18	3.5
25	5.2	45	76	158	884	90	92	176	79	19	10	6.2
26	5.2	62	64	126	462	76	74	205	73	19	9.2	19
27	5.2	351	58	107	284	65	73	232	74	18	8.6	9.6
28	13	196	58	90	188	55	71	196	83	18	7.4	6.2
29	11	133	61	76	-	48	69	155	95	18	7.4	5.2
30	8.0	*122	58	76	-	47	66	147	95	16	7.4	4.7
31	7.4	-	54	55	-	50	-	163	-	16	6.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	321.7	30	3.1	10.4	0.904	1.04	638
November	1,360.9	351	4.7	45.4	3.95	4.40	2,700
December	1,634	96	28	52.7	4.58	5.28	3,240
Calendar year 1949	22,552.3	691	2.7	61.8	5.37	72.91	44,730
January	3,020	646	23	97.4	8.47	9.77	5,990
February	5,250	884	48	189	16.3	18.99	10,420
March	4,702	500	40	152	13.2	15.21	9,330
April	3,205	190	58	107	9.30	10.37	6,360
May	4,595	280	53	148	12.9	14.86	9,110
June	4,416	320	73	147	12.8	14.28	8,760
July	1,037	83	16	33.5	2.91	3.35	2,060
August	335.2	18	6.8	10.8	.939	1.08	665
September	157.4	19	3.5	5.25	.457	.51	312
Water year 1949-50	30,037.2	884	3.1	82.3	7.16	97.13	59,580

Peak discharge (base, 400 sec.-ft.).--Nov. 27 (10:30 a.m.) 510 sec.-ft.; Jan. 22 (5 to 8 a.m.) 740 sec.-ft.; Feb. 24 (12 p.m.) 1,410 sec.-ft.; Mar. 3 (9 p.m.) 408 sec.-ft.; Mar. 17 (about 8 a.m.) 689 sec.-ft.

* Winter discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 10-21, Jan. 31 to Feb. 3. No gage-height record Oct. 9-24, Mar. 7-24; discharge computed on basis of recorded range in stage, weather records, records for Blue River near Blue River, Mann Creek near McKenzie Bridge, and Wolf Creek near McKenzie Bridge.

Blue River near Blue River, Oreg.

Location.--Water-stage recorder, lat. 44°11', long. 122°17', near line between secs. 13 and 14, T. 16 S., R. 4 E., 3 miles upstream from Quartz Creek and 3½ miles northeast of Blue River post office.

Drainage area.--75 square miles.

Records available.--September 1935 to September 1950.

Average discharge.--15 years, 370 second-feet.

Extremes.--Maximum discharge during year, 5,560 second-feet Feb. 24; maximum gage height, 5.98 feet Feb. 24, momentary backwater from debris; minimum discharge, 21 second-feet Oct. 2-4.

1935-50: Maximum discharge, 13,300 second-feet Dec. 28, 1945 (gage height, 9.80 feet), from rating curve extended above 6,500 second-feet; minimum, 13 second-feet Sept. 27, 28, Oct. 1, 2, 1938.

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

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used June 21 to Sept. 30)

Oct. 1 to Oct. 9

Oct. 10 to Sept. 30

1.0	18	1.3	92	1.0	17	1.6	205	3.5	1,720
1.1	37	1.4	129	1.1	36	1.9	360	4.0	2,340
1.2	62	1.6	220	1.2	59	2.2	540	4.5	3,060
				1.3	87	2.5	760	5.1	4,080
				1.4	122	3.0	1,180		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	50	540	316	260	832	1,260	610	832	265	57	30
2	21	45	547	275	240	904	1,370	638	808	240	54	30
3	21	41	438	245	220	2,210	1,040	589	776	235	52	30
4	31	38	354	235	225	1,980	824	568	792	220	50	30
5	178	36	396	205	275	1,610	752	631	752	201	50	30
6	178	34	360	205	384	1,340	760	575	610	183	50	30
7	122	34	305	215	396	976	680	498	522	165	50	29
8	83	48	260	196	378	776	645	450	480	149	48	27
9	197	118	255	187	390	624	596	450	474	142	45	27
10	220	145	215	196	396	554	534	561	582	126	45	27
11	215	366	196	179	378	474	528	840	800	115	45	27
12	153	327	183	174	366	414	696	1,210	1,180	108	43	25
13	104	187	187	161	540	372	944	1,390	904	101	43	25
14	81	138	210	170	1,210	344	840	1,250	666	98	43	25
15	70	112	220	149	1,630	327	816	1,050	554	98	43	23
16	62	90	260	145	1,630	854	880	976	561	94	41	23
17	54	81	290	138	1,410	3,570	976	960	554	90	41	34
18	54	76	358	153	1,010	2,200	928	776	504	84	38	32
19	48	67	260	316	848	2,130	936	645	510	81	36	29
20	48	62	210	638	752	1,410	1,190	631	498	79	36	27
21	43	59	196	2,380	624	1,100	1,160	776	444	76	34	25
22	41	62	220	3,090	547	1,300	1,030	944	378	73	34	25
23	36	558	547	1,850	869	1,010	832	904	349	65	45	23
24	36	456	768	1,110	3,990	816	659	792	327	67	112	23
25	34	316	516	776	4,080	688	589	776	300	67	55	32
26	34	420	432	603	2,250	624	516	888	280	65	43	142
27	36	372	510	1,500	638	554	956	280	280	65	41	73
28	67	1,420	384	420	1,040	584	568	776	290	67	36	43
29	90	792	408	349	486	554	673	305	65	34	34	34
30	65	784	384	327	-	468	522	659	290	62	34	32
31	54	-	360	280	-	540	-	720	-	59	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-foot
October	2,499	220	21	80.6	1.07	1.24	4,960
November	9,502	2,540	34	317	4.23	4.71	18,850
December	10,611	768	183	342	4.56	5.26	21,050
Calendar year 1949	130,245	3,610	20	357	4.76	64.57	258,400
January	16,193	3,090	138	522	6.96	8.03	32,120
February	27,838	4,080	220	994	13.3	13.80	55,220
March	32,125	3,570	327	1,036	13.8	15.93	63,720
April	24,179	1,370	516	806	10.7	11.99	47,960
May	24,142	1,390	450	779	10.4	11.97	47,880
June	16,582	1,160	280	553	7.11	8.22	32,890
July	3,605	265	59	116	1.55	1.79	7,150
August	1,410	112	32	45.5	.607	.70	2,800
September	1,012	142	23	33.7	.449	.50	2,010
Water year 1949-50	169,698	4,080	21	465	6.20	84.14	336,600

Peak discharge (base, 2,600 sec.-ft.)--Nov. 27 (11 to 12 a.m.) 3,770 sec.-ft.; Jan. 22 (5 a.m.) 3,850 sec.-ft.; Feb. 24 (9:30 p.m.) 5,560 sec.-ft.; Mar. 17 (9 a.m.) 4,580 sec.-ft.

WILLAMETTE RIVER BASIN

Mann Creek near McKenzie Bridge, Oreg.

Location.--Water-stage recorder, lat. 44°18', long. 122°10', T. 15 S., R. 5 E., 200 yards above confluence with Wolf Creek and about 8½ miles north of town of McKenzie Bridge.

Drainage area.--5.12 square miles.

Records available.--October 1948 to September 1950.

Extremes.--Maximum discharge during year, 328 second-feet Feb. 25; maximum gage height, 3.54 feet Feb. 24 (backwater from ice or debris); minimum discharge, 1.3 second-feet Oct. 4 (gage height, 1.24 feet).
1949-50: Maximum discharge, 455 second-feet May 2, 1949; maximum gage height, 3.73 feet Feb. 10 (ice jam); minimum discharge, 1.3 second-feet Sept. 25, 26, Oct. 4, 1949 (gage height, 1.24 feet).

Remarks.--Records good except those for periods of ice effect, which are fair.

Cooperation.--Gage-height record and 15 discharge measurements furnished by Corps of Engineers.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 21

Jan. 22 to Sept. 30

1.2	1.0	1.6	11.5	2.1	50	1.28	2.0	1.7	18	2.3	73
1.3	2.0	1.7	17	2.3	75	1.5	2.4	1.8	23	2.5	105
1.4	4.0	1.8	23	2.5	105	1.4	5.1	1.9	29	2.8	165
1.5	7.0	1.9	31	2.8	165	1.5	9.0	2.0	37	3.2	270
						1.6	13	2.1	47		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	3.3	49	20	22	63	52	41	133	72	10	4.2
2	1.4	3.1	49	18	20	59	67	44	135	65	10	3.9
3	1.4	2.9	40	17	20	114	83	42	133	59	9.8	3.9
4	2.5	2.9	35	b16	20	129	55	40	137	54	9.4	3.6
5	9.7	2.9	32	*15	22	107	51	40	133	51	9.0	3.6
6	7.4	2.9	27	15	24	91	49	38	109	45	9.0	3.3
7	4.9	2.9	*24	b14	24	74	47	35	91	42	8.2	3.3
8	4.3	4.3	22	13	24	60	44	33	88	37	8.2	3.0
9	18	9.2	21	b12	24	53	41	33	91	35	7.8	2.8
10	15	10	19	b13	22	44	37	38	110	51	7.4	2.8
11	14	31	18	b12	22	38	35	63	145	28	7.0	2.8
12	9.2	24	17	b11	22	35	43	105	198	27	7.0	2.6
13	6.4	16	18	b11	27	32	57	135	158	26	6.7	2.6
14	5.2	14	18	b12	53	30	57	133	119	25	6.3	2.6
15	4.3	12	*18	b11	85	27	57	119	105	24	6.3	2.4
16	3.7	10	18	10	96	40	60	109	105	22	5.5	2.6
17	3.5	8.8	17	9.2	91	180	66	109	102	21	5.1	3.9
18	3.5	7.9	16	11	92	133	65	88	98	20	4.8	2.8
19	3.3	6.7	15	21	58	116	72	76	107	20	4.8	2.6
20	3.3	6.4	14	29	52	88	85	73	109	18	4.5	2.4
21	3.1	5.8	14	100	45	73	91	90	98	18	4.8	2.2
22	3.1	7.2	16	178	40	73	86	121	85	16	5.1	2.2
23	2.9	43	33	114	46	60	73	114	78	16	9.0	2.0
24	2.7	32	35	76	175	57	60	105	72	14	11	2.0
25	2.5	27	29	54	*261	47	53	107	65	14	6.7	4.2
26	2.5	38	23	44	*161	42	45	123	62	13	5.9	12
27	2.7	156	21	37	112	36	42	137	65	13	5.1	5.1
28	7.4	116	23	31	82	33	40	118	73	13	4.8	3.9
29	5.5	75	25	28	-	31	39	100	79	12	4.5	3.3
30	4.0	66	24	25	-	30	39	96	79	11	4.5	3.0
31	3.5	-	22	23	-	31	-	109	-	11	4.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	162.4	18	1.4	5.24	1.02	1.18	322
November	747.2	156	2.9	24.9	4.86	5.43	1,480
December	752	49	14	24.3	4.75	5.46	1,490
Calendar year 1949	11,862.4	335	1.3	32.5	6.35	86.16	23,520
January	1,000.2	178	9.2	32.3	6.31	7.27	1,980
February	1,722	261	20	61.5	12.0	12.51	3,420
March	2,032	180	27	65.5	12.8	14.76	4,030
April	1,671	91	35	55.7	10.9	12.14	3,310
May	2,614	137	33	84.3	16.5	18.99	5,180
June	3,162	198	62	105	20.5	22.97	6,270
July	873	72	11	28.2	5.51	6.34	1,730
August	212.4	11	4.2	6.85	1.34	1.54	421
September	101.6	12	2.0	3.39	.662	.74	202
Water year 1949-50	15,049.8	261	1.4	41.2	8.05	109.33	29,840

Peak discharge (base, 200 sec.-ft.).--Nov. 27 (10:30 a.m.) 261 sec.-ft.; Jan. 22 (6 a.m.) 202 sec.-ft.; Feb. 25 (2 a.m.) 328 sec.-ft.; Mar. 17 (10 a.m.) 220 sec.-ft.; June 12 (3:50 p.m.) 210 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Wolf Creek near McKenzie Bridge, Oreg.

Location.--Water-stage recorder, lat. 44°18', long. 122°10', T. 15 S., R. 5 E., 150 feet above confluence with Mann Creek and 8½ miles north of town of McKenzie Bridge.

Drainage area.--2.06 square miles.

Records available.--October 1948 to September 1950.

Extremes.--Maximum discharge during year, 109 second-feet Jan. 22; maximum gage height, 3.51 feet Feb. 25 (backwater from debris); minimum discharge, 1.1 second-feet Oct. 3, 4, 1948-50; Maximum discharge, 124 second-feet May 1, 1949 (gage height, 3.57 feet); minimum daily, 1.0 second-foot Sept. 1-7, 1949.

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

Cooperation.--Gage-height record and 28 discharge measurements furnished by Corps of Engineers.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from debris Feb. 23 to June 21)

1.83	1.1	2.2	9.0	2.7	38
1.9	1.7	2.3	13	2.9	55
2.0	3.2	2.4	18	3.2	88
2.1	5.6	2.5	24	3.4	114

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	2.3	20	9.8	16	33	26	16	37	14	2.5	1.7
2	1.2	1.9	19	8.7	b15	31	31	17	37	12	h2.3	1.7
3	1.2	1.8	14	b8	b14	55	30	18	38	11	2.3	1.7
4	1.3	1.8	13	7.3	b15	62	23	18	39	10	2.3	1.7
5	2.5	1.8	13	6.6	16	53	21	17	37	9	2.3	1.7
6	3.0	1.9	11	*6.6	18	44	19	16	34	8	2.3	1.7
7	2.8	1.9	9.8	b6	18	37	18	16	32	h7.3	2.3	1.6
8	2.5	2.7	9.0	5.4	19	30	h17	15	28	6.5	2.2	1.6
9	3.8	5.6	8.3	b5.2	18	27	16	13	27	6	2.2	1.6
10	4.6	5.6	7.6	b5.5	18	22	15	13	30	6	2.2	1.6
11	4.4	11	7.6	b5.2	16	21	15	18	37	5.5	2.2	1.6
12	3.4	9.4	7.0	b5	16	18	16	32	47	h4.8	2.0	1.6
13	2.7	6.6	6.6	b5	19	16	h17	44	43	4.5	2.0	1.6
14	2.5	5.6	6.6	b5.5	34	13	18	47	37	4.5	1.9	1.6
15	2.2	4.8	*7.0	b5	47	13	19	42	32	4.5	1.9	1.6
16	2.0	4.4	7.3	b4.5	59	18	20	38	32	4.5	1.9	1.6
17	2.0	3.8	7.3	b5	64	60	22	36	30	4	1.9	1.7
18	2.0	3.6	7.0	b7	57	54	23	33	26	4	1.9	1.6
19	1.9	3.4	7.0	b13	49	50	23	28	27	h4.1	1.8	1.4
20	1.9	3.2	7.0	25	43	40	28	25	26	4	1.8	1.4
21	1.9	2.8	7.0	64	37	36	32	28	h25	4	1.8	1.4
22	1.9	2.7	7.6	104	34	36	32	34	22	3.5	1.8	1.4
23	1.9	11	16	74	35	32	28	37	20	3.5	2.0	1.4
24	1.9	10	16	51	83	28	23	35	18	3.5	3.4	1.4
25	1.8	9.0	16	39	87	22	20	34	16	3	2.3	1.8
26	1.7	11	14	32	68	20	19	35	15	3	2.0	3.6
27	1.7	54	12	26	48	20	19	38	14	3	1.9	2.5
28	2.7	43	12	22	39	18	17	38	15	3	1.9	1.8
29	3.4	29	12	20	-	17	16	35	16	3	1.8	1.6
30	2.7	26	11	19	-	17	16	34	16	2.5	1.8	1.6
31	2.3	-	10	18	-	17	-	36	-	2.5	1.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	73.0	4.6	1.2	2.35	1.14	1.32	145
November	281.6	54	1.8	9.39	4.56	5.08	559
December	328.7	20	6.6	10.6	5.15	5.93	652
Calendar year 1949	4,258.7	96	1.0	11.7	5.68	76.88	8,450
January	618.3	104	4.5	19.9	9.66	11.16	1,230
February	1,002	87	14	35.8	17.4	18.09	1,990
March	960	62	13	31.0	15.0	17.33	1,900
April	639	32	15	21.3	10.3	11.54	1,270
May	886	47	13	28.6	13.9	16.00	1,760
June	853	47	14	28.4	13.8	15.40	1,690
July	168.7	14	2.5	5.44	2.64	3.05	335
August	64.7	3.4	1.8	2.09	1.01	1.17	128
September	50.8	3.6	1.4	1.69	.820	.92	101
Water year 1949-50	5,925.8	104	1.2	16.2	7.86	106.99	11,760

Peak discharge (base, 75 sec.-ft.)--Jan. 22 (9 a.m.) 109 sec.-ft.; Feb. 25 (2 a.m.) 102 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

h Computed from staff-gage reading.

Note.--No gage-height record Apr. 9-12, June 22 to July 6, July 8-11, July 12-18, July 20 to Aug. 1; discharge computed on basis of records for Mann Creek near McKenzie Bridge and stations on Blue River.

WILLAMETTE RIVER BASIN

Lookout Creek near Blue River, Oreg.

Location.--Water-stage recorder, lat. 44°13', long. 122°15', in SE 1/4 sec. 31, T. 15 S., R. 5 E., 0.4 mile upstream from mouth and 6 miles northeast of Blue River post office.

Drainage area.--24.1 square miles.

Records available.--August 1949 to September 1950.

Extremes.--Maximum discharge during year, 1,980 second-feet Feb. 24 (gage height, 5.98 feet), from rating curve extended above 450 second-feet by logarithmic plotting; minimum, 11 second-feet Oct. 1-4.
1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, 11 second-feet Sept. 26-29, Oct. 1-4, 1949.

Remarks.--Records good. No regulation or diversion.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Backwater from debris Nov. 27)

1.9	10	2.7	74	4.5	700
2.0	12	3.0	125	5.0	1,030
2.1	16	3.3	192	5.6	1,550
2.3	28	3.6	280		
2.5	46	3.9	396		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	20	202	111	102	298	326	187	298	105	23	15
2	11	19	192	102	95	295	410	192	294	95	23	15
3	11	18	155	90	90	637	345	182	287	88	22	15
4	14	18	133	85	90	620	284	175	290	82	21	14
5	56	16	146	77	105	525	251	187	267	74	21	14
6	61	16	136	76	127	442	248	178	218	68	21	14
7	40	16	118	79	129	342	227	164	197	64	20	14
8	27	21	104	71	127	280	208	150	173	59	20	14
9	56	32	95	70	136	224	195	144	175	55	20	13
10	68	32	84	71	136	200	175	157	218	52	20	13
11	77	78	74	67	133	170	168	213	321	48	19	13
12	58	71	70	64	131	153	200	334	461	46	19	13
13	41	49	71	60	192	142	261	428	342	44	18	12
14	32	39	76	63	298	129	248	419	261	41	18	12
15	27	33	79	58	545	121	239	366	218	39	18	12
16	24	29	90	56	565	255	251	334	221	38	18	12
17	22	27	111	53	505	911	280	319	218	36	18	15
18	21	25	125	60	374	682	274	267	200	35	17	13
19	20	23	98	112	315	718	274	224	197	34	16	12
20	19	22	82	193	274	515	338	218	190	32	16	12
21	19	21	74	700	230	392	353	251	173	31	16	12
22	18	22	85	1,050	202	410	326	308	153	30	16	12
23	18	169	187	688	325	342	277	308	142	29	19	12
24	16	146	236	442	1,500	280	230	280	136	27	41	12
25	16	114	180	301	1,260	239	200	274	121	27	21	14
26	16	156	157	236	742	221	180	304	116	26	18	38
27	16	796	138	202	530	224	187	326	114	26	18	22
28	32	550	136	164	383	197	190	280	116	27	16	16
29	35	308	136	142	-	170	178	242	120	26	16	14
30	26	287	125	127	-	161	168	242	114	25	16	14
31	22	-	120	112	-	168	-	261	-	24	15	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	930	77	11	30.0	1.24	1.44	1,840
November	3,173	796	16	106	4.40	4.90	6,290
December	3,815	236	70	123	5.10	5.89	7,570
Calendar year	-	-	-	-	-	-	-
January	5,782	1,050	53	187	7.76	8.92	11,470
February	9,641	1,500	90	344	14.3	14.88	19,120
March	10,463	911	121	338	14.0	16.15	20,750
April	7,491	410	168	250	10.4	11.56	14,860
May	7,914	428	144	255	10.6	12.21	15,700
June	6,351	461	114	212	8.80	9.80	12,600
July	1,433	105	24	46.2	1.92	2.21	2,840
August	600	41	15	19.4	.805	.93	1,190
September	433	38	12	14.4	.598	.67	859
Water year 1949-50	58,026	1,500	11	159	6.60	89.56	115,100

Peak discharge (base, 800 sec.-ft.).--Nov. 27 (12:30 p.m.) 1,180 sec.-ft.; Jan. 22 (6 a.m.) 1,170 sec.-ft.; Feb. 24 (1 p.m.) 1,980 sec.-ft.; Mar. 17 (9 a.m.) 1,090 sec.-ft.

Mohawk River near Springfield, Oreg.

Location.--Wire-weight gage, lat. 44°06', long. 122°57', in sec. 17, T. 17 S., R. 2 W., 1 mile upstream from mouth and 4½ miles northeast of Springfield.

Drainage area.--180 square miles.

Records available.--September 1935 to September 1950.

Average discharge.--15 years, 526 second-feet.

Extremes.--Maximum discharge during year, 6,840 second-feet Jan. 22 (gage height, 18.69 feet, observed at peak); minimum observed, 17 second-feet Sept. 23.
1935-50: Maximum discharge, 8,600 second-feet Dec. 28, 1945 (gage height, 22.1 feet, from floodmark); minimum observed, 11 second-feet Sept. 17, 1938.

Remarks.--Records good except those for periods of shifting control, which are fair. Gage read once daily during low-water periods, two or more times daily at other times. No diversion above station; some regulation at low flow caused by log ponds.

Rating table, water year 1949-50, except periods of shifting control
(gage height, in feet, and discharge, in second-feet)

0.9	16	1.5	77	5.0	950
1.0	23	1.7	108	7.0	1,570
1.1	31	2.0	187	10.0	2,720
1.2	41	3.0	410	14.0	4,550
1.3	52	4.0	660	18.0	6,490

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	43	555	752	797	1,600	1,050	448	230	92	42	26
2	26	41	618	675	685	1,380	1,170	510	242	88	39	29
3	25	41	455	562	655	1,720	1,040	492	199	84	38	26
4	29	40	382	520	680	1,730	884	560	230	80	38	25
5	126	39	665	462	929	1,700	806	610	228	78	39	25
6	106	39	670	522	1,620	1,790	806	605	161	74	39	29
7	108	39	505	1,090	1,570	1,450	708	550	173	70	35	25
8	63	43	405	1,020	1,780	1,260	665	502	126	72	32	24
9	53	95	385	878	2,110	1,150	595	460	103	76	31	24
10	110	142	330	1,760	1,820	1,120	530	432	112	74	33	24
11	130	173	288	1,570	1,840	1,020	500	440	242	72	31	29
12	83	156	275	1,080	1,710	890	662	472	830	70	31	25
13	64	106	390	1,000	1,970	812	890	535	680	65	28	24
14	57	84	355	1,030	2,680	770	920	540	390	63	27	25
15	50	74	322	797	3,120	695	830	478	268	60	25	25
16	46	68	570	734	3,200	809	740	450	250	58	28	22
17	44	63	842	620	2,900	2,600	698	428	315	57	25	22
18	43	59	1,700	552	2,340	2,600	660	360	248	54	25	22
19	41	57	1,150	980	2,020	2,700	615	298	215	53	22	22
20	40	54	776	1,550	1,760	2,110	642	260	206	54	22	23
21	41	52	630	4,460	1,490	1,680	628	258	186	51	23	22
22	40	51	560	6,380	1,310	1,880	580	315	163	49	24	20
23	38	500	630	5,190	1,360	1,700	495	325	163	45	42	17
24	38	318	1,130	3,640	2,920	1,540	438	260	154	43	100	19
25	38	218	908	2,580	4,790	1,320	395	238	140	40	52	35
26	38	199	986	2,060	3,480	1,310	372	238	126	40	39	60
27	38	1,260	830	2,430	2,600	1,520	402	335	119	40	33	58
28	52	1,290	708	1,740	1,970	1,410	350	268	113	53	29	37
29	78	650	700	1,350	-	1,230	312	190	103	53	29	32
30	53	618	675	1,140	-	1,090	308	173	97	45	29	31
31	46	-	734	914	-	977	-	182	-	43	29	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,772	130	25	57.2	0.318	0.37	3,510
November	6,802	1,280	39	227	1.26	1.41	13,490
December	20,139	1,700	275	650	3.61	4.16	39,950
Calendar year 1949	163,778	7,690	18	449	2.49	33.84	324,900
January	50,038	6,380	462	1,614	8.97	10.34	99,250
February	56,102	4,790	655	2,004	11.1	11.59	111,300
March	45,563	2,700	695	1,470	8.17	9.41	90,370
April	19,691	1,170	308	656	3.64	4.07	39,060
May	12,202	610	173	394	2.19	2.52	24,200
June	6,812	830	97	227	1.26	1.41	13,510
July	1,896	92	40	61.2	.340	.39	3,760
August	1,059	100	22	34.2	.190	.22	2,100
September	827	60	17	27.6	.153	.17	1,640
Water year 1949-50	222,907	6,380	17	611	3.39	46.06	442,100

Peak discharge (base, 2,700 sec.-ft.)--Jan. 22 (7 a.m.) 6,840 sec.-ft.; Feb. 16 (4:30 p.m.) 3,330 sec.-ft.; Feb. 25 (7:30 a.m.) 5,300 sec.-ft.; Mar. 17 (5:30 p.m.) 3,400 sec.-ft.

Note.--Shifting-control method used Apr. 25-30, May 18 to June 11.

WILLAMETTE RIVER BASIN

Long Tom River near Noti, Oreg.

Location.--Water-stage recorder, lat. 44°03, long. 123°26', in sec. 33, T. 17 S., R. 6 W., an eighth of a mile upstream from railroad bridge, 1 mile downstream from Noti Creek, and $\frac{1}{2}$ miles southeast of Noti. Datum of gage is 388.76 feet above mean sea level (levels by U. S. Weather Bureau).

Drainage area.--88 square miles.

Records available.--October 1935 to September 1950.

Average discharge.--15 years, 228 second-feet.

Extremes.--Maximum discharge during year, 2,720 second-feet Jan. 22 (gage height, 16.22 feet); minimum, 10 second-feet Sept. 7 (gage height, 0.55 foot).
1935-50: Maximum discharge, 4,930 second-feet Feb. 18, 1949; minimum observed, 7 second-feet Sept. 25-27, 1939.

Remarks.--Records good except those for periods of doubtful gage-height record, which are fair. No diversion above station. Slight diurnal fluctuation caused by log pond above Noti.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

0.6	12	2.3	151	9.5	1,020
.7	16	3.0	228	11.0	1,240
.9	26	4.0	345	13.0	1,610
1.1	39	5.0	465	15.0	2,190
1.4	62	6.5	645	16.0	2,610
1.8	99	8.0	830		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	20	215	452	515	715	d490	166	68	40	20	12
2	16	20	219	389	459	634	d450	181	66	38	21	12
3	16	20	195	313	423	697	d420	172	64	36	19	12
4	16	20	162	283	409	713	d390	155	61	34	17	12
5	24	20	203	257	404	650	d370	160	60	34	19	12
6	32	20	254	343	573	640	d350	160	58	33	20	12
7	38	20	222	994	933	571	d330	155	61	31	20	12
8	30	20	168	862	1,220	517	d310	148	60	32	19	12
9	24	60	162	662	1,550	d550	d300	141	57	32	19	12
10	27	125	163	1,240	1,230	d570	d280	136	55	31	19	12
11	29	106	138	1,460	1,180	d580	d260	130	56	28	18	13
12	27	148	121	924	1,170	d540	261	124	76	24	17	13
13	22	72	118	741	1,140	496	d290	119	66	24	17	13
14	20	46	114	787	1,400	465	d300	116	62	24	16	13
15	20	38	110	601	1,490	431	d280	111	60	27	16	13
16	20	33	174	532	1,490	d470	d260	109	59	25	16	13
17	20	31	351	455	1,490	d920	d250	103	56	25	15	13
18	19	30	740	401	1,200	1,280	231	98	56	27	15	13
19	19	28	667	385	976	d1,100	220	99	54	26	14	13
20	19	27	429	567	850	d900	212	99	52	25	14	14
21	20	26	316	1,460	741	d750	200	97	52	23	13	13
22	20	27	257	2,570	667	d840	192	95	51	22	12	13
23	20	131	279	2,360	d650	d860	188	94	51	22	14	13
24	20	237	496	1,800	d720	d880	180	88	55	21	26	13
25	20	128	448	1,200	d1,600	814	171	84	54	20	25	27
26	20	119	417	d1,050	1,570	d730	165	82	52	18	19	25
27	20	632	361	d1,500	1,100	740	164	79	48	20	18	22
28	20	538	315	1,230	853	740	161	78	47	22	16	19
29	27	313	309	888	-	d660	152	77	45	24	15	16
30	24	295	338	719	-	d600	148	76	42	23	13	16
31	21	-	398	593	-	d540	-	71	-	20	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches Acre-feet
October	687	38	16	22.2	0.252	0.29 1,360
November	3,350	632	20	112	1.27	1.42 6,640
December	8,859	740	110	286	3.25	3.74 17,570
Calendar year 1949	76,074	4,440	14	208	2.36	32.16 150,900
January	28,018	2,570	257	904	10.3	11.84 55,570
February	28,003	1,600	404	1,000	11.4	11.83 55,540
March	21,594	1,280	431	697	7.92	9.13 42,830
April	7,975	490	148	266	3.02	3.37 15,820
May	3,603	181	71	116	1.32	1.52 7,150
June	1,704	76	42	56.8	.645	.72 3,380
July	831	40	18	26.8	.305	.35 1,650
August	534	26	12	17.2	.195	.23 1,060
September	428	27	14	14.3	.162	.18 849
Water year 1949-50	105,586	2,570	12	289	3.28	44.62 209,400

Peak discharge (base, 1,300 sec.-ft.),--Jan. 11 (1 a.m.) 1,760 sec.-ft.; Jan. 22 (4 p.m.) 2,720 sec.-ft.; Jan. 27 (about 4 p.m.) about 1,700 sec.-ft.; Feb. 9 (9 a.m.) 1,660 sec.-ft.; Feb. 17 (7 a.m.) 1,570 sec.-ft.; Feb. 25 (3:30 p.m.) 2,260 sec.-ft.; Mar. 18 (10 a.m.) 1,330 sec.-ft.
 d Doubtful gage-height record because of sluggish intake action; discharge computed on basis of appearance of recorder chart, occasional readings of outside gage by observer and engineers, and records for Coyote Creek near Crow.

Fern Ridge Reservoir near Elmira, Oreg.

Location.--Water-stage recorder, lat. 44°07'18", long. 123°17'56", 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. Datum of gage is at mean sea level (levels by Corps of Engineers).

Drainage area.--252 square miles.

Records available.--October 1941 to September 1950.

Extremes.--Maximum contents during year, 99,090 acre-feet June 16 (elevation, 373.27 feet); minimum, 6,450 acre-feet Nov. 7, 8 (elevation, 352.63 feet).
1941-50: Maximum contents, 105,400 acre-feet Jan. 1, 1943 (elevation, 373.74 feet); minimum since first filling in 1942, 3,220 acre-feet Nov. 29, Dec. 11, 12, 17, 1943, Jan. 12, 1944 (elevation, 349.95 feet).

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-feet between elevations 340 feet (sill of outlet gate) and 373.5 feet (maximum operating pool level); dead storage, 23 acre-feet below elevation 340 feet. 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.

Cooperation.--Water-stage recorder inspected by employees of Corps of Engineers.

Contents, in acre-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36,400	6,610	7,040	7,510	52,640	37,790	71,840	93,920	98,360	98,360	92,420	86,470
2	35,680	6,590	7,190	7,300	45,870	40,200	72,940	94,370	98,260	98,260	92,150	86,390
3	30,900	6,580	7,150	7,120	38,750	41,950	73,980	95,000	98,360	98,080	91,800	86,140
4	28,340	6,540	7,180	6,930	31,740	41,830	75,420	95,360	98,170	97,900	91,630	85,630
5	25,590	6,520	7,270	7,670	25,620	42,730	76,480	95,720	98,080	97,810	91,540	85,550
6	23,180	6,480	7,540	10,000	22,130	42,930	77,720	96,170	98,360	97,620	91,280	85,300
7	20,300	6,460	7,730	13,820	21,030	43,930	78,660	96,530	98,450	97,350	91,100	85,220
8	17,670	6,520	7,720	16,060	21,230	45,400	79,450	96,900	98,450	97,170	91,020	85,050
9	15,150	7,010	7,670	14,960	22,040	47,030	80,400	97,080	98,450	96,900	90,670	84,800
10	12,720	7,350	7,420	18,640	20,970	48,420	81,120	97,350	98,540	96,800	90,490	84,720
11	10,390	7,190	7,120	23,120	19,760	49,740	81,770	97,720	98,720	96,530	90,320	84,550
12	7,970	6,840	7,000	23,460	19,860	50,750	82,660	97,900	98,820	96,530	90,150	84,470
13	6,960	6,930	6,940	22,930	20,790	51,720	84,060	98,080	98,820	96,170	89,890	83,320
14	6,970	7,010	6,930	22,040	21,260	52,700	85,300	98,170	98,820	95,990	89,710	81,930
15	6,960	7,100	7,060	20,240	21,320	53,460	86,140	98,260	98,910	95,630	89,200	80,480
16	6,940	7,130	7,390	17,590	21,200	54,950	87,060	98,260	99,000	95,540	89,370	78,970
17	6,910	7,150	8,080	14,120	20,970	57,760	87,490	98,450	98,910	95,270	89,020	77,570
18	6,870	7,150	8,740	10,370	20,680	60,810	88,340	98,450	99,000	95,090	88,850	76,100
19	6,840	7,150	8,100	7,670	20,990	61,460	89,020	98,540	98,910	94,820	88,680	74,810
20	6,790	7,150	7,320	7,760	21,580	60,160	89,280	98,630	98,820	94,750	88,420	73,390
21	6,770	7,150	6,930	15,980	21,560	60,100	89,890	98,720	98,820	94,640	88,250	71,980
22	6,740	7,280	6,750	33,060	22,990	61,390	90,320	98,540	98,720	94,370	88,080	70,310
23	6,720	7,090	7,450	46,600	25,420	62,710	90,490	98,720	98,910	94,190	88,170	68,880
24	6,690	6,780	8,060	56,460	29,220	64,180	91,020	98,630	98,910	94,010	88,000	67,750
25	6,660	7,190	7,890	60,350	32,120	65,810	91,450	98,720	98,910	93,840	87,910	66,570
26	6,650	7,780	7,350	61,130	33,620	67,120	91,890	98,720	98,820	93,570	87,740	65,280
27	6,650	8,450	7,100	68,390	33,580	68,250	92,330	98,720	98,820	93,480	87,320	63,840
28	6,680	8,540	7,130	71,400	34,970	68,530	92,680	98,820	98,720	93,300	87,230	62,580
29	6,650	7,900	7,180	69,740	-	68,810	92,950	98,630	98,630	92,950	86,980	61,200
30	6,650	7,210	7,070	64,990	-	69,590	93,390	98,630	98,540	92,600	86,810	59,910
31	6,640	-	7,250	58,820	-	71,040	-	98,450	-	92,510	86,640	-

Monthly elevation and contents, water year October 1949 to September 1950

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30.....	364.49	39,090	-
Oct. 31.....	352.76	6,640	-32,450
Nov. 30.....	353.15	7,210	+570
Dec. 31.....	353.18	7,250	+40
Calendar year 1949.....	-	-	-1,270
Jan. 31.....	368.07	58,820	+51,570
Feb. 28.....	363.48	34,970	-23,850
Mar. 31.....	369.87	71,040	+36,070
Apr. 30.....	372.64	93,390	+22,350
May 31.....	373.20	98,450	+5,060
June 30.....	373.21	98,540	+90
July 31.....	372.54	92,510	-6,030
Aug. 31.....	371.86	86,640	-5,870
Sept. 30.....	368.24	59,910	-26,730
Water year 1949-50.....	-	-	+20,820

† Elevation at 12 p.m.

Long Tom River below Fern Ridge Dam, near Smithfield, Oreg.

Location.--Water-stage recorder and masonry control, lat. 44°07'25", long. 123°18'00", in NW 1/4 Sec. 4, T. 17 S., R. 5 W., in canalized river channel 1,000 feet downstream from Fern Ridge Dam, which impounds runoff of Long Tom River and Coyote Creek, and 2 1/2 miles south of Smithfield. Datum of gage is 332.00 feet above mean sea level, datum of 1929 (surveys by Corps of Engineers).

Drainage area.--252 square miles.

Records available.--October 1943 to September 1950. August 1939 to September 1943 at site 2 1/2 miles downstream, below Coyote Creek.

Average discharge.--11 years, 498 second-feet (adjusted for diversion to Coyote Creek since 1943).

Extremes (not including diversion to Coyote Creek).--Maximum discharge during year, 4,500 second-feet Feb. 1 (gage height, 7.33 feet). From rating curve extended above 1,400 second-feet on basis of shape of former curve which was well defined to 3,000 second-feet; minimum daily, 21 second-feet Jan. 6.

1943-50: Maximum discharge, that of Feb. 1, 1950; no flow part of June 11, 12, 1944. Remarks.--Records of flow in river channel excellent except those for periods of no gage-height record, which are fair; records of diversion to Coyote Creek poor. A few small diversions above station; several second-feet diverted around station to Coyote Creek channel through 24-inch concrete pipe 600 feet long, several hundred feet upstream, record of which is based on daily staff-gage readings and occasional measurements. Fern Ridge Dam, 1,000 feet above station, was completed in 1941, and has regulated flow since Nov. 13, 1941 (see preceding page).

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting control method used Aug. 8 to Sept. 30)

1.4	13	1.8	65	2.7	360	4.5	1,560
1.5	22	2.0	109	3.0	510	5.5	2,470
1.6	34	2.2	166	3.5	800	6.5	3,520
1.7	48	2.4	235	4.0	1,160	7.2	4,340

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,400	33	495	794	4,080	33	400	36	35	35	40	42
2	1,390	33	338	933	3,980	168	347	36	35	35	41	42
3	1,380	33	338	a740	4,140	410	72	36	37	35	41	44
4	1,370	33	329	650	4,170	721	32	36	37	35	41	42
5	1,370	33	334	287	4,160	1,110	40	36	37	35	41	42
6	1,340	33	338	21	3,790	913	40	36	37	35	40	42
7	1,350	33	342	648	2,950	429	36	36	37	35	40	42
8	1,310	32	342	1,660	3,260	270	36	36	37	37	42	42
9	1,260	33	342	2,760	3,310	266	36	36	37	37	44	42
10	1,220	33	405	2,340	3,650	395	36	36	37	37	45	42
11	1,150	294	380	2,410	3,260	475	36	36	37	41	45	42
12	1,090	304	262	2,710	2,370	480	37	36	35	41	45	42
13	446	100	221	2,770	2,030	405	36	36	35	41	44	402
14	24	34	196	2,770	2,220	365	36	36	35	41	44	626
15	30	33	192	2,730	2,620	350	40	36	35	41	44	626
16	30	33	278	2,740	2,930	470	40	36	35	41	44	626
17	30	33	582	2,780	2,780	1,020	36	37	35	41	44	626
18	30	34	1,450	2,620	2,320	1,620	36	37	35	41	44	620
19	29	34	1,880	2,040	1,670	2,200	37	37	35	40	44	620
20	29	34	1,680	1,510	1,240	2,490	37	37	35	38	44	614
21	29	34	989	a1,050	1,160	1,610	37	37	35	38	45	614
22	30	34	656	139	516	1,380	37	37	35	37	45	609
23	30	592	432	279	239	1,360	37	37	35	36	45	609
24	30	406	590	22	540	1,140	36	37	35	38	45	614
25	30	102	968	a1,150	1,640	996	36	37	35	40	45	609
26	32	102	1,020	2,650	2,530	996	36	37	35	53	44	609
27	32	417	786	1,900	2,250	1,140	36	37	35	42	44	609
28	32	776	548	2,540	1,040	1,220	40	37	35	41	44	604
29	32	975	638	3,190	-	1,230	36	37	35	41	44	604
30	32	816	728	3,970	-	708	36	37	35	41	44	598
31	32	-	728	4,500	-	405	-	37	-	41	44	-

Month	Observed				Diversion to Coyote Creek Channel acre-feet	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
October.....	1,400	24	536	32,960	294	33,250	541	-	-
November.....	975	32	184	10,940	119	11,080	166	-	-
December.....	1,680	192	607	37,300	369	37,690	613	-	-
Calendar year 1949	3,510	8	441	319,400	3,304	322,700	446	1.77	24.02
January.....	4,500	21	1,640	113,200	478	113,700	1,848	-	-
February.....	4,170	239	2,530	140,500	230	140,700	2,554	-	-
March.....	2,490	33	871	53,540	227	53,770	874	-	-
April.....	400	32	61.4	3,660	12	3,670	61.6	-	-
May.....	38	37	37.5	2,310	153	2,460	40.0	-	-
June.....	37	35	35.6	2,120	256	2,380	39.9	-	-
July.....	53	35	39.1	2,400	266	2,690	43.7	-	-
August.....	45	40	43.4	2,670	397	3,070	49.9	-	-
September.....	626	42	378	22,500	621	23,120	389	-	-
Water year 1949-50	4,500	21	586	424,100	3,464	427,600	591	2.35	31.81

a No gage-height record; discharge computed on basis of dam tender's log of operations.

Long Tom River at Monroe, Oreg.

Location.--Water-stage recorder and concrete control, lat. 44°18'50", long. 123°17'45", in NE1/4 sec. 33, T. 14 S., R. 5 W., in canalized river channel at Monroe, 800 feet upstream from a concrete drop structure and just downstream from Shafer Creek. Datum of gage is 270.00 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.--391 square miles.

Records available.--November 1920 to September 1950 (1925-27 incomplete).

Average discharge.--27 years (1921-25, 1927-50), 724 second-feet.

Extremes.--Maximum discharge during year, 6,530 second-feet Jan. 10 (gage height, 8.72 feet); minimum, 36 second-feet Oct. 18, 19 (gage height, 4.19 feet).

1920-50: Maximum discharge, 19,300 second-feet Jan. 2, 1943 (gage height, 17.14 feet, 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 second-feet Sept. 29, Oct. 1, 1939.

Remarks.--Records excellent except those below 100 second-feet, which are good and those for period of no gage-height record, which are fair. A few small diversions above stations. Flow regulated by Fern Ridge Reservoir beginning Nov. 13, 1941 (see p.145). 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.--W 654: Drainage area.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

4.2	38	5.0	450	7.0	2,820
4.3	72	5.3	700	7.5	3,560
4.4	110	5.6	1,000	8.0	4,710
4.5	155	6.0	1,460	8.6	6,200
4.7	260	6.5	2,100		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,390	41	720	1,280	4,800	610	790	124	64	54	47	54
2	1,380	41	522	1,400	4,500	562	760	128	64	54	47	54
3	1,350	41	474	1,140	4,600	1,150	470	142	64	54	47	54
4	1,350	41	443	930	4,700	1,190	290	137	64	54	47	54
5	1,380	41	530	770	4,800	1,630	278	146	60	51	47	51
6	1,340	41	578	592	5,560	1,540	272	142	64	51	47	51
7	1,350	41	538	2,180	5,810	970	260	132	68	51	47	51
8	1,330	44	490	3,340	6,070	673	249	124	68	54	51	51
9	1,280	54	466	4,250	5,460	779	232	114	66	54	54	51
10	1,220	76	522	5,730	5,110	990	205	106	64	54	54	51
11	1,180	191	562	5,230	4,820	1,070	190	102	68	54	54	51
12	1,110	401	380	4,300	3,740	950	200	95	68	57	54	51
13	771	200	344	4,030	3,310	840	232	95	68	57	54	209
14	68	60	290	4,180	3,520	770	332	95	64	57	54	637
15	41	51	290	4,010	3,970	664	332	87	64	57	54	646
16	41	51	380	3,740	4,570	975	227	87	64	57	54	646
17	41	47	840	3,550	4,260	2,660	195	87	60	57	54	637
18	36	47	2,100	3,280	3,410	3,080	175	87	60	57	54	637
19	36	44	2,760	2,920	2,670	3,340	165	80	57	54	54	637
20	36	47	2,490	2,550	1,690	3,530	150	80	57	54	54	628
21	38	47	1,480	5,050	1,780	2,980	146	80	57	51	54	628
22	38	51	970	5,530	1,150	2,600	142	83	57	47	54	637
23	38	363	810	3,280	800	2,550	137	76	60	44	57	637
24	38	756	1,030	2,060	1,640	2,340	128	76	60	44	57	637
25	38	180	1,450	1,800	3,610	1,900	119	72	60	44	57	637
26	41	175	1,510	4,260	4,160	1,790	119	72	60	51	54	637
27	41	549	1,290	4,990	3,450	1,920	119	68	60	54	54	628
28	41	1,010	860	5,200	2,140	2,010	114	68	60	51	54	628
29	41	1,210	900	4,390	-	1,890	114	68	57	51	54	619
30	41	1,180	1,110	4,870	-	1,440	114	68	57	47	54	619
31	41	-	1,270	4,960	-	830	-	64	-	47	54	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	17,172	1,390	38	554	-	-	34,060
November	7,141	1,210	41	238	-	-	14,180
December	26,599	2,760	290	916	-	-	56,530
Calendar year 1949	241,462	6,340	14	662	1.69	22.97	478,900
January	105,802	5,730	592	3,413	-	-	209,900
February	106,300	6,070	800	3,796	-	-	210,800
March	50,214	3,530	582	1,620	-	-	99,600
April	7,256	790	114	242	-	-	14,390
May	2,985	146	64	96.3	-	-	5,920
June	1,666	68	57	62.2	-	-	3,700
July	1,823	67	44	52.4	-	-	3,220
August	1,631	57	47	52.6	-	-	3,240
September	11,608	646	51	387	-	-	23,020
Water year 1949-50	341,997	6,070	38	937	2.40	32.53	678,300

a No gage-height record; discharge computed on basis of weather records and records for station below Fern Ridge Dam.

WILLAMETTE RIVER BASIN

Coyote Creek near Crow, Oreg.

Location.--Water-stage recorder and concrete control, lat. 44°01'19", long. 123°15'17", in NE $\frac{1}{4}$ sec. 11, T. 18 S., R. 5 W., just upstream from backwater of Fern Ridge Reservoir, 1 mile downstream from Spencer Creek, and 5 miles northeast of Crow. Datum of gage is 374.0 feet above mean sea level (Corps of Engineers bench mark).

Drainage area.--94 square miles.

Records available.--June 1940 to September 1950.

Average discharge.--10 years, 168 second-feet.

Extremes.--Maximum discharge during year, 4,380 second-feet Jan. 22 (gage height, 12.58 feet); minimum, 0.1 second-foot Aug. 10, Sept. 12-14.

1940-50: Maximum discharge, 9,260 second-feet Dec. 28, 1945 (gage height, 14.13 feet), from rating curve extended above 4,700 second-feet; no flow at times in August and September 1940.

Remarks.--Records good except those for periods of ice effect or doubtful gage-height record, which are fair.

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from debris Oct. 6, 7, Oct. 25 to Nov. 18)

0.2	0.1	0.7	10	2.4	95	7.0	430	10.0	1,210
.3	.4	.9	24	3.0	131	8.0	557	10.5	1,550
.4	1.3	1.1	35	4.0	195	8.5	647	11.0	1,980
.5	2.7	1.3	44	5.0	260	9.0	785	11.5	2,520
.6	5.0	1.8	65	6.0	335	9.5	970	12.2	3,570

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	3.5	119	282	b250	288	214	55	14	7.1	2.1	0.8
2	1.4	3.5	104	275	b190	257	191	64	12	5.5	2.2	.8
3	1.4	3.5	91	212	*b170	252	170	64	14	6.0	1.9	.4
4	1.5	3.3	76	184	b200	215	146	69	12	5.5	1.6	.4
5	1.9	3.3	113	174	b300	210	133	70	11	5.0	1.4	.3
6	2.2	3.3	172	214	785	210	125	65	10	5.0	1.5	.3
7	4.4	3.5	147	980	1,160	181	117	58	14	5.0	1.4	.2
8	5.5	3.7	104	1,230	1,340	176	111	53	16	4.5	1.3	.2
9	4.5	7.6	86	1,080	1,520	228	98	49	16	4.2	2.2	.2
10	3.3	27	96	1,840	1,140	273	88	45	16	3.7	1.3	.2
11	3.1	27	88	1,960	1,030	300	80	43	16	3.7	1.6	.2
12	2.7	28	74	1,160	890	269	86	40	19	3.7	1.9	.1
13	2.9	23	66	906	767	238	190	36	21	3.7	.9	.1
14	2.9	14	61	1,120	788	221	220	32	19	3.7	1.6	.1
15	2.7	8.1	57	764	725	190	165	30	17	3.3	1.6	.2
16	2.5	7.8	100	566	740	209	140	27	18	2.7	dl.4	.2
17	2.2	5.0	246	423	759	765	119	26	16	2.5	dl.2	.2
18	2.5	5.0	753	531	510	1,110	101	25	14	2.7	4.9	.2
19	2.2	4.5	802	275	390	984	91	25	12	2.2	.7	.2
20	1.9	4.5	496	462	305	657	82	24	12	1.9	.7	.3
21	1.9	4.2	*270	1,840	248	492	74	23	12	1.8	.5	.4
22	2.1	4.5	193	3,570	214	654	70	21	13	1.8	.7	.4
23	2.4	20	174	2,410	237	627	66	20	13	1.9	1.0	.4
24	2.5	72	252	1,740	361	671	60	20	14	2.1	1.3	.4
25	2.5	54	230	1,100	954	566	57	19	16	1.5	dl.3	.4
26	2.5	40	216	880	942	470	54	18	16	.9	d.9	.6
27	2.5	86	183	2,500	591	456	56	18	12	.9	.9	.7
28	2.5	182	157	1,650	402	413	53	17	9.2	1.0	1.0	.8
29	2.9	122	162	1,020	-	353	48	17	8.1	1.2	1.2	1.5
30	3.5	131	217	569	-	291	46	17	7.6	1.5	1.0	1.9
31	4.0	-	237	b400	-	243	-	16	-	1.9	.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-foot
October	82.5	5.5	1.4	2.66	0.028	0.03	164
November	904.6	182	3.3	30.2	.321	.36	1,790
December	6,142	802	57	198	2.11	2.43	12,180
Calendar year 1949	53,586.4	4,940	.3	147	1.56	21.22	106,300
January	32,077	3,570	174	1,035	11.01	12.69	63,620
February	17,808	1,520	170	636	6.77	7.05	35,320
March	12,479	1,110	176	403	4.29	4.94	24,750
April	3,251	220	46	108	1.15	1.29	6,450
May	1,107	70	16	35.7	.380	.44	2,200
June	419.9	21	7.6	14.0	.149	.17	833
July	98.1	7.1	.9	3.16	.054	.04	195
August	40.0	2.2	.5	1.29	.014	.02	79
September	13.1	1.9	.1	.44	.0047	.005	26
Water year 1949-50	74,422.2	3,570	.1	204	2.17	29.46	147,600

Peak discharge (base, 1,600 sec.-ft.).--Jan. 10 (7 p.m.), 2,560 sec.-ft.; Jan. 22 (7 a.m.), 4,380 sec.-ft.; Jan. 27 (2:30 p.m.), 2,920 sec.-ft.; Feb. 8 (10 p.m.), 1,680 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed on basis of appearance of recorder graph and records for Long Tom River near Notl.

Marys River near Philomath, Oreg.

Location.--Wire-weight gage, lat. 44°31'35", long. 123°20'00", in SW $\frac{1}{4}$ sec. 18, T. 12 S., R. 5 W., at bridge 2 miles upstream from Muddy Creek and 2 miles southeast of Philomath.

Drainage area.--155 square miles (including drainage area of Evergreen Creek above road crossing $1\frac{1}{2}$ miles south of station).

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 429 second-feet.

Extremes.--Maximum discharge during year, 5,090 second-feet Jan. 7 (gage height, 19.6 feet, from graph based on gage readings); minimum observed, 6 second-feet Aug. 23, Sept. 9, 13, 22-24.

1940-50: Maximum discharge, 8,250 second-feet Dec. 15, 1946 (gage height, 20.67 feet, from floodmark); minimum observed, 6 second-feet Sept. 12, 13, 1944, Aug. 23, Sept. 9, 13, 22-24, 1950.

Remarks.--Records good. Records include flow of Evergreen Creek at road crossing $1\frac{1}{2}$ miles south, with which overflow from Marys River may at times be mingled. Gage read twice daily Oct. 6 to May 31; once daily Oct. 1-5, June 1 to Sept. 30. City of Corvallis diverts municipal supply from headwaters; other small diversions above station for irrigation. No regulation.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used July 2 to Sept. 30)

3.1	5	4.0	89	15.0	2,500
3.2	9	4.5	156	17.0	3,200
3.3	15	5.5	305	18.0	3,670
3.4	23	7.0	560	19.0	4,380
3.5	32	9.0	970	19.5	4,690
3.7	55	13.0	1,950		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	25	431	1,520	764	1,230	998	230	90	44	19	9
2	12	23	502	1,190	642	1,040	907	216	90	42	19	8
3	a12	21	422	886	636	1,130	854	228	87	39	19	10
4	13	21	348	787	650	1,030	764	215	83	37	17	10
5	16	20	515	654	773	1,100	708	245	79	37	16	10
6	29	20	560	1,570	1,320	1,080	640	251	78	34	16	9
7	59	20	434	3,960	1,950	941	592	240	88	33	14	9
8	54	20	348	2,680	3,360	861	558	227	87	30	15	7
9	28	45	305	1,850	3,140	907	495	214	85	30	14	6
10	58	82	305	3,570	2,460	936	450	206	82	31	14	7
11	71	164	257	2,890	2,260	869	419	198	90	32	11	7
12	55	242	228	1,940	2,240	787	455	188	84	29	12	7
13	42	150	239	1,540	2,630	730	422	184	82	28	12	6
14	32	94	251	1,630	3,000	680	390	176	83	25	12	7
15	26	72	232	1,210	2,960	612	399	173	77	25	13	8
16	25	59	359	1,060	2,860	732	385	159	77	25	13	8
17	21	51	576	854	2,330	2,080	375	162	75	24	12	10
18	20	44	1,220	710	1,830	2,010	353	159	72	24	9	10
19	18	41	1,160	736	1,510	1,900	334	150	69	24	9	7
20	17	36	802	1,400	1,270	1,540	321	142	65	22	10	7
21	17	34	598	2,920	1,080	1,310	308	139	63	20	9	7
22	17	34	610	4,180	951	1,470	293	134	60	21	8	6
23	19	163	1,060	4,650	1,160	1,320	290	128	63	21	6	6
24	17	335	1,750	3,560	2,150	1,620	276	123	72	21	19	6
25	18	337	1,580	2,470	3,540	1,580	257	119	71	21	21	11
26	17	369	1,640	2,160	2,980	1,400	245	115	65	20	24	17
27	18	1,320	1,390	2,470	2,130	1,680	242	111	58	19	19	26
28	19	1,060	1,110	1,970	1,580	1,820	242	110	57	20	14	25
29	28	616	1,020	1,480	-	1,550	220	105	53	21	14	21
30	59	584	1,090	1,160	-	1,270	212	102	50	21	12	19
31	28	-	1,580	909	-	1,040	-	97	-	21	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	800	71	12	25.8	0.166	0.19	1,590
November	6,102	1,320	20	203	1.31	1.46	12,100
December	22,822	1,750	228	736	4.75	5.48	45,270
Calendar year 1949	145,998	6,960	9	400	2.58	35.03	289,600
January	60,546	4,650	634	1,953	12.6	14.53	120,100
February	54,156	3,540	636	1,934	12.5	12.99	107,400
March	38,255	2,080	612	1,234	7.96	9.18	75,880
April	13,404	998	212	447	2.88	3.22	26,590
May	5,266	251	97	170	1.10	1.26	10,440
June	2,235	90	50	74.5	1.481	.54	4,430
July	841	44	19	27.1	1.175	.20	1,670
August	433	24	6	14.0	.090	.10	859
September	306	26	6	10.2	.066	.07	607
Water year 1949-50	205,166	4,650	6	562	3.63	49.22	406,900

Peak discharge (base, 2,500 sec.-ft.)--Jan. 7 (6 a.m.) 5,090 sec.-ft.; Jan. 10 (8 a.m.) 4,510 sec.-ft.; Jan. 23 (7:30 a.m.) 4,680 sec.-ft.; Feb. 8 (5 p.m.) 3,800 sec.-ft.; Feb. 15 (7:30 a.m.) 3,040 sec.-ft.; Feb. 25 (7:30 a.m.) 3,710 sec.-ft.

a No gage-height record; discharge interpolated.

Rock Creek near Philomath, Oreg.

Location.--Water-stage recorder and concrete control, lat. 44°30'05", long. 123°26'20", in NE¼ sec. 29, T. 12 S., R. 6 W., 250 feet upstream from State Highway 34, a quarter of a mile upstream from mouth, and 4½ miles southwest of Philomath. Datum of gage is 354.16 feet above mean sea level (Oregon State Highway Department bench mark).

Drainage area.--14.6 square miles.

Records available.--October 1945 to September 1950.

Extremes.--Maximum discharge during year, 1,010 second-feet Jan. 6 (gage height, 4.56 feet); minimum, 0.2 second-foot Aug. 27, 28, Sept. 3, 7, 20, 21.

1945-50: Maximum discharge, 1,650 second-feet Jan. 6, 1948 (gage height, 5.78 feet), from rating curve extended above 810 second-feet by logarithmic plotting; minimum, 0.2 second-foot Aug. 24, 1946, and several days in summers of 1949 and 1950.

Remarks.--Records good except those for period of no gage-height record and those below 1 second-foot, which are poor. Flow regulated by small storage reservoir operated by city of Corvallis; most of low-water flow diverted to Corvallis water-supply system.

Cooperation.--Water-stage recorder inspected by employee of city of Corvallis.

Revisions (water years).--W 1124: 1946(m).

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.4	0.2	1.1	5.9	1.8	45
.5	.4	1.2	7.7	1.9	59
.6	.7	1.3	10	2.1	95
.7	1.2	1.4	14	2.3	139
.8	2.0	1.5	18	2.6	220
.9	3.0	1.6	25	2.9	315
1.0	4.3	1.7	34	3.3	460

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.9	43	112	71	139	116	41	15	4.9	0.9	0.3
2	.5	1.2	66	84	64	134	116	42	14	4.8	.8	.3
3	.5	1.0	46	66	61	159	108	38	13	4.6	.7	.2
4	.6	.7	38	64	76	172	97	37	13	4.3	.5	.3
5	6.3	.7	91	56	87	214	87	44	12	4.3	.5	.4
6	3.0	.7	86	415	149	186	80	43	13	4.0	.5	.3
7	5.2	.6	58	597	186	144	76	40	15	3.9	.5	.2
8	2.8	2.0	42	197	402	125	71	36	13	3.6	.4	.3
9	3.7	21	37	152	256	118	64	33	12	3.6	.4	.4
10	8.6	25	32	304	203	112	61	32	12	3.5	.4	.4
11	7.9	83	27	186	206	101	58	33	12	3.3	.3	.3
12	3.9	40	24	130	206	91	71	35	11	3.1	.5	.3
13	2.9	14	24	128	287	86	69	34	11	2.6	.5	.3
14	2.7	8.8	21	114	340	80	62	32	10	2.6	.3	.3
15	2.6	7.0	24	91	360	74	66	30	9.8	2.6	.4	.4
16	2.5	5.9	36	80	343	108	68	29	9.5	2.5	.4	.3
17	2.0	4.8	87	68	262	332	64	29	9.3	2.6	.4	.4
18	1.2	4.3	108	62	238	250	58	28	9.1	2.8	.4	a.3
19	1.3	3.9	69	112	186	214	56	25	8.4	2.5	.3	a.3
20	.8	3.8	52	223	162	167	56	24	8.2	2.2	.4	a.2
21	.7	3.5	46	371	139	156	53	24	8.2	1.9	.9	a.2
22	1.0	4.3	52	432	132	167	49	24	8.2	1.7	1.1	a.3
23	.8	58	150	396	186	159	46	24	9.5	1.6	1.9	a.7
24	.8	35	175	271	371	206	42	22	9.5	1.3	2.0	a1.5
25	.7	34	137	186	444	183	40	21	8.6	1.2	.4	a2.2
26	.7	48	134	186	304	162	37	21	7.5	1.1	.3	a2.2
27	.7	244	108	180	217	191	38	21	7.2	1.2	.2	a1.5
28	2.2	95	93	137	167	178	36	19	6.6	1.7	.2	a.9
29	2.4	61	97	114	-	144	34	18	5.9	1.7	.3	a.7
30	1.0	56	106	95	-	121	34	18	5.4	1.3	.4	a.5
31	.8	-	154	82	-	108	-	17	-	1.1	.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	71.3	8.6	0.5	2.30	141
November.....	868.1	244	.6	28.9	1,720
December.....	2,263	175	21	73.0	4,490
Calendar year 1949	16,684.8	925	.2	45.7	33,100
January.....	5,491	432	56	177	10,890
February.....	6,105	444	61	218	12,110
March.....	4,781	332	74	154	9,480
April.....	1,913	116	34	63.8	3,790
May.....	914	44	17	29.5	1,310
June.....	306.9	15	1.1	10.2	609
July.....	84.1	4.9	1.1	2.71	167
August.....	17.5	2.0	.2	.56	35
September.....	16.9	2.2	.2	.56	34
Water year 1949-50	22,831.8	444	.2	62.6	45,280

Peak discharge (base, 500 sec.-ft.).--Jan. 6 (6 p.m.) 1,010 sec.-ft.; Feb. 8 (7 a.m.) 544 sec.-ft.; Feb. 24 (9 p.m.) 576 sec.-ft.

a No gage-height record; discharge computed on basis of records for Marys River near Philomath.

Calapooya River at Holley, Oreg.

Location.--Staff gage, lat. 44°21', long. 122°47', near line between secs. 14 and 15, T. 14 S., R. 1 W., a quarter of a mile southwest of Holley and 4 miles upstream from Brush Creek. Datum of gage is 527.20 feet above mean sea level, datum of 1929.

Drainage area.--99 square miles.

Records available.--September 1935 to September 1950.

Average discharge.--15 years, 416 second-feet.

Extremes.--Maximum discharge during year, 5,580 second-feet Jan. 22 (gage height, 9.0 feet, from floodmark); minimum, 23 second-feet Oct. 4.

1935-50: Maximum discharge, 12,200 second-feet Dec. 28, 1945 (gage height, 14.1 feet, from floodmark), from rating curve extended above 5,300 second-feet by logarithmic plotting; minimum observed, 13 second-feet Sept. 8, 1940.

Remarks.--Records good. Gage read once daily, oftener during periods of high water. No diversion above station; slight regulation at times during low-water periods by small dam upstream.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).--W 1044: 1943.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used June 22 to Aug. 22)

Oct. 1 to Jan. 21

Jan. 22 to Sept. 30

0.6	18	1.5	143	4.1	1,300	0.9	26	1.6	118	2.6	460
.7	24	1.8	220	5.0	1,930	1.0	34	1.8	165	3.0	660
.8	32	2.2	345	6.0	2,730	1.2	53	2.0	222	3.5	930
.9	42	2.6	495	8.0	4,580	1.4	80	2.3	330	4.1	1,300
1.0	54	3.0	680								
1.2	84	3.5	945								

Note.--Same as preceding table above
4.1 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	60	640	598	451	1,090	1,120	470	330	158	53	34
2	25	55	670	508	433	996	1,160	590	346	145	51	33
3	24	50	531	471	362	1,760	1,020	580	322	133	50	33
4	23	47	431	408	362	1,670	822	550	330	127	50	32
5	130	46	576	359	635	1,630	795	680	322	120	48	32
6	185	43	576	398	1,100	1,490	834	650	280	114	48	32
7	212	43	487	852	954	1,180	730	565	248	108	47	32
8	112	53	390	695	1,120	960	675	500	283	104	46	32
9	81	117	348	585	942	834	640	465	238	104	45	31
10	304	232	328	1,180	834	800	560	465	269	102	44	30
11	232	244	280	735	846	700	540	560	269	94	42	30
12	206	352	226	567	800	610	710	715	610	91	41	29
13	148	217	310	660	1,070	540	930	735	465	85	40	29
14	113	162	354	554	1,570	540	822	700	334	82	40	29
15	89	134	310	427	1,790	485	795	620	280	80	39	29
16	78	117	404	408	1,900	760	785	560	258	77	39	28
17	68	102	603	352	1,600	3,090	785	540	545	74	38	29
18	65	93	901	324	1,290	2,170	730	485	366	74	37	30
19	60	84	594	813	1,170	2,330	715	406	318	72	36	29
20	57	78	447	1,360	1,030	1,620	864	379	294	72	35	28
21	52	74	380	3,900	858	1,300	810	406	269	70	35	28
22	49	70	387	4,580	765	1,480	725	460	238	66	34	27
23	48	495	730	2,930	1,160	1,220	650	451	219	64	41	27
24	47	540	1,130	1,820	3,680	1,130	520	402	235	63	106	26
25	44	324	846	1,270	4,280	906	470	370	213	60	74	32
26	43	415	824	1,120	2,470	846	420	402	189	59	49	60
27	42	1,970	680	1,360	1,720	1,040	415	451	181	57	42	112
28	44	1,300	635	816	1,290	894	451	388	176	59	39	53
29	153	824	705	685	-	775	420	330	173	66	38	41
30	86	852	680	620	-	720	388	306	168	58	37	38
31	68	-	670	460	-	710	-	310	-	57	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	2,915	304	23	94.0	0.949	1.10	5,780
November	9,193	1,970	43	306	3.09	3.45	18,230
December	17,053	1,130	226	550	5.56	6.41	33,820
Calendar year 1949	137,105	6,650	23	376	3.80	51.50	272,000
January	31,815	4,580	324	1,026	10.4	11.95	63,100
February	36,482	4,280	362	1,303	13.2	13.70	72,360
March	36,276	3,090	485	1,170	11.8	13.63	71,950
April	21,321	1,160	388	711	7.18	8.01	42,290
May	15,491	735	306	500	5.05	5.82	30,730
June	8,768	610	168	292	2.95	3.29	17,390
July	2,695	158	57	86.9	.878	1.01	5,350
August	1,399	106	34	45.1	.456	.53	2,770
September	1,053	112	26	35.2	.356	.40	2,090
Water year 1949-50	184,463	4,580	23	505	5.10	69.30	365,900

Peak discharge (base, 2,600 sec.-ft.).--Nov. 27 (1 p.m.) 3,300 sec.-ft.; Jan. 22 (3 a.m.) 5,580 sec.-ft.; Feb. 24 (11 p.m.) 5,340 sec.-ft.; Mar. 17 (11 a.m.) 3,720 sec.-ft.

WILLAMETTE RIVER BASIN

Calapooya River at Albany, Oreg.

Location.--Wire-weight gage, lat. 44°37'15", long. 123°07'40", in NW¹/₄ sec. 13, T. 11 S., R. 4 W., half a mile downstream from Oak Creek, 1¹/₂ miles southwest of Albany, and 3 miles upstream from mouth. Datum of gage is 180.37 feet above mean sea level (datum of 1929).

Drainage area.--362 square miles.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 862 second-feet.

Extremes.--Maximum discharge observed during year, 11,400 second-feet Jan. 23 (gage height, 18.53 feet); minimum observed, 10 second-feet Sept. 11, 26; minimum daily, 14 second-feet Sept. 11.

1940-50: Maximum discharge, 24,900 second-feet Jan. 8, 1948; maximum gage height, 25.5 feet Jan. 2, 1943, from graph based on gage readings (backwater from Willamette River); minimum discharge observed, 6 second-feet Sept. 6, 1949; minimum daily, 10 second-feet Sept. 6, 1949.

Remarks.--Records fair. Gage read twice daily, oftener at high stages. A few small diversions above station for irrigation. Diurnal fluctuation caused by ponds at flour mills near Shedd.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

(Backwater from Willamette River Jan. 23-25)

(Shifting-control method used Oct. 1-7)

Oct. 1 to Jan. 10

Jan. 11 to Sept. 30

1.1	12	2.0	68	4.5	535	1.1	11	2.9	186	10.0	2,550
1.2	16	2.3	101	5.5	830	1.2	16	3.3	262	12.5	3,720
1.3	20	2.7	155	6.5	1,150	1.3	20	3.8	378	15.0	5,320
1.4	25	3.0	203	8.0	1,690	1.5	31	4.3	503	16.0	6,190
1.6	37	3.5	298	11.0	2,970	1.7	43	5.0	700	17.0	7,550
1.8	51	4.0	411	14.0	4,580	1.9	59	6.0	1,010	18.0	9,840
						2.2	89	7.0	1,360	18.5	11,300
						2.5	127	8.5	1,940		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	88	1,310	1,260	1,160	2,580	1,140	513	364	175	66	31
2	18	80	920	1,210	1,030	1,870	1,540	634	378	164	49	31
3	15	74	920	902	886	2,150	1,610	718	354	131	53	46
4	23	69	734	722	916	2,400	1,400	718	354	d125	42	40
5	29	81	698	704	1,040	2,490	1,140	760	321	119	46	26
6	36	56	1,160	923	3,270	2,600	1,080	853	349	117	82	28
7	161	49	947	3,160	5,100	2,520	1,090	814	328	111	24	26
8	203	68	710	4,410	4,280	1,950	1,030	736	312	104	53	25
9	156	58	578	3,980	4,040	1,620	950	652	318	99	45	27
10	114	55	550	4,500	3,470	1,690	829	598	293	95	37	56
11	189	225	505	6,060	2,500	1,880	736	733	318	100	37	14
12	249	269	438	4,530	2,100	1,350	760	646	273	94	38	22
13	253	352	409	2,640	2,130	1,100	1,290	775	604	91	39	25
14	176	311	470	3,290	2,470	1,240	1,900	748	478	85	22	26
15	a147	213	475	2,630	2,950	1,180	1,500	730	383	76	32	26
16	118	176	545	1,730	3,930	1,070	1,240	664	335	73	35	26
17	99	147	812	2,160	4,140	2,510	1,120	613	305	70	33	20
18	89	142	1,230	1,280	3,500	4,010	1,050	589	473	73	31	23
19	96	127	2,030	1,050	2,550	4,380	954	549	386	74	30	18
20	81	104	1,320	1,950	2,090	3,910	904	480	347	69	49	24
21	74	94	842	5,650	1,750	3,340	996	448	321	66	22	21
22	73	94	692	10,700	1,420	2,960	940	460	291	68	22	26
23	70	109	704	11,000	1,280	3,120	844	493	269	64	29	26
24	57	200	1,280	7,740	2,290	2,670	748	490	254	41	32	32
25	74	734	1,810	5,020	4,650	2,200	646	450	249	77	31	17
26	63	485	1,610	3,720	7,370	1,890	589	428	223	63	24	30
27	63	458	1,420	4,400	5,650	2,040	559	443	221	49	45	36
28	40	1,490	1,070	5,240	3,900	2,320	564	458	203	54	41	51
29	53	1,990	950	3,940	-	1,840	549	423	189	57	56	87
30	49	1,250	1,300	2,250	-	1,400	518	398	186	84	35	69
31	109	-	1,240	1,440	-	1,230	-	359	-	41	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-feet
October	3,006	253	15	97.0	0.268	0.31	5,960
November	9,648	1,990	49	322	.890	.99	19,140
December	29,739	2,030	409	959	2.65	3.06	58,990
Calendar year 1949	264,829	18,600	10	726	2.01	27.21	525,300
January	110,191	11,000	704	3,555	9.82	11.32	218,600
February	81,862	7,370	886	2,924	8.08	8.41	162,400
March	69,710	4,380	1,070	2,249	6.21	7.16	138,300
April	30,216	1,900	518	1,007	2.78	3.10	59,930
May	18,373	853	359	593	1.64	1.89	36,440
June	9,679	604	186	323	.892	.99	19,200
July	2,709	175	41	87.4	.241	.28	5,370
August	1,212	82	22	39.1	.108	.12	2,400
September	915	87	14	30.5	.084	.09	1,810
Water year 1949-50	367,260	11,000	14	1,006	2.78	37.72	728,500

a No gage-height record; discharge interpolated.

d Doubtful gage-height record; discharge computed on basis of records for station at Holley.

North Santiam River at Detroit, Oreg.

Location.--Water-stage recorder, lat. 44°43', long. 122°08', in NE¼ sec. 12, T. 10 S., R. 5 E., 1 mile east of Detroit, 2½ miles upstream from Breitenbush River, and 2½ miles downstream from Boulder Creek. Datum of gage is 1,475.68 feet above mean sea level, datum of 1929.

Drainage area.--224 square miles.

Records available.--January 1907 to October 1909, October 1928 to September 1950. August 1910 to October 1913 at site above Boulder Creek (records not equivalent).

Average discharge.--23 years (1907-8, 1928-50), 953 second-feet.

Extremes.--Maximum discharge during year, 7,030 second-feet Feb. 25 (gage height, 7.02 feet); minimum, 359 second-feet Nov. 6 (gage height, 0.43 foot); minimum daily, 461 second-feet Oct. 3.
1907-9, 1910-11, 1928-50: Maximum discharge, 20,300 second-feet Dec. 28, 1945 (gage height, 11.24 feet); minimum, 254 second-feet Oct. 7, 1940 (gage height, 0.15 foot).

Remarks.--Records good. No diversion above station. Slight diurnal fluctuation by power plant at Idanha.

Revisions.--W 814: Drainage area.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.7	440	2.0	1,020	4.5	3,120
1.0	530	2.5	1,340	5.5	4,420
1.5	740	3.5	2,140	6.5	6,050

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	467	500	1,870	790	a840	2,010	1,720	1,360	2,440	1,870	725	570
2	464	491	1,810	750	a780	1,880	2,020	1,360	2,550	1,780	710	578
3	461	482	1,490	725	a760	2,450	1,890	1,320	2,610	1,700	700	574
4	482	473	1,300	720	864	2,580	1,730	1,280	2,710	1,640	682	562
5	650	470	1,260	685	888	2,550	1,660	1,260	2,720	1,560	670	550
6	662	470	1,150	730	894	2,290	1,600	1,210	2,440	1,470	666	546
7	598	467	1,080	740	936	2,040	1,530	1,150	2,150	1,390	658	542
8	534	479	960	730	930	1,860	1,480	1,140	2,010	1,310	654	542
9	610	530	912	686	912	1,700	1,420	1,160	1,980	1,330	654	538
10	740	546	858	715	900	1,540	1,370	1,260	2,310	1,230	650	542
11	750	775	795	674	882	1,400	1,320	1,580	2,840	1,130	646	538
12	682	815	780	658	858	1,290	1,430	2,100	3,810	1,070	642	530
13	614	682	770	658	990	1,220	1,620	2,550	3,180	1,080	638	527
14	574	626	750	646	1,300	1,160	1,580	2,630	2,620	1,060	634	524
15	550	598	750	642	1,620	1,110	1,560	2,440	2,330	1,020	642	527
16	530	570	755	638	1,710	1,300	1,600	2,320	2,450	984	630	524
17	524	550	770	618	1,700	3,030	1,720	2,360	2,670	948	626	524
18	515	538	770	634	1,550	2,860	1,740	2,130	2,440	918	626	521
19	500	524	710	730	1,450	2,740	1,770	1,940	2,450	948	618	521
20	497	512	678	996	1,360	2,310	1,940	1,910	2,490	882	610	518
21	494	503	678	2,120	1,260	2,060	2,090	2,060	2,390	858	610	512
22	488	521	700	3,880	1,200	2,060	2,050	2,490	2,230	858	610	512
23	485	1,500	942	3,100	1,400	1,890	1,870	2,420	2,100	840	642	512
24	479	1,450	1,030	2,280	3,740	1,740	1,700	2,280	1,920	825	710	515
25	473	1,200	948	1,800	5,940	1,580	1,580	2,300	1,780	825	634	550
26	473	1,350	894	1,580	3,980	1,510	1,470	2,430	1,680	800	602	678
27	473	3,930	840	1,440	2,980	1,460	1,420	2,640	1,700	775	598	598
28	570	2,900	852	1,250	2,380	1,350	1,390	2,430	1,790	790	586	546
29	586	2,250	876	1,130	-	1,270	1,350	2,260	1,940	760	586	527
30	524	2,500	840	1,060	-	1,240	1,330	2,180	1,950	735	574	524
31	509	-	830	a940	-	1,250	-	2,220	-	730	574	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-foot
October	16,958	750	461	547	2.44	2.82	33,640
November	29,202	3,930	467	973	4.34	4.85	57,920
December	29,628	1,870	678	956	4.27	4.92	58,770
Calendar year 1949	405,421	6,600	461	1,111	4.96	67.33	804,100
January	34,746	3,880	618	1,121	5.00	5.77	68,920
February	45,004	5,940	760	1,607	7.17	7.47	89,260
March	56,830	3,030	1,110	1,833	8.18	9.44	112,700
April	48,950	2,090	1,320	1,632	7.29	8.13	97,090
May	60,170	2,640	1,140	1,941	8.67	9.99	119,300
June	70,680	3,810	1,680	2,356	10.5	11.73	140,200
July	34,116	1,870	730	1,101	4.92	5.66	67,670
August	19,807	725	574	639	2.65	3.29	39,290
September	16,260	678	512	562	2.42	2.70	32,250
Water year 1949-50	462,351	5,940	461	1,267	5.66	76.77	917,000

Peak discharge (base, 3,100 sec.-ft.)--Nov. 27 (1 p.m.) 5,580 sec.-ft.; Jan. 22 (10:30 a.m.) 4,110 sec.-ft.; Feb. 25 (4:30 a.m.) 7,030 sec.-ft.; Mar. 17 (3 p.m.) 3,580 sec.-ft.; June 12 (5 p.m.) 4,110 sec.-ft.

a No gage-height record; discharge computed on basis of records for North Santiam River above Mayflower Creek, near Detroit, and Breitenbush River above French Creek, near Detroit.

North Santiam River above Mayflower Creek, near Detroit, Oreg.

Location.--Water-stage recorder, lat. 44°44', long. 122°15', in NW¼ sec. 7, T. 10 S., R. 5 E., 1,600 feet downstream from axis of Detroit dam site, 0.3 mile upstream from Mayflower Creek, and 5 miles west of Detroit. Datum of gage is 1,189.50 feet above mean sea level, datum of 1929.

Drainage area.--438 square miles.

Records available.--October 1938 to September 1950.

Average discharge.--12 years, 2,042 second-feet.

Extremes.--Maximum discharge during year, 20,900 second-feet Feb. 25 (gage height, 14.24 feet), from rating curve extended above 7,400 second-feet by logarithmic plotting; minimum, 596 second-feet Oct. 3.

1938-50: Maximum discharge, 41,200 second-feet Dec. 28, 1945 (gage height, 18.20 feet), from rating curve extended above 18,000 second-feet by logarithmic plotting; minimum, 410 second-feet Oct. 25, 1942 (gage height, 2.87 feet); minimum daily, 432 second-feet Sept. 1, 1940.

Remarks.--Records good except those for periods of no gage-height record or shifting control, which are fair. No diversion above station. Slight diurnal fluctuation by power plant at Idanha.

Rating tables, water year 1949-50, except periods of shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 26

Nov. 27 to Sept. 30

4.6	610	6.0	2,010	5.0	710	9.0	5,600
4.8	750	6.5	2,740	5.5	1,030	10.0	7,640
5.0	910	7.5	4,500	6.0	1,440	11.0	10,000
5.4	1,290			7.0	2,490	12.0	12,700
				8.0	3,890	13.3	16,800

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	631	854	3,720	1,850	1,800	4,640	4,700	2,710	4,800	3,080	1,070	800
2	617	814	3,580	1,710	1,700	4,380	5,330	2,770	4,920	2,850	1,060	800
3	610	782	2,940	1,620	1,700	6,660	4,600	2,630	4,940	2,680	1,040	790
4	652	766	2,570	1,590	1,800	6,980	3,860	2,550	5,260	2,590	1,000	780
5	1,330	743	2,590	1,480	2,100	6,460	3,600	2,610	5,240	2,490	988	760
6	1,560	743	2,370	1,580	2,320	5,600	3,470	2,470	4,550	2,320	953	760
7	1,280	729	2,140	1,660	2,280	4,640	3,220	2,300	3,880	2,200	980	750
8	990	790	1,940	1,510	2,290	3,970	3,070	2,230	3,620	2,050	960	740
9	1,400	1,010	1,900	1,480	2,250	3,470	2,890	2,590	3,530	2,100	953	740
10	2,150	1,100	1,750	1,540	2,190	3,100	2,770	2,590	4,350	1,930	939	740
11	2,020	2,200	1,630	1,440	2,130	2,740	2,710	3,590	5,280	1,740	918	740
12	1,740	2,300	1,590	1,400	2,080	2,500	3,170	5,100	6,710	1,660	904	740
13	1,370	1,580	1,560	1,400	2,540	2,340	3,770	5,990	5,650	1,660	897	740
14	1,170	1,310	1,590	1,380	3,710	2,220	3,500	5,840	4,530	1,650	890	740
15	1,050	1,180	1,600	1,350	4,870	2,130	3,480	5,240	4,020	1,580	897	740
16	990	1,100	1,610	1,310	4,840	3,060	3,720	4,840	4,260	1,480	884	730
17	919	1,030	1,670	1,270	4,520	8,850	4,070	4,920	4,910	1,430	884	720
18	886	973	1,690	1,250	3,840	7,460	3,950	4,300	4,300	1,420	884	700
19	838	928	1,520	1,490	3,470	6,790	3,890	3,740	4,380	1,460	860	700
20	814	878	1,430	2,450	3,230	5,440	4,480	3,650	4,430	1,360	848	700
21	790	838	1,420	6,060	2,930	4,650	4,800	4,130	4,160	1,320	842	700
22	766	854	1,590	10,700	2,760	4,820	4,570	5,030	3,770	1,300	842	700
23	758	3,470	2,650	7,530	5,710	4,190	4,000	5,010	3,530	1,280	930	700
24	743	4,140	2,940	5,150	11,000	3,680	3,460	4,500	3,170	1,270	1,200	700
25	729	3,090	2,380	3,990	16,800	3,280	3,130	4,400	2,850	1,250	960	800
26	722	3,550	2,150	3,470	10,200	3,040	2,810	4,800	2,690	1,220	880	1,400
27	715	7,640	2,030	3,070	7,220	2,990	2,730	5,290	2,780	1,180	870	1,100
28	1,240	6,220	2,140	2,690	5,640	2,710	2,730	4,720	3,040	1,210	840	950
29	1,280	4,600	2,200	2,440	-	2,480	2,630	4,180	3,380	1,190	820	850
30	1,020	5,030	2,100	2,200	-	2,440	2,590	4,100	3,320	1,110	800	800
31	910	-	2,000	2,000	-	2,550	-	4,190	-	1,090	800	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	32,690	2,150	610	1,055	2.41	2.78	64,840
November	61,242	7,640	729	2,041	4.66	5.20	121,500
December	64,990	3,720	1,420	2,096	4.79	5.52	128,900
Calendar year 1949	837,005	15,400	610	2,293	5.24	71.08	1,660,000
January	80,060	10,700	1,250	2,583	5.90	6.80	158,800
February	115,920	16,800	1,700	4,140	9.45	9.84	229,900
March	130,260	8,850	2,130	4,202	9.59	11.06	258,400
April	107,700	5,330	2,590	3,590	8.20	9.14	213,600
May	122,710	5,990	2,230	3,958	9.04	10.42	243,400
June	126,250	6,710	2,690	4,208	9.61	10.72	250,400
July	53,150	3,080	1,090	1,715	3.92	4.51	105,400
August	28,573	1,200	800	922	2.11	2.43	56,670
September	23,610	1,400	700	787	1.80	2.00	46,830
Water year 1949-50	947,155	16,800	610	2,595	5.92	80.42	1,879,000

Peak discharge (base, 10,000 sec.-ft.).--Nov. 27 (5 p.m.) 10,500 sec.-ft.; Jan. 22 (8 a.m.) 11,900 sec.-ft.; Feb. 25 (2 a.m.) 20,900 sec.-ft.; Mar. 17 (2 p.m.) 10,400 sec.-ft.

Note.--No gage-height record Jan. 30 to Feb. 4, Aug. 23 to Sept. 30; discharge computed on basis of recorded range in stage when available and records for station at Detroit. Shifting-control method used Nov. 27 to Jan. 29, Feb. 5-25.

North Santiam River at Mehama, Oreg.

Location.--Water-stage recorder, lat. 44°47', long. 122°37', in NW $\frac{1}{4}$ sec. 18, T. 9 S., R. 2 E., at Mehama, half a mile downstream from Little North Santiam River. Datum of gage is 601.78 feet above mean sea level, datum of 1929.

Drainage area.--665 square miles.

Records available.--July 1905 to March 1907, October 1910 to September 1914, September 1921 to September 1950.

Average discharge.--34 years (1905-6, 1910-14, 1921-50), 3,220 second-feet.

Extremes.--Maximum discharge during year, 39,100 second-feet Feb. 25 (gage height, 10.99 feet); minimum, 624 second-feet Oct. 3, 4.

1905-7, 1910-14, 1921-50: Maximum discharge, 76,600 second-feet Dec. 28, 1945 (gage height, 15.37 feet), by slope-area method; minimum, 400 second-feet Sept. 29, Oct. 13, 1934; minimum daily, 420 second-feet Sept. 18, 1924.

Remarks.--Records excellent except those for period of no gage-height record, which are good. Slight regulation at low flow caused by mill dam at Mill City. No diversion above station.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).--W 634: Drainage area. W 739: 1922(M), 1923(M). W 1044: 1934-38, 1942(M), 1943.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1-9

Oct. 10 to Sept. 30

1.7	600	1.8	740	4.0	3,870	8.0	18,700
2.0	880	2.0	920	4.5	5,040	9.0	24,800
2.4	1,290	2.5	1,460	5.0	6,430	10.0	31,600
3.0	2,120	3.0	2,120	6.0	9,880		
3.5	2,950	3.5	2,910	7.0	1,3700		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	656	1,190	6,640	3,160	2,580	6,730	6,480	3,960	6,430	3,870	1,230	884
2	648	1,100	6,430	2,770	2,380	6,370	9,360	4,230	6,610	3,480	1,220	884
3	632	1,050	5,070	2,470	2,280	11,300	7,750	3,910	6,550	3,290	1,200	884
4	664	1,010	4,160	2,360	2,340	11,200	6,230	3,980	7,000	3,140	1,150	866
5	2,380	960	4,320	2,160	2,640	10,700	5,570	4,500	6,880	3,000	1,130	848
6	2,970	940	3,980	2,420	3,640	9,430	5,460	4,180	5,880	2,790	1,120	830
7	2,460	911	3,380	2,910	3,640	7,340	4,920	3,760	5,090	2,660	1,120	830
8	1,650	990	2,930	2,560	3,940	6,080	4,690	3,460	4,920	2,480	1,110	821
9	2,310	1,270	2,740	2,390	3,630	5,170	4,410	3,460	4,550	2,440	1,110	821
10	4,110	1,500	2,550	3,230	3,640	4,650	4,050	3,760	5,570	2,340	1,100	821
11	3,540	3,120	2,270	2,710	3,500	4,050	3,980	5,250	6,790	2,090	1,090	812
12	2,980	4,160	2,240	2,380	3,400	3,580	4,790	7,710	8,970	1,970	1,070	812
13	2,260	2,560	2,500	2,300	4,600	3,330	6,200	8,940	7,840	1,940	a1,060	803
14	1,830	2,010	2,560	2,140	7,750	3,090	5,570	8,560	6,020	1,940	a1,060	794
15	1,580	1,740	2,560	1,980	11,100	2,910	5,520	7,560	5,200	1,850	a1,060	785
16	1,410	1,580	2,770	1,940	10,800	4,750	6,170	6,850	5,410	1,790	a1,050	776
17	1,400	1,450	2,860	1,780	9,250	16,400	6,790	7,030	6,400	1,700	a1,030	776
18	1,210	1,350	3,090	1,750	7,220	13,100	6,260	6,170	5,570	1,630	a1,020	767
19	1,130	1,260	2,580	2,580	6,370	12,300	6,000	5,140	5,600	1,670	a1,000	758
20	1,080	1,210	2,300	6,650	5,600	9,140	6,880	4,920	5,790	1,590	a960	758
21	1,050	1,140	2,260	16,800	4,790	7,560	7,310	5,630	5,330	1,520	920	749
22	1,010	1,140	3,090	25,300	4,320	7,870	6,820	7,030	4,770	1,510	920	749
23	990	4,320	7,370	16,600	6,300	6,910	5,850	7,030	4,500	1,480	1,030	749
24	950	7,250	7,650	9,970	23,200	6,140	4,920	6,170	4,160	1,460	1,440	767
25	930	5,330	5,300	6,970	31,100	5,410	4,460	6,020	3,850	1,450	1,160	884
26	920	5,680	4,550	5,740	17,200	5,040	3,980	6,700	3,500	1,380	1,030	1,660
27	911	15,300	3,980	4,920	11,300	5,270	3,960	7,500	3,560	1,340	980	1,350
28	1,640	12,400	4,140	3,980	8,400	4,690	3,980	6,430	3,850	1,350	940	1,030
29	2,180	8,270	4,090	3,420	-	4,110	3,830	5,600	4,300	1,400	920	930
30	1,520	9,360	3,760	3,090	-	3,910	3,680	5,490	4,230	1,300	911	875
31	1,320	-	3,600	2,640	-	4,020	-	5,570	-	1,250	893	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Inches	Runoff Acres-feet
October	50,321	4,110	632	1,623	2.44	2.81	99,810
November	101,551	15,300	911	3,385	5.09	5.68	201,400
December	117,720	7,650	2,240	3,797	5.71	6.58	233,500
Calendar year 1949	1,265,693	28,500	632	3,468	5.22	70.78	2,510,000
January	152,070	25,300	1,750	4,905	7.38	8.50	301,600
February	207,110	31,100	2,280	7,397	11.1	11.58	410,800
March	212,550	16,400	2,910	6,856	10.3	11.89	421,600
April	167,870	9,360	3,680	5,596	8.42	9.39	333,000
May	176,500	8,940	3,460	5,694	8.56	9.87	350,100
June	165,120	8,970	3,500	5,504	8.28	9.23	327,500
July	63,100	3,870	1,250	2,035	3.06	3.53	125,200
August	33,034	1,440	893	1,068	1.60	1.85	65,520
September	26,073	1,660	749	869	1.31	1.46	51,720
Water year 1949-50	1,473,019	31,100	632	4,036	6.07	82.37	2,922,000

Peak discharge (base, 19,000 sec.-ft.)--Nov. 27 (3 p.m.) 21,400 sec.-ft.; Jan. 22 (7 a.m.) 28,000 sec.-ft.; Feb. 25 (3:30 a.m.) 39,100 sec.-ft.; Mar. 17 (12:30 p.m.) 20,000 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for stations upstream.

Santiam River at Jefferson, Oreg.

Location.--Water-stage recorder, lat. 44°42'50", long. 123°00'40", in SE $\frac{1}{4}$ sec. 11, T. 10 S., R. 3 W., in Jefferson, 350 feet upstream from railroad bridge, 2 miles downstream from confluence of North Santiam and South Santiam Rivers, and 9 miles upstream from mouth. Datum of gage is 199.63 feet above mean sea level, datum of 1929.

Drainage area.--1,790 square miles.

Records available.--July 1905 to July 1906 (gage heights only), October 1907 to September 1916, and October 1939 to September 1950 in reports of Geological Survey. Gage-height records collected at same site since April 1904 are contained in reports of U. S. Weather Bureau.

Average discharge.--20 years (1907-16, 1939-50), 7,431 second-feet.

Extremes.--Maximum discharge during year, 95,200 second-feet Feb. 25 (gage height, 20.07 feet); minimum, 663 second-feet Oct. 4.

1905-6, 1907-16, 1939-50: Maximum discharge observed, 161,000 second-feet during night of Nov. 22, 1909 (gage height, 18.2 feet, site and datum then in use; corresponding gage height at present site, 23.0 feet from curve of relation); from curve of relation between gages based on readings from 1940 to 1945, and rating curve for gage at present site extended above 140,000 second-feet; minimum observed, 260 second-feet Aug. 15-22, Aug. 24 to Sept. 2, 1940 (gage height, -1.00 foot, site and datum then in use).

Maximum discharge known, about 202,000 second-feet Nov. 21, 1921 (gage height, 19.5 feet at railroad bridge 350 feet downstream, site and datum in use prior to Oct. 1, 1940; corresponding gage height at present site, 24.4 feet from curve of relation).

Remarks.--Records excellent. 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. No regulation.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).--W 904: Drainage area. W 1094: 1908, 1910, 1912, 1922(M), 1943.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	702	1,840	16,200	9,690	7,340	18,200	14,600	8,150	10,400	6,080	1,380	860
2	696	1,720	14,500	8,460	6,570	15,700	22,200	9,350	11,300	5,560	1,330	850
3	682	1,530	13,100	7,140	6,280	28,600	19,100	9,580	11,000	5,150	1,290	838
4	676	1,410	10,500	6,570	6,320	29,300	15,400	9,350	11,300	4,850	1,260	830
5	1,510	1,340	10,500	5,990	7,860	27,000	13,400	11,300	11,700	4,570	1,220	816
6	4,380	1,290	10,900	6,730	12,600	26,800	13,100	11,300	10,400	4,200	1,180	795
7	4,850	1,230	8,990	12,900	14,100	20,300	12,100	9,950	8,880	3,850	1,170	788
8	3,210	1,250	7,650	11,600	14,400	16,400	11,200	8,830	8,880	3,590	1,100	781
9	2,420	1,530	6,760	9,190	14,400	14,400	10,400	8,180	8,040	3,420	1,080	767
10	7,180	2,680	6,500	13,900	12,800	13,000	9,410	8,150	8,880	3,420	1,080	767
11	6,530	3,540	5,710	12,900	12,200	11,400	8,860	9,770	11,000	3,010	1,070	774
12	6,060	9,090	5,190	9,270	11,300	9,950	9,800	13,700	14,500	2,720	1,040	788
13	4,460	5,930	5,810	8,400	13,200	9,020	14,300	16,400	15,100	2,580	1,030	781
14	3,400	4,250	6,230	8,610	20,900	8,420	13,900	16,400	11,400	2,540	973	781
15	2,750	3,440	6,120	6,830	28,800	7,700	12,800	14,800	9,410	2,430	948	781
16	2,360	2,930	7,570	6,660	30,600	8,580	13,600	13,300	8,860	2,330	939	774
17	2,040	2,570	8,180	5,970	28,000	36,500	14,300	13,000	10,100	2,220	914	774
18	1,840	2,350	10,400	5,330	21,100	37,500	14,100	12,300	9,550	2,090	905	760
19	1,720	2,120	9,020	6,520	17,600	33,900	12,900	10,400	9,020	2,060	875	760
20	1,560	1,940	7,090	16,300	15,900	26,300	13,900	9,270	9,330	2,060	852	760
21	1,470	1,800	6,250	42,000	13,700	20,100	14,900	9,720	8,800	1,930	838	767
22	1,360	1,740	6,570	67,100	12,000	20,800	14,200	11,700	7,910	1,870	845	774
23	1,300	4,270	15,000	55,300	13,100	18,400	12,600	12,600	7,340	1,800	914	760
24	1,240	16,200	22,400	32,900	38,500	16,600	10,600	11,400	6,970	1,760	1,260	780
25	1,190	12,900	16,000	22,000	82,300	14,600	9,330	10,600	6,480	1,660	1,820	852
26	1,130	11,000	14,500	17,600	50,900	13,800	8,420	11,100	5,950	1,610	1,280	1,400
27	1,100	22,700	12,000	18,000	32,800	14,800	7,990	12,800	5,730	1,490	1,170	2,520
28	1,130	32,600	11,200	14,100	24,000	14,000	8,610	12,000	5,860	1,530	1,040	1,770
29	3,660	19,700	11,000	11,300	-	12,000	8,070	10,200	6,410	1,650	973	1,350
30	2,800	20,200	11,300	9,720	-	10,900	7,700	9,490	6,520	1,580	914	1,170
31	2,190	-	10,400	8,020	-	10,400	-	9,410	-	1,460	890	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	77,596	7,180	676	2,503	153,900
November.....	197,090	32,600	1,230	6,570	390,900
December.....	313,540	22,400	5,190	10,110	621,900
Calendar year 1949	2,638,443	81,700	620	7,229	5,233,000
January.....	477,020	87,100	5,330	15,390	946,200
February.....	569,770	82,300	6,280	20,350	1,130,000
March.....	563,370	37,500	7,700	18,170	1,117,000
April.....	371,790	22,200	7,700	12,390	737,400
May.....	344,430	16,400	8,150	11,110	683,200
June.....	277,000	15,100	5,730	9,233	549,400
July.....	87,070	6,080	1,460	2,809	172,700
August.....	33,590	1,820	838	1,084	66,620
September.....	27,950	2,520	760	932	55,440
Water year 1949-50	3,340,216	82,300	676	9,151	6,625,000

Peak discharge (base, 39,000 sec.-ft.).--Nov. 28 (1:30 a.m.) 43,000 sec.-ft.; Jan. 22 (3:30 p.m.) 75,400 sec.-ft.; Feb. 25 (12:30 p.m.) 95,200 sec.-ft.; Mar. 17 (9 p.m.) 51,500 sec.-ft.

Breitenbush River above French Creek, near Detroit, Oreg.

Location.--Water-stage recorder, lat. 44°45', long. 122°08', in NE¼ sec. 36, T. 9 S., R. 5 E., 0.1 mile downstream from Canyon Creek, 1½ miles upstream from French Creek, and 2 miles east of Detroit. Datum of gage is 1,559.64 feet above mean sea level, datum of 1929.

Drainage area.--108 square miles.

Records available.--June 1932 to September 1950.

Average discharge.--18 years, 542 second-feet.

Extremes.--Maximum discharge during year, 5,920 second-feet Feb. 25 (gage height, 7.86 feet); minimum, 155 second-feet Oct. 1-3.
1932-50: Maximum discharge, 11,600 second-feet Dec. 28, 1945 (gage height, 11.86 feet); minimum, 87 second-feet Sept. 2, 1940 (gage height, 0.36 foot).

Remarks.--Records good except those for periods of no gage-height record or backwater from debris, which are fair. No diversion or regulation above station.

Revisions (water years).--W 1044: 1943(M).

Rating tables, water year 1949-50, except period of backwater from debris (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 27

Nov. 28 to Sept. 30

1.0	150	2.5	750	1.0	160	4.0	1,580
1.3	230	3.0	1,050	1.4	260	5.0	2,400
1.6	330	4.5	2,170	1.8	390	6.0	3,500
2.0	500	5.5	3,180	2.4	640	7.0	4,800
				3.0	940		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	155	206	1,070	502	400	1,080	1,460	708	1,340	825	308	195
2	155	192	982	454	360	1,090	1,510	721	1,340	755	305	192
3	157	182	770	406	340	2,030	1,220	680	1,340	712	290	192
4	182	177	667	370	360	1,920	1,010	649	1,420	703	275	192
5	434	172	654	341	410	1,700	916	654	1,400	676	263	188
6	430	169	595	370	490	1,430	880	636	1,170	636	260	185
7	292	167	526	402	474	1,160	825	595	946	622	260	182
8	224	177	470	347	478	988	785	582	845	577	260	180
9	369	218	438	335	474	840	745	608	850	631	255	180
10	570	224	398	430	454	745	712	703	1,150	572	250	178
11	575	574	358	390	430	672	708	1,010	1,400	486	248	175
12	455	575	350	360	414	631	845	1,480	1,670	474	245	175
13	350	386	344	340	542	590	1,000	1,770	1,280	490	238	175
14	292	316	344	350	910	550	892	1,680	1,080	494	238	172
15	264	288	344	320	1,440	526	916	1,450	1,000	470	238	168
16	248	267	341	300	1,310	838	1,030	1,340	1,160	446	235	168
17	230	248	354	290	1,190	2,670	1,130	1,360	1,260	422	230	168
18	218	230	370	280	988	1,920	1,080	1,160	1,100	418	225	168
19	206	218	329	400	865	1,680	1,060	1,000	1,160	446	222	168
20	200	206	302	1,000	795	1,330	1,230	998	1,150	398	220	168
21	187	197	302	2,700	694	1,150	1,310	1,140	1,060	390	215	165
22	192	203	362	3,900	672	1,190	1,220	1,410	970	390	215	162
23	187	1,250	721	2,700	1,130	1,040	1,050	1,380	892	382	260	160
24	182	1,320	775	1,600	4,090	910	898	1,230	760	386	311	162
25	179	894	618	1,200	4,760	815	815	1,220	690	374	238	188
26	177	1,190	568	940	2,680	760	740	1,360	676	358	220	321
27	179	3,040	554	800	1,810	740	726	1,470	726	344	210	225
28	476	1,900	604	680	1,340	698	721	1,250	855	366	208	198
29	378	1,390	608	580	-	667	690	1,160	946	338	205	185
30	264	1,590	577	500	-	658	680	1,150	892	326	202	180
31	224	-	542	450	-	680	-	1,180	-	314	200	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	8,641	575	155	279	2.58	2.98	17,140
November	18,156	3,040	187	605	5.60	6.25	36,010
December	16,237	1,070	302	524	4.85	5.59	32,210
Calendar year 1949	229,820	4,700	150	630	5.83	79.13	455,900
January	23,897	3,800	280	771	7.14	8.23	47,400
February	30,300	4,760	340	1,082	10.0	10.43	60,100
March	33,698	2,670	526	1,087	10.1	11.60	66,840
April	28,804	1,510	680	960	8.89	9.92	57,130
May	33,724	1,770	582	1,088	10.1	11.61	66,890
June	32,468	1,670	676	1,083	10.0	11.19	64,440
July	16,221	825	314	491	4.55	5.24	30,190
August	7,549	311	200	244	2.26	2.60	14,970
September	5,515	321	160	184	1.70	1.90	10,940
Water year 1949-50	254,230	4,760	155	697	6.45	87.54	504,300

Peak discharge (base, 4,000 sec.-ft.)--Nov. 27 (11 a.m.) 4,390 sec.-ft.; Jan. 22 (about 7 a.m.) 4,530 sec.-ft.; Feb. 25 (1:30 a.m.) 5,920 sec.-ft.

Note.--No gage-height record Jan. 10 to Feb. 5; discharge computed on basis of recorded range in stage and records for North Santiam River at Mehama and above Mayflower Creek, near Detroit. Backwater from debris Oct. 1 to Nov. 27.

WILLAMETTE RIVER BASIN

Little North Santiam River near Mehama, Oreg.

Location.--Water-stage recorder, lat. 44°48', long. 122°34', in NW¹ sec. 16, T. 9 S., R. 2 E., 2 miles east of Mehama and mouth of river. Datum of gage is 655.41 feet above mean sea level, datum of 1929.

Drainage area.--110 square miles.

Records available.--October 1931 to September 1950. July to September 1924 and July to September 1931 at site 4 miles upstream.

Average discharge.--19 years, 745 second-feet.

Extremes.--Maximum discharge during year, 8,860 second-feet Feb. 25 (gage height, 10.4 feet, from floodmark); minimum, 21 second-feet Sept. 23, 24.

1924, 1931-50: Maximum discharge, 19,900 second-feet Dec. 28, 1945 (gage height, 15.20 feet), from rating curve extended above 10,000 second-feet by logarithmic plotting; minimum, 20 second-feet Sept. 9, 14, 1949.

Remarks.--Records good except those for periods of no gage-height record, which are fair.

No regulation or diversion above station.

Revisions (water years).--W 754: 1932.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

Oct. 1 to Jan. 21

Jan. 22 to Sept. 30

2.7	52	4.5	570	7.0	2,820	2.4	20	3.1	115
3.0	100	5.0	880	8.0	4,260	2.5	30	3.5	190
3.4	174	5.5	1,240	9.0	5,990	2.6	42	3.8	265
3.8	265	6.0	1,670	10.0	8,000	2.8	69		
4.1	370	6.5	2,190						

Note.--Same as preceding table above 3.8 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	271	1,430	874	a510	1,320	2,610	854	1,180	537	96	55
2	56	240	1,580	730	a480	1,370	2,480	943	1,160	450	90	54
3	52	217	1,240	a610	a460	3,510	1,810	834	1,140	406	86	51
4	61	195	985	559	a490	2,770	1,350	929	1,250	374	83	47
5	1,090	178	1,080	490	a540	2,610	1,180	874	1,180	346	80	46
6	1,340	170	1,040	603	922	2,240	1,170	1,070	915	309	79	43
7	947	160	841	744	874	1,620	1,030	901	867	283	75	42
8	570	189	685	625	950	1,300	957	796	978	253	72	40
9	1,120	242	625	554	929	1,090	874	763	854	247	69	38
10	1,610	330	537	.737	901	978	789	874	1,070	222	68	36
11	1,410	1,020	465	637	922	841	763	1,310	1,120	202	65	35
12	1,070	1,490	465	548	894	730	1,140	1,880	1,510	188	62	31
13	730	815	692	520	1,460	649	1,500	1,910	1,230	182	58	30
14	515	548	744	a450	2,610	598	1,250	1,660	908	180	56	30
15	392	420	750	420	3,500	559	1,340	1,420	789	168	55	30
16	320	358	874	402	3,260	1,490	1,680	1,270	860	162	54	30
17	271	289	874	a390	2,480	5,080	1,810	1,360	1,020	158	52	29
18	242	260	880	a380	1,800	3,060	1,500	1,120	860	150	48	28
19	219	258	724	718	1,660	3,030	1,340	901	929	152	45	27
20	202	217	598	2,440	a1,400	2,010	1,570	854	964	150	42	27
21	189	202	598	5,760	a1,200	1,620	1,540	1,090	796	137	41	25
22	174	204	1,180	6,470	a1,150	1,660	1,330	1,400	655	132	45	23
23	164	1,360	3,200	3,590	a2,000	1,420	1,100	1,280	655	127	73	21
24	154	2,270	2,590	2,160	a6,500	1,280	880	1,060	643	120	210	27
25	146	1,770	1,790	1,490	a8,000	1,100	776	1,070	608	115	145	98
26	139	2,080	1,540	1,220	a5,000	1,060	685	1,270	554	110	139	388
27	137	4,630	1,310	1,020	a2,700	1,200	744	1,400	576	105	86	288
28	626	2,820	1,410	834	a2,000	1,060	815	1,090	631	118	75	156
29	815	1,810	1,290	704	-	908	782	901	685	129	69	120
30	460	2,100	1,120	603	-	854	744	901	625	108	65	101
31	330	-	1,010	a550	-	901	-	971	-	100	59	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	15,622	1,610	52	504	4.58	5.28	30,990
November	27,075	4,630	160	902	8.20	9.15	53,700
December	34,147	8,200	465	1,102	10.0	11.54	67,750
Calendar year 1949	270,999	6,070	21	742	6.75	91.61	537,500
January	37,832	6,470	380	1,220	11.1	12.79	75,040
February	55,592	8,000	460	1,985	18.0	18.80	110,300
March	49,918	5,080	559	1,610	14.6	16.88	99,010
April	37,539	2,610	685	1,251	11.4	12.69	74,460
May	34,956	1,910	763	1,128	10.3	11.81	60,330
June	27,212	1,510	554	907	8.25	9.20	53,970
July	6,420	537	100	207	1.88	2.17	12,730
August	2,342	210	41	75.5	.686	.79	4,650
September	1,976	388	21	65.9	.599	.67	3,920
Water year 1949-50	330,629	8,000	21	906	8.24	111.77	655,800

Peak discharge (base, 8,200 sec.-ft.).--Jan. 22 (4 a.m.) 8,290 sec.-ft.; Feb. 25 (about 2 a.m.) 8,860 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage when available, weather records, and records for North Santiam River at Mehama.

South Santiam River below Cascadia, Oreg.

Location.--Water-stage recorder, lat. 44°24', long. 122°30', in SE $\frac{1}{4}$ sec. 36, T. 13 S., R. 2 E., 100 feet downstream from bridge at Cascadia ranger station, half a mile downstream from Tollgate Creek, three-quarters of a mile upstream from Deer Creek, and $\frac{1}{2}$ miles southwest of Cascadia. Gaging cable is 0.7 mile upstream, above Tollgate Creek. Datum of gage is 759.38 feet above mean sea level, datum of 1929.

Drainage area.--174 square miles at gaging cable.

Records available.--September 1935 to September 1950. Records do not include runoff from 3 square miles between cable and gage.

Average discharge.--15 years, 748 second-feet.

Extremes.--Maximum discharge during year, 10,000 second-feet Jan. 22 (gage height, 11.71 feet); minimum, 47 second-feet Oct. 3 (gage height, 1.36 feet).

1935-50: Maximum discharge, 23,400 second-feet Dec. 28, 1945 (gage height, 18.65 feet), from rating curve extended above 12,000 second-feet by logarithmic plotting; minimum, 23 second-feet Dec. 1, 2, 1936 (gage height, 0.98 foot).

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

Cooperation.--Water-stage recorder inspected by employee of U. S. Forest Service.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 24

Feb. 25 to Sept. 30

1.3	40	2.2	202	5.0	1,670	1.4	52	2.3	200	3.8	820
1.4	51	2.5	295	6.0	2,470	1.6	75	2.6	290	4.5	1,280
1.5	64	3.0	480	7.5	3,970	1.8	102	2.9	400	5.0	1,670
1.7	95	3.5	700	9.0	5,890	2.0	134	3.3	560		
2.0	153	4.0	980	11.0	8,860						

Note.--Same as preceding table above 5.0 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49	151	1,330	860	610	1,710	2,350	892	1,400	766	134	82
2	49	138	1,490	745	564	1,770	2,430	982	1,460	695	129	80
3	47	132	1,190	641	544	3,540	1,990	988	1,420	645	126	78
4	59	128	938	596	636	3,260	1,580	1,200	1,500	600	120	76
5	354	117	1,060	532	950	2,930	1,420	1,450	1,440	552	119	74
6	380	109	962	574	1,450	2,590	1,440	1,280	1,210	512	117	74
7	337	108	780	725	1,280	1,950	1,260	1,090	1,080	476	116	72
8	202	122	860	641	1,240	1,530	1,180	952	1,100	428	114	70
9	432	222	628	587	1,300	1,240	1,050	860	1,040	416	110	70
10	670	298	556	830	1,210	1,110	946	922	1,230	384	108	68
11	548	532	492	745	1,150	934	916	1,230	1,600	346	106	68
12	464	578	504	600	1,100	802	1,230	1,750	2,410	311	104	66
13	351	393	680	564	1,720	730	1,690	1,990	1,910	304	102	64
14	270	320	700	548	2,600	675	1,530	1,910	1,390	297	101	64
15	224	267	680	492	3,060	630	1,410	1,700	1,170	283	98	64
16	194	242	760	468	3,070	1,420	1,410	1,570	1,160	264	96	64
17	174	216	890	420	2,620	5,530	1,620	1,560	1,250	251	94	64
18	164	197	974	420	2,040	3,680	1,520	1,330	1,110	242	92	70
19	153	179	750	1,010	1,930	3,760	1,460	1,150	1,150	236	89	66
20	142	167	605	2,040	1,690	2,550	1,770	1,080	1,150	222	88	64
21	132	155	564	6,270	1,420	2,090	1,810	1,200	1,050	205	89	62
22	128	153	715	8,180	1,260	2,370	1,610	1,490	910	195	91	60
23	122	1,200	1,590	4,860	1,850	1,980	1,310	1,490	880	186	108	58
24	117	1,030	1,930	2,810	6,610	1,730	1,080	1,320	862	176	220	60
25	111	725	1,450	1,890	7,670	1,450	958	1,290	808	167	200	70
26	106	780	1,340	1,480	4,350	1,340	844	1,470	750	156	130	220
27	108	3,750	1,070	1,270	2,980	1,480	868	1,630	745	150	110	350
28	205	2,670	1,010	1,020	2,170	1,290	904	1,380	802	161	98	170
29	298	1,650	1,140	848	-	1,100	838	1,180	868	165	90	130
30	199	1,940	1,110	750	-	1,020	802	1,130	844	148	88	100
31	169	-	986	660	-	1,110	-	1,180	-	138	86	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	6,958	670	47	192	1.10	1.49	13,800
November	18,669	3,750	108	622	3.57	3.99	37,030
December	29,534	1,930	492	953	5.46	6.31	58,580
Calendar year 1949	269,469	7,970	47	738	4.24	57.59	534,500
January	44,076	8,180	420	2,122	8.17	9.42	87,420
February	59,074	7,670	544	2,110	12.3	12.63	117,200
March	59,301	5,530	630	1,913	11.0	12.67	117,600
April	41,236	2,430	802	1,375	7.90	8.81	81,790
May	40,668	1,990	880	1,312	7.54	8.69	80,660
June	35,699	2,410	745	1,190	6.84	7.63	70,810
July	10,077	766	139	325	1.87	2.15	19,980
August	3,473	220	86	112	.644	.74	6,890
September	2,678	350	58	69.3	.513	.57	5,310
Water year 1949-50	351,441	8,180	47	963	5.53	75.10	697,100

Peak discharge (base, 4,800 sec.-ft.).--Nov. 27 (2 p.m.) 6,630 sec.-ft.; Jan. 22 (3:30 a.m.) 10,000 sec.-ft.; Feb. 25 (3 a.m.) 9,970 sec.-ft.; Mar. 17 (11 a.m.) 6,930 sec.-ft.

Note.--No gage-height record Aug. 24 to Sept. 30; discharge computed on basis of weather records and records for station at Waterloo.

South Santiam River at Waterloo, Oreg.

Location.--Water-stage recorder, lat. 44°29'55", long. 122°49'20" in NW¼ sec. 28, T. 12 S., R. 1 W., 200 yards downstream from bridge at Waterloo and 2½ miles upstream from Hamilton Creek. Datum of gage is 370.39 feet above mean sea level, datum of 1929.

Drainage area.--640 square miles.

Records available.--July 1905 to March 1907, October 1910 to December 1911, July 1923 to September 1950.

Average discharge.--28 years (1905-6, 1923-50), 2,765 second-feet.

Extremes.--Maximum discharge during year, 41,200 second-feet Feb. 25 (gage height, 15.71 feet); minimum, 163 second-feet Oct. 3, 4, Sept. 23, 24 (gage height, 2.10 feet).
1905-7, 1910-11, 1923-50: Maximum discharge, 74,200 second-feet Dec. 28, 1945 (gage height, 22.85 feet), from rating curve extended above 37,000 second-feet; minimum, 96 second-feet Sept. 1, 2, 1940 (gage height, 1.98 feet).

Remarks.--Records excellent except those for period of no gage-height record, which are fair. No diversion or regulation above station.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

2.1	163	3.4	1,080	7.0	8,350
2.3	241	4.0	1,850	8.0	11,400
2.5	336	4.6	2,780	9.5	16,400
2.7	452	5.2	3,890	11.0	21,700
3.0	680	6.0	5,650	14.0	33,800

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	182	632	5,360	3,500	2,520	6,620	7,350	3,240	4,050	2,100	410	237
2	170	560	5,360	3,020	a2,300	6,020	8,770	3,790	4,300	1,890	392	229
3	163	513	4,530	2,560	a2,200	12,200	7,270	3,710	4,090	1,740	375	225
4	170	472	3,600	2,580	a2,600	11,900	5,720	3,990	4,260	1,620	370	220
5	1,170	440	3,970	2,120	a3,800	10,700	5,060	4,800	4,260	1,500	358	216
6	1,580	410	3,850	2,180	a5,100	10,000	5,130	4,470	3,690	1,400	358	212
7	1,850	396	3,110	3,610	4,750	7,450	4,640	3,910	3,240	1,310	347	208
8	1,000	422	2,630	3,190	5,090	5,980	4,300	3,370	3,350	1,180	336	204
9	919	656	2,390	2,700	4,970	5,060	3,930	3,150	3,000	1,100	331	200
10	3,310	1,190	2,200	4,050	4,620	4,730	3,540	3,150	3,500	1,060	321	200
11	2,540	2,390	1,920	3,500	4,450	4,110	3,590	3,970	4,150	930	316	196
12	2,130	3,580	1,820	2,700	4,260	3,600	4,090	5,650	6,200	870	353	189
13	1,500	2,030	2,260	2,610	5,430	3,290	5,900	6,490	5,600	850	286	185
14	1,130	1,460	2,390	2,520	9,070	3,060	5,410	6,200	4,110	810	282	189
15	950	1,210	2,340	2,120	11,200	2,810	5,040	5,460	3,440	761	272	189
16	780	1,010	3,040	1,990	11,200	4,020	5,200	4,950	3,290	716	282	185
17	656	890	3,350	1,780	10,000	19,300	5,630	4,910	3,890	680	282	185
18	648	800	4,280	1,640	7,570	14,000	5,300	4,430	3,400	656	268	204
19	576	725	3,310	2,710	6,670	14,100	4,880	3,750	3,310	632	264	189
20	520	656	2,580	6,830	5,950	9,970	5,720	3,440	3,440	632	259	182
21	486	616	2,260	20,700	5,060	7,690	5,900	3,690	3,090	568	259	178
22	459	576	2,560	30,600	4,490	8,530	5,590	4,510	2,750	544	254	170
23	440	3,960	6,020	19,300	5,540	7,240	4,600	4,690	2,520	520	282	167
24	422	6,080	8,090	11,500	22,900	6,440	3,870	4,150	2,390	500	616	174
25	398	4,150	5,650	7,550	32,500	5,510	3,420	3,990	2,260	472	592	204
26	386	3,810	5,230	6,100	16,900	5,090	3,060	4,300	1,950	459	392	535
27	375	12,600	4,280	5,880	11,600	5,680	3,040	4,930	2,050	452	316	950
28	536	10,300	4,170	4,470	5,180	5,180	3,590	4,340	2,120	452	286	479
29	1,680	6,410	4,220	3,690	-	4,380	3,150	3,690	2,300	506	264	353
30	970	7,660	4,220	3,200	-	4,070	2,970	3,480	2,280	452	250	291
31	752	-	3,870	2,680	-	3,970	-	3,520	-	428	250	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	28,848	3,310	163	913	1.45	1.68	57,220
November	76,494	12,600	386	2,550	5.98	4.45	151,700
December	114,860	8,090	1,820	3,705	3.79	6.67	227,800
Calendar year 1949	981,641	35,700	140	2,689	4.20	57.06	1,947,000
January	173,170	30,600	1,640	5,586	8.76	10.06	343,500
February	221,340	32,500	2,200	7,905	12.4	12.86	439,000
March	222,680	19,300	2,810	7,183	11.2	12.94	441,700
April	145,060	8,770	2,970	4,835	7.55	8.43	287,700
May	132,080	6,490	3,150	4,261	6.66	7.68	262,000
June	102,260	6,200	1,950	3,409	5.33	5.94	202,800
July	77,790	2,100	428	896	1.40	1.61	55,120
August	10,223	616	250	330	.516	.59	20,280
September	7,545	950	167	252	.394	.44	14,970
Water year 1949-50	1,262,350	32,500	163	3,458	5.40	73.55	2,504,000

Peak discharge (base, 21,000 sec.-ft.)--Nov. 27 (5 p.m.) 21,800 sec.-ft.; Jan. 22 (5:30 a.m.) 35,900 sec.-ft.; Feb. 25 (5 a.m.) 41,200 sec.-ft.; Mar. 17 (1:30 p.m.) 25,100 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for station below Cascadia.

Wiley Creek near Foster, Oreg.

Location.--Water-stage recorder, lat 44°22', long. 122°38', in NE¼ sec. 12, T. 14 S., R. 1 E., 0.4 mile downstream from Little Wiley Creek and 3½ miles southeast of Foster.

Drainage area.--52 square miles.

Records available.--October 1947 to September 1950.

Extremes.--Maximum discharge during year, 4,000 second-feet Jan. 21; maximum gage height, 6.39 feet Jan. 21, momentary backwater from debris; minimum discharge, 10 second-feet Sept. 23, 24 (gage height, 0.85 foot).
1947-50: Maximum discharge, 5,410 second-feet Jan. 7, 1948 (gage height, 7.52 feet) minimum, 6.9 second-feet Sept. 4, 5, 1949.

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

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 28 to Nov. 11)

0.8	7.5	1.4	65	3.0	650
.9	14	1.5	82	3.5	960
1.0	29	1.7	125	4.0	1,340
1.1	29	1.9	180	5.0	2,240
1.2	39	2.1	212	5.7	3,000
1.3	51	2.5	405		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	26	317	289	177	441	450	247	133	51	22	16
2	12	25	333	236	163	414	490	301	133	47	20	15
3	12	23	274	196	170	672	446	309	125	45	20	15
4	16	22	219	183	226	694	377	349	125	44	20	14
5	82	20	341	160	381	705	357	389	120	41	20	14
6	83	20	297	209	585	650	365	357	111	39	20	14
7	82	20	226	349	464	495	325	305	114	38	19	14
8	54	29	183	289	477	*405	305	262	109	37	19	14
9	92	70	174	236	464	349	266	240	102	41	18	14
10	133	111	154	464	405	325	240	240	104	38	18	13
11	116	163	133	309	377	281	233	285	130	35	18	14
12	92	174	125	222	357	240	325	345	226	34	17	13
13	68	116	166	230	510	222	456	349	165	33	17	12
14	57	88	166	216	738	216	405	325	135	31	17	13
15	47	72	*171	174	648	196	373	285	116	31	16	12
16	41	62	219	154	869	293	357	262	107	30	16	13
17	38	55	329	138	722	1,310	357	247	120	29	16	13
18	37	50	381	138	560	911	333	216	102	28	15	13
19	34	46	255	459	525	904	333	183	96	29	15	12
20	32	43	190	982	464	650	385	174	90	28	14	12
21	30	40	168	2,540	393	555	373	190	86	27	14	12
22	29	40	196	2,750	353	622	321	206	77	26	16	11
23	27	308	405	*1,540	468	540	266	190	79	26	20	11
24	26	226	535	855	1,720	486	222	171	82	25	55	11
25	26	183	454	565	1,990	414	183	166	75	25	32	20
26	25	177	410	464	1,120	414	180	180	68	24	24	49
27	24	898	333	454	754	459	196	180	64	23	20	37
28	59	639	305	341	560	397	219	160	61	26	19	23
29	50	405	333	277	-	341	202	138	58	26	18	19
30	34	446	325	233	-	309	193	130	55	24	17	17
31	29	-	325	193	-	325	-	125	-	23	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,480	133	12	47.4	0.912	1.06	2,940
November	4,597	898	20	153	2.94	3.29	9,120
December	8,442	535	125	272	5.23	6.04	16,740
Calendar year 1949	64,387.2	3,310	6.9	176	3.38	46.05	127,700
January	15,845	2,750	138	511	9.83	11.33	31,450
February	16,840	1,990	163	601	11.6	12.04	33,400
March	15,235	1,310	196	491	9.44	10.90	30,220
April	9,513	490	180	317	6.10	6.80	18,870
May	7,506	389	125	242	4.65	5.37	14,890
June	3,168	226	55	106	2.04	2.27	6,280
July	1,004	51	23	32.4	.823	.72	1,990
August	608	55	14	19.6	.377	.43	1,210
September	480	49	11	16.0	.308	.34	952
Water year 1949-50	84,718	2,750	11	232	4.46	60.59	168,000

Peak discharge (base, 1,400 sec.-ft.).--Nov. 27 (1 p.m.) 1,520 sec.-ft.; Jan. 21 (11.30 p.m.) 4,000 sec.-ft.; Feb. 25 (12:30 a.m.) 2,750 sec.-ft.; Mar. 17 (8:30 a.m.) 1,880 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Albany power canal near Lebanon, Oreg.

Location.--Water-stage recorder, lat. 44°32'55", long. 122°54'20", in SW $\frac{1}{4}$ sec. 2, T.12 S., R. 2 W., an eighth of a mile downstream from spillway and 1 mile north of Lebanon. Datum of gage is 322.90 feet above mean sea level, datum of 1929.

Records available.--April 1926 to September 1950. February to December 1919 at site near Albany.

Average discharge.--24 years, 218 second-feet.

Extremes.--Maximum daily discharge during year, 269 second-feet May 13; minimum daily, 85 second-feet Feb. 6.

1919, 1926-50: Maximum daily discharge, 332 second-feet Dec. 29, 1936; minimum daily, 10 second-feet (estimated) Apr. 29 to May 4, 1926; July 29, 30, 1927; Oct. 17-28, 1928.

Remarks.--Records good except those for periods of backwater from debris or no gage-height record, which are fair. 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 Mountain States Power Co.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	159	127	142	216	a180	109	236	223	247	246	119	135
2	156	117	172	223	a160	185	244	247	251	237	126	139
3	152	189	209	232	a150	213	240	193	250	232	124	142
4	150	181	206	230	a170	214	235	203	251	228	123	147
5	212	177	207	224	185	207	229	202	251	225	123	134
6	249	174	205	223	85	205	228	198	249	222	124	132
7	253	173	201	110	178	196	227	192	245	210	131	127
8	242	242	198	144	216	192	224	188	244	205	152	126
9	229	182	197	203	219	208	234	184	240	203	118	128
10	267	207	196	97	226	246	246	183	241	200	118	127
11	256	227	202	122	238	240	241	218	249	192	117	129
12	253	253	212	201	237	232	229	263	263	177	119	132
13	242	242	218	154	239	227	222	269	260	173	118	131
14	235	231	218	188	247	234	220	255	248	178	116	129
15	229	223	218	220	207	240	217	245	244	174	114	131
16	225	216	226	191	209	228	217	245	240	159	118	131
17	218	213	229	173	208	185	220	242	247	152	132	132
18	205	186	210	170	214	147	222	240	242	a150	133	137
19	197	191	231	215	205	147	182	235	239	a145	132	134
20	197	187	220	177	174	172	238	230	240	140	130	131
21	195	179	218	124	175	226	241	232	239	131	128	127
22	193	175	238	182	191	232	236	240	236	113	131	126
23	192	144	214	197	193	230	230	241	185	106	138	124
24	190	144	186	208	156	229	232	238	202	105	134	127
25	188	165	222	204	142	224	241	236	232	114	124	136
26	190	170	222	166	160	223	227	238	234	138	124	149
27	188	138	226	141	192	224	226	247	231	144	122	143
28	188	124	225	180	202	187	207	253	238	116	128	123
29	218	136	225	216	-	223	232	246	248	118	134	119
30	205	144	225	229	-	224	236	246	249	116	134	117
31	198	-	220	242	-	223	-	246	-	112	134	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	6,467	267	150	209	12,830
November.....	5,418	253	117	181	10,750
December.....	6,538	238	142	211	12,970
Calendar year 1949.....	73,332	-	34	201	145,400
January.....	5,802	242	97	187	11,510
February.....	5,358	247	85	191	10,630
March.....	6,550	246	147	211	12,980
April.....	6,859	246	182	229	13,600
May.....	7,118	269	183	230	14,120
June.....	7,235	263	185	241	14,350
July.....	5,159	246	105	166	10,230
August.....	3,918	152	114	126	7,770
September.....	3,947	149	117	132	7,830
Water year 1949-50.....	70,369	269	85	193	139,600

a No gage-height record; discharge computed on basis of weather records and recorded range in stage when available.

Note.--Backwater from debris Feb. 15 to June 23.

Luckiamute River near Hoskins, Oreg.

Location.--Water-stage recorder, lat. 44°43', long. 123°30', in NE $\frac{1}{4}$ sec. 11, T. 10 S., R. 7 W., a quarter of a mile downstream from Benton County line and $3\frac{1}{2}$ miles northwest of Hoskins. Datum of gage is 378.7 feet above mean sea level (from river-profile survey). Drainage area.--34 square miles.

Records available.--May 1934 to September 1950.

Average discharge.--16 years, 197 second-feet.

Extremes.--Maximum discharge during year, 2,300 second-feet Feb. 24 (gage height, 7.49 feet); minimum, 8.7 second-feet Sept. 23.

1934-50: Maximum discharge, 5,560 second-feet Dec. 14, 1946, Feb. 17, 1949; maximum gage height, 13.22 feet Dec. 14, 1946; minimum discharge, 7 second-feet Sept. 2-5, 10, 21, 22, 1934.

Remarks.--Records good except those for periods of backwater from debris or no gage-height record, which are fair. No diversion or regulation above station; log ponds upstream cause diurnal fluctuation at times.

Revisions (water years).--W 834: 1936(M).

Rating tables, water year 1949-50, except period of backwater from debris (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 23						Feb. 24 to Sept. 30					
1.3	9.5	2.0	110	4.0	710	1.2	7.4	1.9	106	5.0	1,150
1.4	18	2.4	200	5.0	1,110	1.3	15	2.2	174	6.0	1,570
1.5	30	2.8	305	6.4	1,680	1.4	26	2.6	282	7.0	2,060
1.7	59	3.4	495			1.5	38	3.2	460		
						1.7	68	4.0	755		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	35	392	576	280	481	436	129	48	25	16	12
2	12	32	456	456	250	560	415	132	46	24	16	12
3	12	30	368	350	250	858	385	123	45	24	15	11
4	22	308	299	240	870	352	127	44	23	15	11	
5	41	27	323	268	250	870	519	172	42	23	15	11
6	48	26	270	922	400	718	290	155	41	22	15	11
7	38	26	240	1,030	600	578	262	143	42	22	15	11
8	25	30	210	632	1,070	504	240	132	42	22	15	11
9	72	50	192	484	738	478	216	123	39	23	15	11
10	65	90	170	766	600	442	200	116	39	23	15	11
11	82	250	148	593	618	391	182	110	39	22	14	11
12	58	590	188	425	642	352	197	104	39	21	14	11
13	44	258	242	583	1,180	322	179	98	39	19	14	10
14	36	170	210	511	1,190	290	179	94	38	19	14	10
15	30	128	200	284	1,070	262	282	88	38	19	14	10
16	28	105	205	250	1,060	560	310	84	37	19	14	10
17	26	89	365	218	810	1,370	296	88	41	19	13	10
18	24	77	530	200	618	1,010	268	84	37	18	13	10
19	23	69	410	464	512	954	240	79	34	19	12	10
20	25	64	323	962	456	721	216	75	32	19	12	10
21	22	59	287	1,250	383	616	197	72	31	17	11	9.4
22	22	69	392	1,680	353	592	182	68	32	16	13	9.4
23	21	248	858	1,370	955	542	174	66	38	16	38	8.7
24	21	854	910	926	1,980	578	155	63	37	16	37	13
25	20	582	850	632	1,780	525	143	60	33	15	19	27
26	19	631	805	596	1,100	528	134	58	31	15	15	32
27	21	1,680	706	544	766	668	138	58	30	15	14	19
28	58	954	635	439	592	658	127	55	28	20	14	14
29	64	618	642	400	-	525	121	54	27	20	13	13
30	46	488	635	350	-	433	112	52	26	18	13	12
31	40	-	710	310	-	370	-	52	-	16	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,074	82	12	34.6	1.02	1.17	2,150
November	8,337	1,680	28	278	8.18	9.12	16,540
December	13,181	910	148	425	12.5	14.42	26,140
Calendar year 1949	71,129	4,040	11	195	5.74	77.80	141,100
January	18,350	1,680	200	592	17.4	20.07	36,400
February	20,703	1,980	230	739	21.7	22.65	41,060
March	18,606	1,370	262	600	17.6	20.35	36,900
April	6,947	456	112	232	6.82	7.60	13,780
May	2,914	172	52	94.0	2.76	3.19	5,780
June	1,115	48	26	37.2	1.09	1.22	2,210
July	609	25	15	19.6	.576	.67	1,210
August	486	38	11	15.7	.462	.53	964
September	371.5	32	8.7	12.4	.385	.41	737
Water year 1949-50	92,693.5	1,980	8.7	254	7.47	101.40	183,900

Peak discharge (base, 2,000 sec.-ft.).--Nov. 27 (7:30 a.m.) 2,120 sec.-ft.; Feb. 24 (11 p.m.) 2,300 sec.-ft.

Note.--No gage-height record Jan. 29 to Feb. 7; discharge computed on basis of recorded range in stage and records for station at Pedee. Backwater from debris Oct. 19 to Nov. 11; discharge computed on basis of records for station at Pedee.

WILLAMETTE RIVER BASIN

Luckiamute River at Pedee, Oreg.

Location.--Water-stage recorder, lat. 44°45', long. 123°25', in E½ sec. 33, T. 9 S., R. 6 W., half a mile southwest of Pedee and half a mile downstream from Pedee Creek. Datum of gage is 244.92 feet above mean sea level, datum of 1929.

Drainage area.--115 square miles.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 444 second-feet.

Extremes.--Maximum discharge during year, 5,020 second-feet Feb. 25 (gage height, 11.53 feet; minimum, 14 second-feet Sept. 18, 19, 22-24.

1940-50: Maximum discharge, 13,500 second-feet Feb. 17, 1949 (gage height, 18.46 feet, from floodmark); minimum observed, 7 second-feet 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).-- W 964: 1941. W 1044: Drainage area.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.4	14	2.2	103	6.0	1,740
1.5	20	2.4	145	8.0	2,800
1.6	27	2.8	260	10.5	4,300
1.7	36	3.3	440		
2.0	72	4.0	745		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	59	776	1,480	700	1,140	980	245	103	52	27	18
2	20	54	870	1,160	614	1,200	900	254	97	49	26	17
3	20	52	722	930	570	1,650	840	236	90	48	25	16
4	22	48	619	800	588	1,600	758	235	92	46	24	16
5	45	47	714	709	642	1,640	691	295	90	46	24	16
6	71	46	637	2,320	1,010	1,400	632	274	95	44	24	16
7	72	44	542	3,380	1,340	1,170	565	260	98	40	23	15
8	47	47	472	1,960	2,530	1,050	516	251	97	40	22	15
9	62	74	436	1,520	2,070	1,060	468	236	89	40	22	15
10	113	134	396	2,540	1,720	1,000	432	224	87	46	21	15
11	123	408	348	1,860	1,760	885	398	212	87	43	20	16
12	95	865	396	1,360	1,780	795	420	203	87	37	20	15
13	74	358	534	1,280	2,620	718	390	200	87	36	19	15
14	60	242	468	1,100	2,930	650	362	188	84	35	19	15
15	54	188	456	960	2,580	583	464	179	82	35	20	16
16	49	155	504	900	2,430	1,040	508	170	84	34	20	16
17	45	134	845	768	1,940	2,840	500	170	84	32	19	15
18	43	121	1,450	718	1,560	2,310	456	170	82	32	18	15
19	39	111	1,090	905	1,320	2,140	420	155	74	31	18	14
20	39	103	840	1,920	1,160	1,680	379	150	71	32	18	15
21	38	97	718	2,970	1,020	1,420	351	145	69	31	16	15
22	37	97	870	4,250	920	1,410	330	141	68	29	18	14
23	36	356	1,860	3,870	1,860	1,280	323	136	75	28	16	14
24	35	1,180	2,060	2,590	3,980	1,390	292	130	78	27	74	16
25	35	930	1,920	1,800	4,170	1,270	274	123	71	26	40	36
26	33	850	1,840	1,880	2,570	1,220	260	119	69	26	31	47
27	36	2,880	1,560	1,890	1,800	1,550	250	117	64	26	26	45
28	98	1,730	1,360	1,480	1,390	1,540	251	117	60	32	23	29
29	113	1,180	1,430	1,130	-	1,280	245	111	58	40	21	25
30	78	985	1,460	950	-	1,060	227	109	57	36	20	23
31	66	-	1,770	786	-	895	-	105	-	32	18	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,721	123	20	55.5	0.483	0.56	3,410
November	13,575	2,880	44	452	3.93	4.39	26,930
December	29,983	2,060	348	967	8.41	9.70	59,470
Calendar year 1949	165,658	10,100	16	454	3.95	53.60	328,600
January	52,166	4,250	709	1,683	14.6	16.87	103,500
February	49,574	4,170	570	1,770	15.4	16.03	98,330
March	40,866	2,840	583	1,318	11.5	13.22	81,060
April	13,890	980	227	463	4.03	4.49	27,550
May	5,681	295	105	183	1.59	1.83	11,230
June	2,429	103	57	81.0	.704	.79	4,820
July	1,131	52	26	36.5	.317	.37	2,240
August	752	74	16	24.3	.211	.24	1,490
September	575	47	14	19.2	.167	.19	1,140
Water year 1949-50	212,323	4,250	14	582	5.06	68.68	421,200

Peak discharge (base, 3,500 sec.-ft.)--Nov. 27 (10:30 a.m.) 3,730 sec.-ft.; Jan. 6 (10 p.m.) 4,670 sec.-ft.; Jan. 22 (1 p.m.) 4,510 sec.-ft.; Feb. 25 (1 a.m.) 5,020 sec.-ft.

Luckiamute River near Suver, Oreg.

Location.--Water-stage recorder, lat. 44°47'00", long. 123°14'00", in SW¹/₄ sec. 18, T. 9 S., R. 4 W., at highway bridge at Helmick State Park, 3 miles downstream from Little Luckiamute River and 3 miles northwest of Suver. Datum of gage is 171.37 feet above mean sea level, datum of 1929.

Drainage area.--240 square miles.

Records available.--August 1905 to October 1911, July 1940 to September 1950.

Average discharge.--16 years (1905-11, 1940-50), 898 second-feet.

Extremes.--Maximum discharge during year, 9,170 second-feet Feb. 25 (gage height, 27.72 feet); minimum, 29 second-feet Sept. 11-14, 19-21, 23, 24.

1905-11, 1940-50: Maximum discharge, 23,800 second-feet Feb. 18, 1949 (gage height, 33.10 feet), from rating curve extended above 14,000 second-feet by logarithmic plotting; minimum, 21 second-feet Sept. 10, 1944 (gage height, 1.78 feet).

Maximum discharge known at present site, 25,000 second-feet probably Dec. 29, 1937 (gage height, 33.5 feet, from floodmark), from rating curve extended above 14,000 second-feet by logarithmic plotting.

Remarks.--Records good. 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.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).--W 1044: Drainage area. W 1094: 1945-46.

Rating table, water year 1949-50 (gage height, 'in feet,
and discharge, in second-feet)
(Backwater from debris Oct. 6 to Nov. 11)

1.8	29	4.0	190	16.0	2,140
2.0	38	5.0	292	20.0	3,120
2.4	59	6.0	410	24.0	4,520
2.7	78	8.0	690	26.5	6,730
3.0	101	10.0	1,000	27.5	8,690
3.5	144	12.5	1,430		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	94	1,680	3,150	1,460	2,530	1,830	492	178	81	44	33
2	46	85	1,590	2,490	1,280	2,080	1,850	535	168	76	42	32
3	43	78	1,510	1,900	1,150	2,920	1,680	510	158	72	40	32
4	44	72	1,250	1,620	1,150	3,220	1,490	478	150	70	39	31
5	55	69	1,230	1,390	1,260	3,420	1,350	558	150	68	39	31
6	99	66	1,380	2,090	1,770	3,190	1,260	566	149	66	38	31
7	139	64	1,150	5,890	2,580	2,560	1,160	525	159	64	38	31
8	111	63	978	5,760	3,480	2,140	1,120	489	162	64	38	30
9	84	77	872	3,790	4,540	2,140	1,020	457	153	64	38	30
10	168	208	845	4,040	3,740	1,990	912	436	152	64	38	30
11	185	419	732	4,740	3,320	1,830	850	413	160	69	38	29
12	208	1,700	668	3,360	3,200	1,610	893	393	151	63	36	29
13	140	1,150	949	2,460	3,470	1,450	934	378	147	59	34	29
14	106	804	923	2,580	4,950	1,360	834	360	142	56	34	29
15	105	433	832	2,010	5,240	1,220	925	338	136	54	34	30
16	79	345	928	1,950	4,980	1,390	1,120	324	135	52	34	31
17	71	284	1,240	1,640	4,440	3,370	1,100	314	133	52	36	31
18	66	247	2,240	1,380	3,530	5,160	981	323	136	51	34	30
19	60	219	2,390	1,520	2,800	4,660	899	302	126	50	33	29
20	58	196	1,780	3,050	2,320	3,820	826	285	117	50	32	29
21	58	177	1,420	4,740	2,000	3,040	766	272	110	50	31	29
22	55	167	1,270	7,190	1,770	2,930	716	262	107	47	30	30
23	54	266	2,040	8,850	2,000	2,640	690	251	108	47	34	30
24	53	1,360	3,340	6,580	4,400	2,660	640	240	129	46	74	29
25	52	1,890	3,250	4,660	8,410	2,580	595	228	119	44	82	33
26	52	1,390	3,290	3,500	6,980	2,330	548	218	110	42	51	54
27	52	2,620	3,050	3,700	4,840	2,470	555	212	103	42	44	66
28	61	3,990	2,790	3,200	3,420	2,820	545	209	98	42	38	54
29	233	3,070	2,500	2,430	-	2,520	407	201	92	52	36	42
30	157	2,170	2,730	1,980	-	2,120	481	197	84	55	34	38
31	112	-	3,160	1,640	-	1,830	-	185	-	49	33	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	2,854	233	43	92.1	0.384	0.44	5,660
November	23,573	3,990	63	786	3.28	3.65	46,760
December	54,007	3,340	668	1,742	7.26	8.37	107,100
Calendar year 1949	320,335	18,800	32	878	3.66	49.64	635,400
January	105,080	8,650	1,380	3,390	14.1	16.28	208,400
February	94,480	8,410	1,150	3,374	14.1	14.64	187,400
March	80,000	5,160	1,220	2,581	10.8	12.40	158,700
April	29,077	1,850	481	969	4.04	4.51	57,670
May	10,951	566	185	353	1.47	1.70	21,720
June	4,022	178	84	134	.558	.62	7,980
July	1,761	81	42	56.8	.237	.27	3,490
August	1,226	82	30	39.5	.165	.19	2,430
September	1,012	66	29	33.7	.140	.16	2,010
Water year 1949-50	408,043	8,650	29	1,118	4.66	63.23	809,300

Peak discharge (base, 6,600 sec.-ft.).--Jan. 7 (7 p.m.) 7,450 sec.-ft.; Jan. 23 (4 a.m.) 9,130 sec.-ft.; Feb. 25 (2 to 4 p.m.) 9,170 sec.-ft.

WILLAMETTE RIVER BASIN

Mill Creek at penitentiary annex, near Salem, Oreg.

Location.--Water-stage recorder, lat. 44°52'55", long. 122°58'35", in NE $\frac{1}{4}$ sec. 18, T. 8 S., R. 2 W., at State penitentiary annex, $2\frac{1}{2}$ miles downstream from Battle Creek, 5 miles southeast of Salem, and 7 miles upstream from mouth.

Drainage area.--103 square miles.

Records available.--October 1940 to September 1950 in reports of Geological Survey. November 1938 to September 1941 in reports of Oregon State engineer.

Average discharge.--11 years (1939-50), 361 second-feet.

Extremes.--Maximum discharge during year, 3,390 second-feet Jan. 10 (gage height, 6.29 feet); minimum, 62 second-feet July 6.

1938-50: Maximum discharge, 5,140 second-feet Feb. 18, 1949 (gage height, 7.67 feet); minimum, 44 second-feet July 13, 1939, July 6, 1949.

Maximum discharge known, 8,320 second-feet Dec. 29, 1937, computed by velocity-area method on basis of discharge measurement of 7,300 second-feet made that day.

Remarks.--Records good except those for periods of no gage-height record, which are fair. 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 head gates and small power plants above station.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 23

Dec. 24 to Sept. 30

1.1	114	2.5	590	0.6	60	1.8	305	4.0	1,440
1.3	153	3.0	790	.8	82	2.1	415	4.5	1,820
1.6	235	3.5	1,000	1.0	110	2.5	585	5.5	2,650
2.0	390	4.0	1,280	1.2	146	3.0	830		
				1.5	215	3.5	1,110		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	127	175	418	650	a600	630	387	190	152	150	135	150
2	125	172	450	a560	a500	621	364	220	150	118	131	146
3	123	167	362	a500	a560	820	333	257	152	71	133	150
4	130	167	322	427	a680	598	292	257	154	68	135	154
5	147	163	646	403	a860	730	275	312	146	67	135	150
6	167	163	570	680	a1,500	710	312	260	159	68	133	152
7	172	160	442	2,480	1,760	549	266	223	165	135	135	150
8	155	160	362	2,140	1,870	554	272	202	178	127	131	150
9	149	175	346	1,510	1,620	685	237	190	169	131	127	150
10	160	193	370	2,320	1,230	645	215	181	185	138	125	152
11	163	204	298	2,610	1,120	558	202	167	212	136	125	146
12	145	216	266	1,570	973	463	364	159	205	138	125	131
13	138	193	282	1,200	1,370	415	368	152	195	131	124	131
14	134	185	256	a1,700	1,250	367	330	144	183	129	138	117
15	155	185	282	a1,400	a1,200	340	305	140	178	131	144	115
16	155	180	474	a1,500	a1,700	578	295	135	181	129	144	118
17	151	175	642	a1,100	a1,400	1,270	266	133	188	133	144	115
18	149	172	1,070	a800	951	995	234	133	181	136	140	115
19	147	170	750	a900	815	1,130	212	125	174	142	138	118
20	145	167	578	a1,400	670	775	200	122	174	136	138	117
21	142	167	502	a2,000	572	740	190	120	172	136	139	113
22	153	172	546	a1,500	500	863	185	135	163	138	142	108
23	163	370	1,230	a1,500	680	770	183	159	167	136	148	106
24	160	414	1,290	a1,100	1,230	700	169	163	165	138	163	133
25	165	266	962	a850	1,930	580	163	161	163	136	165	140
26	167	260	880	a850	1,250	635	161	161	161	136	152	156
27	160	594	685	a1,400	1,030	770	167	161	163	133	154	174
28	172	578	567	a1,500	765	621	163	161	161	148	154	161
29	190	502	621	a1,100	-	504	150	163	156	146	154	152
30	180	562	670	a900	-	447	146	161	154	144	152	154
31	175	-	795	a800	-	407	-	152	-	140	148	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	4,764	190	123	154	9,450
November.....	7,427	594	160	248	14,730
December.....	17,934	1,290	256	579	35,570
Calendar year 1949	117,669	4,560	50	322	233,400
January.....	38,750	2,610	403	1,250	76,860
February.....	30,586	1,930	500	1,092	60,670
March.....	20,490	1,270	340	661	40,640
April.....	7,406	387	146	247	14,690
May.....	5,399	312	120	174	10,710
June.....	5,106	212	146	170	10,130
July.....	3,945	150	67	127	7,820
August.....	4,350	165	124	140	8,630
September.....	4,124	174	106	137	8,180
Water year 1949-50	150,281	2,610	67	412	298,100

a No gage-height record; discharge computed on basis of recorded range in stage and records for station at Salem.

Mill Creek at Salem, Oreg.

Location.--Water-stage recorder, lat. 44°56'05", long. 123°01'00", in NE $\frac{1}{4}$ sec. 26, T. 7 S., R. 3 W., at State Street Bridge in Salem, 220 feet downstream from 19th Street diversion. Datum of gage is 166.12 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Drainage area.--108 square miles.

Records available.--October 1940 to September 1950 in reports of Geological Survey. July 1938 to September 1941 in reports of Oregon State engineer.

Average discharge.--11 years (1939-50), 141 second-feet.

Extremes.--Maximum discharge during year, 1,110 second-feet Jan. 7 (gage height, 5.80 feet); minimum, 3.8 second-feet Oct. 1.

1938-50: Maximum discharge recorded, 1,230 second-feet Feb. 19, 1949 (gage height, 6.38 feet); no flow Oct. 2, 1939.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Salem power canal diverts water into Mill Creek near Stayton; several diversions from Mill Creek, including Shelton flood bypass $\frac{1}{4}$ miles upstream, and 19th Street power diversion 220 feet upstream. Diurnal fluctuation caused by power plants above station.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Oct. 6 to Dec. 17, July 7)

0.3	2.0	0.8	29	2.5	341
.4	4.5	1.0	50	3.5	590
.5	8.3	1.3	92	4.6	865
.6	14	1.6	143		
.7	20	2.0	225		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.0	54	255	402	a250	363	271	71	41	17	14	39
2	5.3	53	266	358	a200	341	255	115	33	12	14	36
3	4.9	50	214	306	h225	422	236	145	34	35	17	36
4	4.9	56	182	280	h296	358	192	156	34	37	17	41
5	5.3	58	348	260	353	395	174	192	34	40	15	38
6	7.2	67	351	516	545	402	214	162	35	43	14	39
7	7.9	59	266	860	648	306	176	132	44	78	20	37
8	4.0	51	216	510	642	312	170	113	50	27	18	36
9	6.4	54	199	432	602	382	147	92	49	10	17	33
10	7.8	69	214	730	490	372	123	73	63	13	16	34
11	4.2	94	176	602	465	343	106	63	a100	11	16	31
12	5.3	89	258	478	415	303	210	49	a95	14	14	20
13	12	62	151	560	498	271	262	47	a90	11	15	20
14	14	56	123	610	498	253	225	36	a86	9.9	24	15
15	31	56	125	460	485	225	199	34	a82	9.3	28	15
16	32	60	262	440	598	312	192	21	h84	a9	30	15
17	34	69	341	395	550	572	174	13	78	a9	33	14
18	34	64	572	312	432	a460	143	13	70	all	24	9.9
19	34	62	465	365	388	a520	122	11	62	a16	18	9.9
20	30	59	372	605	341	a360	100	8.3	60	a15	22	8.3
21	32	58	329	712	329	a340	89	8.3	56	14	23	7.5
22	36	56	329	590	312	a460	82	12	53	15	26	7.5
23	42	160	595	540	346	a430	80	30	51	13	31	7.2
24	43	201	620	465	510	h400	70	46	48	14	42	14
25	53	136	522	388	710	346	60	44	44	14	48	24
26	54	138	500	385	565	363	51	44	47	16	40	44
27	50	343	415	545	502	410	80	26	47	15	41	60
28	59	336	355	508	415	375	58	31	44	18	41	48
29	62	303	355	425	-	319	46	42	40	17	39	39
30	59	334	400	378	-	289	39	40	34	15	38	42
31	55	-	442	a300	-	280	-	40	-	15	36	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	834.2	62	4.0	26.9	1,650
November.....	3,307	343	50	110	6,560
December.....	10,118	620	123	326	20,070
Calendar year 1949.....	49,988.1	1,090	3.5	137	99,140
January.....	14,717	860	260	475	29,190
February.....	12,610	710	200	450	25,010
March.....	11,284	572	225	364	22,360
April.....	4,326	271	39	144	8,580
May.....	1,909.6	192	8.3	61.6	3,790
June.....	1,688	100	33	56.3	3,350
July.....	591.2	78	9	19.1	1,170
August.....	791	48	14	25.5	1,570
September.....	820.3	60	7.2	27.3	1,630
Water year 1949-50.....	62,996.3	860	4.0	173	125,000

a No gage-height record; discharge computed on basis of recorded range in stage when available, weather records, and records for station at Penitentiary Annex, near Salem.
h Computed from staff-gage reading.

South Yamhill River near Willamina, Oreg.

Location.--Water-stage recorder, lat. 45°03', long. 123°30', in sec. 14, T. 6 S., R. 7 W., 2 miles upstream from Willamina Creek and 2 miles southwest of Willamina. Datum of gage is 235.01 feet above mean sea level, datum of 1929.

Drainage area.--133 square miles.

Records available.--May 1934 to September 1950.

Average discharge.--16 years, 583 second-feet.

Extremes.--Maximum discharge during year, 6,210 second-feet Jan. 22; maximum gage height, 8.58 feet Nov. 27; minimum discharge, 6.6 second-feet Sept. 8 (gage height, 0.45 foot). 1934-50: Maximum discharge, 15,200 second-feet Feb. 10, 1949 (gage height, 14.80 feet); minimum, 3 second-feet Aug. 22, 1938, Oct. 16, 1942; minimum daily, 7 second-feet Aug. 22, 1938.

Remarks.--Records good except those for periods of no gage-height record or backwater from debris, which are fair. Slight regulation occasionally during summer by millpond upstream; no diversion above station.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions.--W 814: Drainage area.

Rating tables, water year 1949-50, except periods of backwater from debris (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 21					Jan. 22 to Sept. 30						
0.6	17	1.1	87	3.0	830	0.4	6	1.1	99	5.0	2,250
.7	25	1.2	112	3.5	1,110	.5	12	1.4	180	6.0	3,200
.8	36	1.5	198	4.5	1,800	.6	20	1.8	305	7.0	4,270
.9	49	2.0	366	5.5	2,660	.7	30	2.4	540	8.1	5,600
1.0	66	2.5	580	7.3	4,600	.8	42	3.0	845		
						.9	58	4.0	1,470		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	90	852	1,550	a740	1,250	1,150	308	135	60	28	18
2	23	83	1,230	1,240	a680	1,210	1,060	336	129	56	29	19
3	21	79	940	1,020	a640	1,980	948	312	124	55	27	16
4	24	72	805	951	a700	2,560	828	316	122	52	26	15
5	123	68	934	785	812	2,970	760	351	119	50	23	16
6	171	64	830	2,520	1,350	2,270	710	358	114	47	27	14
7	148	61	695	2,810	1,450	1,700	650	340	114	48	26	17
8	90	64	585	1,860	3,610	1,350	730	319	116	47	27	10
9	139	274	566	1,490	2,460	1,220	600	302	106	52	26	14
10	248	417	550	2,960	2,010	1,070	545	288	109	53	23	13
11	220	1,120	445	2,050	2,040	924	504	285	122	50	25	14
12	171	1,510	454	1,560	2,020	795	605	282	109	45	24	13
13	151	760	580	1,480	3,240	725	550	275	102	41	24	18
14	107	490	517	1,260	3,240	660	504	262	97	36	27	13
15	90	362	535	1,090	3,500	610	740	246	97	37	22	10
16	81	287	720	968	3,290	1,050	790	234	95	37	26	15
17	70	259	1,240	795	2,580	3,070	745	234	102	36	27	10
18	64	204	1,710	705	2,000	2,440	650	250	92	32	22	12
19	59	180	1,500	1,890	1,890	2,290	559	222	84	31	21	14
20	56	162	1,040	4,300	1,410	1,770	508	213	79	36	20	10
21	51	148	924	4,510	1,210	1,520	471	204	77	34	19	11
22	51	162	956	5,540	1,070	1,530	447	195	75	30	18	11
23	49	782	2,260	4,500	2,180	1,480	431	189	92	31	29	11
24	45	1,520	2,650	3,010	4,820	1,900	381	183	99	27	73	11
25	45	1,180	2,460	2,040	5,350	1,540	355	171	88	29	42	16
26	45	1,580	2,260	1,840	3,460	1,460	336	171	79	28	34	146
27	44	4,220	1,940	1,550	2,270	1,700	340	171	71	26	29	69
28	176	2,060	1,690	1,210	1,640	1,620	344	160	69	32	25	38
29	183	1,360	1,820	1,010	-	1,400	308	155	68	52	21	31
30	123	1,090	1,690	872	-	1,210	298	150	69	41	21	27
31	102	-	1,790	a820	-	1,040	-	138	-	34	19	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	2,974	248	21	95.9	0.721	0.83	5,900
November	20,688	4,220	61	690	5.19	5.78	41,030
December	36,948	2,650	445	1,129	8.96	10.33	73,290
Calendar year 1949	206,384	11,300	20	565	4.25	57.71	409,300
January	60,186	5,540	705	1,941	14.6	16.83	119,400
February	61,452	5,330	640	2,195	16.5	17.18	121,900
March	48,315	3,070	610	1,559	11.7	13.51	95,830
April	17,818	1,150	298	594	4.47	4.98	35,340
May	7,650	381	138	247	1.86	2.14	15,170
June	2,954	135	68	98.5	.741	.83	5,860
July	1,285	60	26	40.8	.307	.35	2,510
August	830	73	18	26.8	.202	.25	1,650
September	650	146	10	21.7	.163	.18	1,290
Water year 1949-50	261,730	5,540	10	717	5.39	73.17	519,170

Peak discharge (base, 5,700 sec.-ft.).--Nov. 27 (6:30 a.m.) 6,140 sec.-ft.; Jan. 22 (11 a.m.) 6,210 sec.-ft.; Feb. 25 (4 a.m.) 6,180 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for South Yamhill River near Whiteson and North Yamhill River at Pike and near Pike.

Note.--Backwater from debris Oct. 1 to Nov. 1, May 28-30, Aug. 22 to Sept. 30.

WILLAMETTE RIVER BASIN

169

South Yamhill River near Whiteson, Oreg.

Location.--Water-stage recorder, lat. 45°10'10", long. 123°12'25", in NW¼ sec. 5, T. 5 S., R. 4 W., at Whiteson Bridge on Pacific Highway West, 1 mile downstream from Salt Creek and 1½ miles northwest of Whiteson. Datum of gage is 82.30 feet above mean sea level, datum of 1929.

Drainage area.--502 square miles.

Records available.--July 1940 to September 1950.

Average discharge.--10 years, 1,579 second-feet.

Extremes.--Maximum discharge during year, 18,100 second-feet Jan. 23 (gage height, 39.95 feet); minimum, 30 second-feet Sept. 7, 8, 12, 13.
1940-50: Maximum discharge, 28,900 second-feet Feb. 11, 1949 (gage height, 43.39 feet); minimum, 18 second-feet Aug. 23, 1941, Sept. 14, 1944.

Remarks.--Records fair. Discharge for periods of rapidly changing stage adjusted for rate of change of stage. Slight regulation during low-water periods from log ponds upstream. Small diversions above station for irrigation.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

1.2	28	5.0	463	33.0	8,870
1.5	47	7.0	820	35.0	10,300
1.7	62	10.0	1,440	37.0	12,500
2.0	87	15.0	2,660	39.0	15,900
3.0	186	25.0	5,480	40.0	18,200
4.0	309	29.0	6,800		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	171	2,450	5,110	2,700	4,610	3,180	786	276	132	71	38
2	53	154	2,440	4,440	2,310	3,440	3,230	843	265	118	60	38
3	51	140	2,690	3,520	1,990	4,320	2,960	839	242	115	56	39
4	51	140	2,160	2,890	1,940	5,190	2,570	778	235	110	54	39
5	66	124	1,960	2,560	2,450	6,400	2,270	826	229	105	53	37
6	265	121	2,340	3,390	3,550	6,560	2,100	883	227	99	53	34
7	370	115	1,960	8,330	5,460	5,450	1,940	841	238	92	54	32
8	245	111	1,670	9,380	7,750	4,290	2,040	784	248	92	50	31
9	170	153	1,430	6,820	10,700	3,890	1,960	733	236	97	50	33
10	384	596	1,460	7,060	8,270	3,540	1,740	699	220	102	48	32
11	418	938	1,240	8,840	6,460	3,270	1,590	674	235	99	43	33
12	399	3,110	1,120	6,710	6,140	2,840	1,580	657	239	91	43	32
13	289	2,710	1,440	4,870	6,400	2,520	1,690	645	217	85	44	33
14	225	1,380	1,450	4,530	8,080	2,310	1,540	616	212	80	46	33
15	189	928	1,310	3,730	8,550	2,100	1,620	586	206	75	45	36
16	164	699	1,580	3,560	8,620	2,320	1,990	550	207	74	42	36
17	147	557	2,240	3,010	7,880	5,080	1,960	527	225	74	45	34
18	132	455	4,140	2,540	6,420	6,820	1,760	561	236	72	44	36
19	120	386	4,270	2,780	5,150	6,680	1,550	527	199	68	38	35
20	114	340	3,590	5,890	4,320	5,800	1,410	482	179	63	39	35
21	110	303	2,800	9,310	3,870	4,770	1,300	455	166	71	38	34
22	105	274	2,950	15,400	3,390	4,670	1,210	437	165	72	36	34
23	103	452	3,990	17,600	3,510	4,550	1,170	420	172	69	38	34
24	100	2,740	6,260	13,800	6,840	5,160	1,080	399	212	66	65	33
25	99	3,060	6,390	9,820	11,200	5,350	985	377	202	58	120	39
26	97	2,500	6,540	6,860	13,400	4,640	917	354	180	59	82	64
27	98	4,740	5,900	5,810	10,000	4,440	892	342	164	54	68	244
28	102	6,480	5,100	5,080	6,890	4,770	904	339	155	60	69	139
29	319	4,710	4,570	4,030	-	4,440	835	323	146	75	52	92
30	268	3,090	4,970	4,500	-	3,840	792	306	137	97	47	76
31	201	-	5,110	4,310	-	3,390	-	295	-	81	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	5,507	418	51	178	0.355	0.41	10,920
November	41,671	6,480	111	1,369	2.77	3.09	82,650
December	97,290	6,540	1,120	3,138	6.25	7.21	193,000
Calendar year 1949	585,153	26,100	35	1,603	3.19	43.36	1,161,000
January	194,240	17,600	2,540	6,266	12.5	14.41	385,300
February	174,240	13,400	1,940	6,223	12.4	12.91	345,600
March	157,450	6,820	2,100	4,434	8.83	10.18	272,600
April	50,765	3,230	792	1,692	3.37	3.76	100,700
May	17,883	883	295	577	1.15	1.32	35,470
June	6,270	276	137	209	.416	.46	12,440
July	2,603	132	54	84.0	.167	.19	5,160
August	1,624	120	36	52.4	.104	.12	3,220
September	1,483	244	31	49.4	.098	.11	2,940
Water year 1949-50	731,026	17,600	31	2,003	3.99	54.15	1,450,000

Peak discharge (base, 9,300 sec.-ft.)--Jan. 8 (4 a.m.) 9,950 sec.-ft.; Jan. 23 (6 to 7 a.m.) 18,100 sec.-ft.; Feb. 9 (10 a.m.) 11,200 sec.-ft.; Feb. 26 (7:30 a.m.) 13,800 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for station near Willamina.

WILLAMETTE RIVER BASIN

Willamina Creek near Willamina, Oreg.

Location.--Water-stage recorder, lat. 45°08'35", long. 123°29'40", in N $\frac{1}{2}$ sec. 13, T. 5 S., R. 7 W., 4 miles north of Willamina. Datum of gage is 315.1 feet above mean sea level (from river-profile survey).

Drainage area.--65 square miles.

Records available.--June 1934 to September 1950.

Average discharge.--16 years, 238 second-feet.

Extremes.--Maximum discharge during year, 3,320 second-feet Feb. 24 (gage height, 7.90 feet); minimum, 13 second-feet Sept. 23 (gage height, 1.40 feet).

1934-50: Maximum discharge, 6,380 second-feet Feb. 17, 1949 (gage height, 10.25 feet), from rating curve extended above 3,400 second-feet by logarithmic plotting; minimum, 9 second-feet Sept. 3, 4, 1934, Sept. 9, 1935, Aug. 8-10, 19, Sept. 22-27, 1939, Aug. 17, 18, 1940.

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

Revisions.--W 964: Drainage area.

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

1.4	13	2.0	61	4.5	795
1.5	18	2.3	106	5.0	1,040
1.6	24	2.6	163	6.0	1,620
1.7	31	3.0	260	7.0	2,410
1.8	39	3.5	400	7.5	2,900
1.9	49	4.0	580		

Discharge, in second-feet, water year October, 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	a36	367	612	a290	718	556	188	80	42	25	16
2	16	a30	456	516	a270	728	548	190	75	41	25	16
3	16	28	370	435	a250	1,020	494	178	72	38	25	16
4	34	28	319	394	b270	1,410	442	176	69	37	24	16
5	78	28	355	352	295	1,450	407	198	68	37	24	16
6	103	27	319	736	376	1,130	375	195	68	36	23	16
7	62	27	288	836	428	875	346	181	72	35	24	16
8	39	30	255	644	900	732	370	172	71	36	23	14
9	88	82	252	552	777	674	328	165	67	37	23	14
10	90	93	230	705	732	596	302	159	67	37	22	16
11	90	268	205	588	822	516	290	157	68	36	22	16
12	67	424	235	431	870	456	300	157	64	33	21	15
13	50	218	288	452	1,410	421	290	162	65	33	20	15
14	42	148	268	385	1,410	368	282	146	64	32	22	16
15	37	116	258	352	1,450	376	364	136	61	31	22	16
16	33	98	292	313	1,410	530	376	131	64	31	23	16
17	32	84	466	282	1,220	1,310	361	136	78	30	20	16
18	30	75	548	278	1,020	1,160	322	134	61	29	19	15
19	29	69	452	410	880	1,100	300	125	56	31	18	15
20	a28	62	368	759	759	900	285	118	54	31	17	16
21	a27	59	*376	990	674	782	270	114	53	29	16	16
22	a26	69	491	1,660	632	728	255	113	53	28	19	14
23	a26	332	1,170	1,630	1,520	692	245	108	67	27	44	13
24	a26	522	1,180	1,170	2,890	772	225	101	64	25	44	16
25	a26	397	1,210	850	2,660	687	210	98	57	25	28	28
26												
28	a26	553	1,110	*723	1,740	644	202	95	53	25	23	57
27	a28	1,480	1,000	596	1,220	718	205	95	49	25	22	31
28	a72	764	840	494	910	705	192	92	47	37	20	23
29	a64	519	822	424	-	624	183	87	45	37	19	22
30	a50	428	714	a350	-	556	178	86	43	50	19	20
31	a41	-	696	a320	-	512	-	82	-	28	18	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,392	103	16	44.9	0.691	0.80	2,760
November	7,094	1,460	27	236	3.63	4.06	14,070
December	16,220	1,210	205	523	8.05	9.28	32,170
Calendar year 1949	89,646	4,590	16	246	3.78	51.28	177,800
January	19,299	1,660	278	623	9.58	11.04	38,280
February	28,085	2,890	250	1,003	15.4	16.07	55,710
March	23,898	1,450	364	771	11.9	13.67	47,400
April	9,504	556	178	317	4.88	5.44	18,850
May	4,265	198	82	138	2.12	2.44	8,460
June	1,875	80	43	62.5	.962	1.07	3,720
July	1,009	42	25	32.5	.500	.58	2,000
August	714	44	16	23.0	.354	.41	1,420
September	552	57	13	18.4	.283	.32	1,090
Water year 1949-50	113,907	2,890	13	312	4.80	65.18	225,900

Peak discharge (base, 2,300 sec.-ft.)--Feb. 24 (12 p.m.) 3,320 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage when available, weather records, and records for South Yamhill River near Willamina and North Yamhill River near Pike and at Pike.

b Stage-discharge relation affected by ice.

North Yamhill River near Pike, Oreg.

Location.--Water-stage recorder, lat. 45°22'15", long. 123°17'10", in NE $\frac{1}{4}$ sec. 27, T. 2 S., R. 5 W., $\frac{1}{2}$ miles downstream from Haskins Creek and $\frac{1}{2}$ miles west of Pike. Datum of gage is 249.2 feet above mean sea level (Corps of Engineers bench mark).

Drainage area.--48.8 square miles.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 179 second-feet.

Extremes.--Maximum discharge during year, 2,750 second-feet Feb. 24 (gage height, 6.95 feet); minimum, 6.1 second-feet Sept. 23.

1940-50: Maximum discharge, 4,780 second-feet Feb. 10, 1949 (gage height, 9.28 feet), from rating curve extended above 2,500 second-feet; minimum, 4.2 second-feet Sept. 11, 1944; minimum daily, 6.0 second-feet Sept. 10, 1944.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Occasional diurnal fluctuations caused by small dams upstream; no seasonal regulation. Water supply for city of McMinnville is diverted from Haskins Creek above station.

Revisions.--W 1154: Drainage area.

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 5 to Dec. 23)

Oct. 1 to Dec. 23

Dec. 24 to Sept. 30

1.0	4	1.4	41	1.0	4.5	1.4	39	2.0	142	4.0	850
1.1	11	1.5	54	1.1	12	1.5	51	2.4	238	5.0	1,420
1.2	20	1.7	85	1.2	21	1.6	65	2.9	390	6.0	2,050
1.3	30	2.0	142	1.3	30	1.8	101	3.5	615	7.0	2,790

Note.--Same as following table above 2.0 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	17	258	428	b210	575	470	157	47	25	15	8.5
2	10	16	317	352	b190	599	467	263	46	24	15	7.7
3	9.6	16	252	296	b180	880	414	146	44	24	15	7.7
4	18	16	215	258	b200	1,400	364	117	41	23	15	7.7
5	28	16	241	a230	225	1,270	332	136	43	22	15	8.5
6	32	16	220	a660	317	895	302	129	44	22	15	9.3
7	23	16	190	a780	358	674	272	121	46	22	15	8.5
8	15	20	164	a600	714	567	249	115	44	22	15	8.5
9	25	53	160	a500	492	519	190	109	41	23	14	7.7
10	27	50	146	a820	446	456	180	108	45	25	13	8.5
11	33	184	130	a560	488	394	173	107	41	24	12	9.3
12	26	299	142	a460	519	345	192	97	39	23	12	7.7
13	20	184	173	a400	890	314	222	80	40	21	12	6.9
14	17	107	160	a350	855	290	220	75	40	19	13	8.5
15	16	77	160	a310	950	272	293	72	39	19	13	8.5
16	15	60	176	a270	1,010	508	317	68	38	19	13	8.5
17	14	49	308	a230	890	1,090	308	70	46	18	11	7.7
18	14	44	342	a180	732	950	269	74	38	18	10	6.9
19	15	39	258	a500	646	830	241	65	36	18	10	7.7
20	14	36	*217	al,000	555	660	225	62	35	18	9.3	8.5
21	14	32	200	al,200	492	575	207	61	34	16	9.3	7.7
22	14	38	235	al,300	481	519	194	59	33	16	11	6.9
23	14	195	622	*1,150	1,210	555	185	57	36	15	21	6.9
24	14	293	705	741	2,410	571	169	54	37	15	21	7.7
25	14	233	678	527	2,020	484	157	51	35	14	15	16
26	14		638	460	1,430	456	151	55	34	14	13	26
27	15	1,200	628	390	966	511	149	55	35	15	12	14
28	31	658	571	326	718	495	140	54	30	21	11	11
29	25	428	615	290	-	436	134	54	27	19	10	10
30	21	326	559	260	-	394	129	52	26	17	9.3	9.3
31	19	-	531	b240	-	384	-	51	-	16	8.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	576.6	33	9.6	18.6	0.381	0.44	1,140
November	5,127	1,200	16	171	3.50	3.91	10,170
December	10,211	705	130	329	6.74	7.78	20,250
Calendar year 1949	63,757.3	3,290	7.5	175	3.59	48.58	126,500
January	16,068	1,300	180	518	10.6	12.25	31,870
February	20,594	2,410	180	736	15.1	15.69	40,850
March	18,968	1,400	272	609	12.5	14.38	37,420
April	7,315	470	129	244	5.00	5.57	14,510
May	2,774	263	51	89.5	1.83	2.11	5,500
June	1,158	47	26	38.6	.791	.88	2,300
July	607	25	14	19.6	.402	.46	1,200
August	403.4	21	8.5	13.0	.266	.31	800
September	278.3	26	6.9	9.28	.190	.21	552
Water year 1949-50	83,980.3	2,410	6.9	230	4.71	63.99	166,600

Peak discharge (base, 1,800 sec.-ft.).--Nov. 27 (4:30 a.m.) 1,820 sec.-ft.; Feb. 24 (8 a.m.)

2,750 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for North Yamhill River at Pike, South Yamhill River near Willamina, and Willamina Creek near Willamina.

b Stage-discharge relation affected by ice.

North Yamhill River at Pike, Oreg.

Location.--Water-stage recorder, lat. 45°22', long. 123°15', in NW¼ sec. 25, T. 2 S., R. 5 W., 500 feet downstream from Turner Creek, half a mile southeast of Pike, and 4 miles northwest of Yamhill. Prior to Aug. 21, 1950, at datum 1.02 feet higher.

Drainage area.--66.8 square miles.

Records available.--October 1948 to September 1950.

Extremes.--Maximum discharge during year, 3,260 second-feet Feb. 24 (gage height, 6.55 feet); minimum, 7.5 second-feet Sept. 12, 23.
1948-50: Maximum discharge, 6,280 second-feet Feb. 10, 1949 (gage height, 9.98 feet); minimum, that of Sept. 12, 23, 1950.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Occasional diurnal fluctuations caused by small dams upstream; no seasonal regulation. Water supply for city of McMinnville is diverted from Haskins Creek above station.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	18	316	520	260	735	575	181	59	28	16	9.6
2	9.9	18	382	440	240	755	563	297	57	27	16	9.3
3	10	17	306	360	225	1,060	511	178	54	26	16	8.9
4	16	17	264	320	253	1,560	455	143	51	25	16	9.6
5	34	17	302	280	278	1,400	415	161	52	24	16	9.3
6	40	17	274	780	402	1,060	378	152	55	24	16	10
7	26	17	232	970	482	810	346	145	59	24	16	9.6
8	18	18	201	760	975	690	325	139	56	24	16	8.6
9	29	54	198	620	675	644	255	128	53	24	15	8.6
10	34	54	182	1,020	590	567	234	126	57	24	14	8.9
11	40	191	162	700	645	491	222	124	52	24	13	9.3
12	29	342	180	580	705	439	246	116	49	23	13	8.2
13	22	180	219	500	1,190	399	272	100	50	21	13	8.6
14	19	115	204	440	1,120	374	266	96	50	20	13	9.6
15	17	85	201	380	1,210	353	350	93	49	20	13	9.3
16	16	69	219	320	1,250	606	370	88	47	20	h13	8.9
17	15	58	412	280	1,110	1,230	360	91	61	20	h11	8.9
18	15	52	450	230	930	1,100	318	94	49	19	h11	8.6
19	15	46	338	650	820	994	290	87	45	20	10	8.6
20	14	43	281	1,300	710	800	266	81	43	20	10	9.6
21	14	39	260	1,500	630	715	246	79	41	18	9.3	9.3
22	14	43	298	1,600	610	658	231	78	39	18	11	8.2
23	15	230	776	1,390	1,540	715	222	74	45	17	23	7.8
24	15	362	825	918	2,840	740	201	69	46	16	24	8.9
25	15	270	820	680	2,330	636	188	66	44	16	17	17
26	15	524	800	570	1,630	587	180	70	41	16	14	30
27	16	1,300	780	480	1,110	654	180	70	38	16	12	18
28	32	785	720	410	896	636	168	67	36	22	12	13
29	29	526	770	350	-	559	158	68	32	22	11	12
30	22	398	700	320	-	511	154	66	31	19	10	12
31	20	-	650	290	-	491	-	62	-	17	10	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	635.9	40	9.9	20.5	0.307	0.35	1,260
November	5,905	1,300	17	197	2.95	3.29	11,710
December	12,722	825	162	410	6.14	7.08	25,230
Calendar year 1949	80,987.5	4,370	9.0	222	3.32	45.08	160,600
January	19,958	1,600	230	644	9.64	11.11	39,590
February	25,656	2,840	225	916	13.7	14.28	50,890
March	22,969	1,560	353	741	11.1	12.79	45,580
April	8,949	575	154	298	4.46	4.98	17,740
May	3,389	297	62	109	1.63	1.89	6,720
June	1,441	61	31	48.0	.719	.80	2,860
July	654	28	16	21.1	.316	.36	1,300
August	430.3	24	9.3	13.9	.208	.24	853
September	318.2	30	7.8	10.6	.159	.18	631
Water year 1949-50	103,023.4	2,840	7.8	282	4.22	57.35	204,300

Peak discharge (base, 2,500 sec.-ft.)--Feb. 24 (7 a.m.) 3,260 sec.-ft.

h Computed from staff-gage reading.

Note.--No gage-height record Dec. 25 to Jan. 22, Jan. 25 to Feb. 7, Aug. 1-15, 19, 20; discharge computed on basis of recorded range in stage when available, weather records, and records for North Yamhill River near Pike and South Yamhill River near Willamina.

Haskins Creek near McMinnville, Oreg.

Location.--Water-stage recorder and wooden control, lat. 45°18'50", long. 123°21'55", in NE 1/4 Sec. 13, T. 3 S., R. 6 W., 300 feet upstream from high-water line of McMinnville water-supply reservoir and 11 miles northwest of McMinnville.

Drainage area.--5.7 square miles.

Records available.--October 1928 to September 1950.

Average discharge.--22 years, 25.7 second-feet (adjusted for diversion, 1937-50).

Extremes (not adjusted for diversion).--Maximum discharge during year, 355 second-feet Feb. 24 (gage height, 3.34 feet, referred to outside gage); no flow part of Sept. 23, 1928-50: Maximum discharge, 610 second-feet Mar. 31, 1931 (gage height, 4.00 feet, before control was built); minimum prior to diversion above station, 1.0 second-foot Oct. 8, 1932.

Remarks.--Records good except those for periods of no gage-height record and those below 5 second-feet, which are fair. Since Sept. 2, 1937, a small amount of water has been diverted at a point 800 feet upstream into a 12-inch steel pipe, which delivers it into intake of McMinnville water-supply pipe-line reservoir. No regulation.

Cooperation.--Water-stage recorder inspected by employees of city of McMinnville.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	4.0	39	60	30	85	74	27	9	4.6	2.2	1.0
2	1.8	3.7	45	50	30	90	76	26	8	4.6	2.2	.9
3	1.8	3.7	35	40	28	125	72	25	8	4.3	2.2	.9
4	3.7	3.4	31	35	30	210	66	25	7	4.0	2.2	.9
5	6.4	3.4	33	30	35	200	60	28	6.8	4.0	2.2	1.0
6	7.8	3.4	31	70	45	170	54	28	6.8	4.3	2.2	1.1
7	4.6	3.4	26	110	50	134	51	25	7.3	4.0	2.2	1.0
8	3.4	4.3	23	85	105	97	50	22	6.8	4.0	2.2	1.0
9	6.0	10	22	65	70	84	47	20	6.4	4.0	2.0	.9
10	6.0	8.6	20	120	65	73	45	19	6.8	4.0	2.0	1.0
11	7.3	34	18	85	70	62	42	18	6.0	4.0	1.8	1.0
12	5.2	21	19	85	80	55	46	17	6.0	3.7	1.8	1.1
13	4.3	21	22	80	125	51	48	14	6.0	3.7	2.0	1.1
14	3.7	13	22	50	130	47	45	13	6.4	3.4	2.0	1.0
15	3.4	10	22	45	135	45	55	13	6.4	3.7	2.0	1.0
16	3.1	8.6	22	40	145	66	61	12	6.4	3.4	2.0	1.0
17	3.1	6.8	37	35	130	120	61	12	6.8	3.4	1.8	1.0
18	2.8	6.0	42	25	110	128	55	13	6.4	3.1	1.6	.9
19	2.8	5.2	33	75	95	113	46	12	6.0	3.4	1.5	.9
20	2.8	4.9	29	100	85	93	47	11	5.5	2.5	1.4	1.0
21	2.5	4.6	29	115	75	86	43	11	5.5	2.5	1.5	.9
22	2.5	6.0	37	130	70	79	41	11	5.5	2.5	1.8	.8
23	2.5	26	97	120	150	76	39	10	6.4	2.5	3.5	.7
24	2.5	42	107	h95	320	76	35	10	5.5	2.0	3.5	.8
25	2.5	33	109	80	300	73	33	9	5.5	2.0	2.0	1.8
26	2.5	67	95	70	210	70	31	9	5.5	2.0	2.0	3.0
27	2.8	170	93	55	150	72	31	10	5.2	2.5	1.7	2.0
28	7.8	94	86	50	120	73	29	10	4.9	3.5	1.5	1.3
29	5.5	59	90	40	-	66	28	10	4.9	3.0	1.3	1.2
30	4.6	46	79	40	-	60	27	9	4.6	2.5	1.1	1.1
31	4.0	-	70	35	-	60	-	9	-	2.5	1.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	121.5	7.8	1.8	3.92	241
November.....	735.0	170	3.4	24.5	1,460
December.....	1,463	109	18	47.2	2,900
Calendar year 1949.....	9,471.7	375	1.8	25.9	18,790
January.....	2,075	130	25	66.9	4,120
February.....	2,988	320	28	107	5,930
March.....	2,839	210	45	91.6	5,630
April.....	1,436	76	27	47.9	2,850
May.....	488	28	9	15.7	968
June.....	188.3	9	4.6	6.28	373
July.....	103.6	4.6	2.0	3.34	205
August.....	60.4	3.5	1.0	1.95	120
September.....	33.3	3.0	.7	1.11	66
Water year 1949-50.....	12,531.1	320	.7	34.3	24,860

Peak discharge (base, 180 sec.-ft.).--Nov. 27 (4 a.m.) 245 sec.-ft.; Feb. 24 (about 7 a.m.) 355 sec.-ft.; Mar. 4 (about 11 a.m.) about 240 sec.-ft.

h Computed from staff-gage reading.

Note.--No gage-height record Jan. 2-23, Jan. 25 to Mar. 6, May 7 to June 4, July 21-31, Aug. 17 to Sept. 10, Sept. 13-30; discharge computed on basis of recorded range in stage, weather records, and records for North Yamhill River near Pike and South Yamhill River near Willamina.

Molalla River above Pine Creek, near Wilhoit, Oreg.

Location.--Water-stage recorder, lat. 45°01', long. 122°29', near line between secs. 30 and 31, T. 6 S., R. 3 E., 1,700 feet upstream from Pine Creek and 5 miles southeast of Wilhoit.

Drainage area.--96 square miles.

Records available.--October 1935 to September 1950.

Average discharge.--15 years, 502 second-feet.

Extremes.--Maximum discharge during year, 7,600 second-feet Feb. 25 (gage height, 13.80 feet), from rating curve extended above 4,000 second-feet on basis of shape of previous curve defined to 6,500 second-feet; minimum, 28 second-feet Sept. 24.

1935-50: Maximum discharge, 12,200 second-feet Jan. 7, 1948 (gage height, 13.17 feet), from rating curve extended above 4,800 second-feet on basis of shape of previous curve defined to 6,500 second-feet; maximum gage height, 13.95 feet Feb. 17, 1949; minimum discharge, 19 second-feet Aug. 30 to Sept. 2, 1940.

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

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 21

Jan. 22 to Sept. 30

1.4	37	2.9	236	8.0	2,630	3.3	29	4.3	320	9.0	3,240
1.5	45	3.5	380	10.0	4,130	3.4	43	4.6	520	10.5	4,440
1.7	62	4.2	612	12.0	5,930	3.6	76	5.0	820	12.0	5,800
1.9	84	5.0	936			3.8	117	6.0	1,360		
2.3	138	6.0	1,430			4.0	175	7.0	1,920		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	134	987	583	117	1,120	1,530	632	820	380	74	43
2	44	120	1,120	492	99	1,060	1,580	694	820	332	73	43
3	43	109	846	419	89	1,890	1,240	658	838	304	68	42
4	47	101	666	383	110	1,880	1,030	680	898	276	68	42
5	181	97	754	347	187	2,050	940	785	848	250	66	39
6	304	94	680	540	513	1,760	918	736	694	235	62	39
7	278	89	551	728	544	1,310	832	664	729	207	61	37
8	187	107	456	565	708	1,060	813	592	778	191	59	36
9	321	214	404	479	616	910	743	576	722	191	57	35
10	533	302	352	791	492	785	694	632	880	175	56	33
11	437	1,180	302	590	422	640	664	856	850	162	54	33
12	339	1,040	295	459	368	544	1,000	1,220	994	149	53	32
13	256	565	431	413	880	464	1,140	1,280	850	143	51	32
14	202	398	422	366	1,610	436	952	1,160	708	138	51	32
15	170	300	434	321	2,240	394	958	1,030	616	135	49	32
16	147	252	462	297	2,630	764	1,120	934	664	125	48	32
17	130	214	520	285	1,990	3,320	1,160	934	799	117	46	32
18	120	184	540	268	1,420	2,300	1,030	813	708	113	45	30
19	110	166	425	917	1,240	2,230	952	687	687	115	43	30
20	104	153	352	2,820	1,050	1,550	1,080	656	708	110	43	30
21	98	141	344	5,260	813	1,300	1,080	778	600	102	40	30
22	94	138	544	5,410	616	1,370	964	940	506	97	42	30
23	90	876	2,130	3,090	1,170	1,220	838	892	506	93	68	29
24	85	1,040	1,930	1,800	4,820	1,160	722	792	485	89	108	33
25	82	838	1,200	1,200	5,500	1,020	640	799	492	87	74	100
26	77	950	931	904	2,980	916	576	922	450	84	61	356
27	74	3,180	787	624	1,970	910	552	1,020	436	80	54	172
28	316	1,990	877	380	1,420	832	568	862	443	93	51	106
29	280	1,340	864	255	-	750	568	743	471	95	48	84
30	186	1,420	758	175	-	785	552	708	443	84	45	74
31	153	-	668	143	-	764	-	715	-	76	45	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	5,534	533	43	179	1.86	2.14	10,980
November	17,532	3,180	89	584	6.08	6.79	34,770
December	22,052	2,130	295	711	7.41	8.54	43,740
Calendar year 1949	189,159	4,920	32	518	5.40	73.27	375,200
January	31,272	5,410	143	1,009	10.5	12.11	62,030
February	36,614	5,500	89	1,308	13.6	14.18	72,620
March	37,494	3,320	394	1,209	12.6	14.53	74,370
April	27,434	1,580	552	914	9.52	10.63	54,410
May	25,380	1,280	576	819	8.53	9.83	50,340
June	20,443	994	436	681	7.09	7.92	40,550
July	4,830	380	78	156	1.62	1.87	9,580
August	1,763	108	40	56.9	.593	.68	3,500
September	1,718	356	29	57.3	.597	.67	3,410
Water year 1949-50	232,066	5,500	29	636	6.62	89.89	460,300

Peak discharge (base, 3,600 sec.-ft.)--Nov. 27 (10 a.m.), 4,780 sec.-ft.; Jan. 22 (2 a.m.), 6,400 sec.-ft.; Feb. 25 (12:30 a.m.), 7,600 sec.-ft.; Mar. 17 (9 a.m.), 4,320 sec.-ft.

Molalla River near Molalla, Oreg.

Location.--Water-stage recorder, lat. 45°07', long. 122°22', in SW¹/₄ sec. 28, T. 5 S., R. 2 E., 1½ miles below Little Clear Creek and 3 miles southwest of Molalla.

Drainage area.--201 square miles.

Records available.--November 1905 to July 1909, October 1946 to September 1950. July 1938 to September 1942 (irrigation seasons only) at site 3½ miles downstream.

Extremes.--Maximum discharge during year, 12,600 second-feet Feb. 24 (gage height, 9.37 feet); minimum, 54 second-feet Sept. 23 (gage height, 2.67 feet).
1905-9, 1946-50: Maximum discharge, 23,700 second-feet Jan. 7, 1948 (gage height, 12.87 feet); minimum, 40 second-feet July 28-31, 1907.

Remarks.--Records good except those for periods of shifting control, which are fair. No regulation. A few small diversions for domestic use or irrigation.

Rating tables, water year 1949-50, except periods of shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 24

Feb. 25 to Sept. 30

1.4	63	2.8	405	5.5	2,610	2.6	45	3.8	450	6.0	3,300
1.6	90	3.2	580	6.5	4,200	2.7	58	4.0	580	6.5	4,300
1.8	124	3.7	850	8.0	7,150	2.9	92	4.3	850	7.5	6,750
2.0	165	4.2	1,210	9.0	9,650	3.1	140	4.7	1,290	8.2	8,500
2.3	245	4.8	1,770			3.3	210	5.1	1,820		
						3.5	290	5.5	2,440		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	227	1,740	1,260	959	1,920	2,330	983	1,190	612	138	78
2	73	205	1,820	1,030	862	1,780	2,520	1,100	1,220	538	130	76
3	72	190	1,450	850	826	2,830	2,120	1,040	1,240	492	125	74
4	79	175	1,170	766	987	2,850	1,720	1,180	1,310	456	122	74
5	318	152	1,390	655	1,230	3,040	1,530	1,360	1,280	426	122	72
6	441	132	1,270	952	1,820	2,700	1,460	1,300	1,050	390	120	71
7	429	126	987	1,740	1,820	2,100	1,280	1,210	1,105	365	115	69
8	305	168	772	1,390	2,100	1,690	1,250	1,080	1,250	340	113	68
9	404	272	685	1,110	2,000	1,420	1,210	1,030	1,140	350	110	66
10	772	346	585	2,030	1,790	1,250	1,100	1,060	1,480	320	108	86
11	610	998	498	1,530	1,640	1,080	1,050	1,300	1,440	290	104	66
12	490	1,180	508	1,120	1,530	972	1,400	1,910	1,750	274	101	63
13	380	650	778	945	2,100	900	1,860	2,080	1,530	262	97	61
14	314	465	754	850	3,070	830	1,580	1,880	1,220	254	99	61
15	284	374	748	710	4,110	780	1,490	1,640	1,040	246	94	61
16	257	323	832	640	4,860	1,510	1,690	1,480	1,050	234	92	61
17	230	299	987	550	3,920	4,190	1,810	1,450	1,460	226	88	61
18	210	275	1,110	508	2,980	3,350	1,610	1,270	1,270	214	85	60
19	192	254	856	1,680	2,680	3,390	1,450	1,070	1,160	234	83	58
20	178	233	680	5,050	2,290	2,540	1,610	994	1,130	222	81	60
21	165	218	665	8,780	1,940	2,120	1,650	1,130	1,000	198	78	58
22	157	218	1,140	9,180	1,740	2,220	1,480	1,400	860	186	79	55
23	148	885	4,020	5,790	2,480	1,970	1,270	1,350	870	174	108	55
24	140	1,650	3,610	3,630	8,260	1,880	1,120	1,240	870	164	178	61
25	134	1,380	2,280	2,610	8,350	1,600	1,000	1,220	860	161	138	181
26	128	1,420	1,820	2,150	4,800	1,370	910	1,390	770	155	113	496
27	126	4,260	1,570	1,870	5,230	1,370	910	1,600	732	149	104	305
28	326	3,180	1,680	1,560	2,420	1,240	950	1,340	723	170	92	186
29	321	2,230	1,660	1,350	-	1,130	950	1,140	732	182	88	140
30	290	2,560	1,500	1,190	-	1,090	910	1,070	687	155	85	125
31	254	-	1,420	1,030	-	1,170	-	1,060	-	146	81	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	8,373	772	72	270	1.34	1.55	16,610
November	25,025	4,260	126	834	4.15	4.63	49,640
December	40,965	4,020	498	1,321	6.57	7.58	81,250
Calendar year 1949	329,808	9,610	63	904	4.50	61.02	654,200
January	64,506	9,180	508	2,081	10.4	11.94	127,900
February	76,794	8,350	826	2,743	13.6	14.21	152,300
March	58,282	4,190	780	1,680	9.35	10.78	115,600
April	43,220	2,520	610	1,441	7.17	8.00	85,730
May	40,537	2,080	983	1,301	6.47	7.46	80,010
June	33,464	1,750	687	1,115	5.55	6.19	65,370
July	8,585	612	146	277	1.38	1.59	17,030
August	3,271	178	78	106	.527	.61	6,490
September	2,970	498	55	99.0	.493	.55	5,890
Water year 1949-50	405,792	9,180	55	1,112	5.53	75.09	804,800

Peak discharge (base, 5,000 sec.-ft.),--Nov. 27 (12 m.) 6,090 sec.-ft.; Dec. 23 (9 p.m.) 5,130 sec.-ft.; Jan. 22 (2:30 a.m.) 10,400 sec.-ft.; Feb. 16 (4:30 p.m.) 5,130 sec.-ft.; Feb. 24 (12 p.m.) 12,600 sec.-ft.; Mar. 17 (11 a.m.) 5,700 sec.-ft.

Note.--Shifting-control method used Nov. 11 to Apr. 23, May 24 to June 9.

WILLAMETTE RIVER BASIN

Molalla River near Canby, Oreg.

Location.--Water-stage recorder, lat. 45°15', long. 122°41', in NE¹/₄ sec. 9, T. 4 S., R. 1 E., at bridge 1½ miles south of Canby. Datum of gage is 104.56 feet above mean sea level, datum of 1929.

Drainage area.--323 square miles.

Records available.--August 1928 to September 1950.

Average discharge.--22 years, 1,054 second-feet.

Extremes.--Maximum discharge during year, 16,400 second-feet Feb. 25 (gage height, 11.7 feet); minimum, 68 second-feet Sept. 23, 24 (gage height, 0.57 foot).
1928-50: Maximum discharge, 25,100 second-feet Jan. 7, 1948; minimum, 25 second-feet Sept. 14, 1938; minimum daily, 38 second-feet Sept. 7, 1935.

Remarks.--Records good except those for Jan. 31 to Feb. 4, which are fair. A few small diversions above station for irrigation.

Cooperation.--Staff gage read once daily October to March by employees of U. S. Weather Bureau.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

Oct. 1 to Feb. 25					Feb. 26 to Sept. 30						
0.9	81	2.5	730	6.0	4,760	0.5	58	1.6	324	3.5	1,560
1.0	102	3.0	1,080	8.5	9,200	.7	88	1.9	446	4.0	2,060
1.2	152	3.5	1,510	11.0	14,600	.9	126	2.3	650	5.0	3,240
1.5	243	4.0	2,010			1.2	198	2.9	1,050		
1.9	405	5.0	3,240								
Note.--Same as preceding table above.											
5.0 Feet.											

Note.--Same as preceding table above.
5.0 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	98	288	2,390	2,000	h1,160	2,860	2,610	1,060	1,160	645	153	90
2	94	254	2,320	1,710	h1,080	2,500	3,270	1,290	1,220	564	146	88
3	92	230	2,010	1,390	h1,080	3,850	2,690	1,220	1,220	513	137	86
4	98	213	1,660	1,270	h1,160	4,040	2,220	1,310	1,290	480	133	86
5	310	201	1,820	1,100	1,320	4,330	1,970	1,570	1,290	442	133	85
6	604	186	1,850	1,420	2,050	4,000	1,910	1,490	1,110	406	135	83
7	718	180	1,560	3,450	2,340	2,990	1,710	1,480	1,110	378	130	80
8	485	189	1,260	2,860	2,780	2,460	1,720	1,350	1,340	351	128	78
9	387	273	1,100	2,180	2,900	2,150	1,580	1,260	1,140	354	122	78
10	1,040	455	979	3,880	2,470	1,940	1,430	1,230	1,530	343	120	80
11	853	796	839	3,170	2,250	1,730	1,340	1,390	1,640	307	112	78
12	724	1,610	766	2,160	2,100	1,520	1,660	1,970	1,890	284	108	78
13	598	930	1,050	1,820	2,520	1,400	2,180	2,190	1,760	264	108	75
14	480	659	1,110	1,680	3,620	1,320	1,910	2,040	1,420	255	106	75
15	400	538	1,100	1,380	4,980	1,230	1,790	1,830	1,200	245	106	75
16	348	445	1,470	1,260	6,290	1,420	1,950	1,630	1,130	229	104	75
17	308	382	1,710	1,060	5,610	5,060	2,080	1,580	1,550	226	99	75
18	280	340	2,140	944	3,880	4,740	1,900	1,440	1,420	215	95	75
19	247	304	1,770	1,820	3,230	4,760	1,710	1,230	1,290	220	90	74
20	226	276	1,580	5,960	2,730	3,580	1,830	1,090	1,230	232	90	74
21	213	254	1,220	12,200	2,260	2,850	1,870	1,170	1,120	204	88	72
22	201	250	1,460	13,800	1,980	2,920	1,710	1,430	952	193	90	71
23	189	845	4,920	8,990	2,420	2,660	1,470	1,480	910	185	112	69
24	186	2,250	5,560	5,520	7,890	2,610	1,260	1,290	938	172	158	75
25	174	1,920	3,390	3,540	14,000	2,340	1,110	1,210	924	170	172	136
26	169	1,760	2,660	2,790	7,750	2,120	994	1,330	847	162	133	412
27	163	4,530	2,220	2,540	5,320	2,090	980	1,570	770	158	116	415
28	237	4,200	2,190	2,060	3,760	1,950	1,070	1,400	752	172	108	239
29	642	2,840	2,190	1,740	-	1,770	1,060	1,170	758	198	102	190
30	415	3,170	2,160	1,500	-	1,660	1,010	1,090	716	180	99	162
31	332	-	2,140	h1,330	-	1,670	-	1,040	-	165	93	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	11,311	1,040	92	365	1.13	1.30	22,440
November	30,768	4,530	180	1,026	3.18	3.54	61,030
December	60,394	5,560	766	1,948	6.03	6.95	119,800
Calendar year 1949	434,588	15,700	61	1,191	3.69	50.03	862,000
January	98,524	13,800	944	3,178	9.84	11.34	195,400
February	100,930	14,000	1,080	3,605	11.2	11.62	200,200
March	82,520	5,060	1,230	2,662	8.24	9.50	163,700
April	51,994	3,270	980	1,733	5.37	5.99	103,100
May	45,850	2,190	1,040	1,414	4.38	5.05	86,940
June	35,627	1,890	716	1,188	3.68	4.10	70,670
July	8,910	645	158	287	.889	1.03	17,670
August	3,626	172	88	117	.362	.42	7,190
September	3,429	415	69	114	.353	.39	6,800
Water year 1949-50	531,863	14,000	69	1,457	4.51	61.23	1,055,000

Peak discharge (base, 7,200 sec.-ft.)--Jan. 22 (9 a.m.) 15,000 sec.-ft.; Feb. 25 (7 a.m.) 16,400 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations at Molalla and above Pine Creek, near Wilhoit.

h Computed from staff-gage readings.

Pudding River near Mount Angel, Oreg.

Location.--Water-stage recorder, lat. 45°03'50", long. 122°49'45", in SE $\frac{1}{4}$ sec. 8, T. 6 S., R. 1 W., at Cline Bridge, 2 miles west of Mount Angel and 4 miles upstream from Little Pudding River. Datum of gage is 119.76 feet above mean sea level, datum of 1929.

Drainage area.--207 square miles.

Records available.--October 1939 to September 1950.

Average discharge.--10 years (1939-44, 1945-50), 667 second-feet.

Extremes.--Maximum discharge during year, 5,320 second-feet Feb. 25 (gage height, 26.00 feet); minimum, 17 second-feet Sept. 23, 24.
1939-50: Maximum discharge, 15,000 second-feet Feb. 17, 1949; maximum gage height, 30.38 feet Feb. 18, 1949; minimum discharge observed, 9 second-feet Sept. 13, 1944.

Remarks.--Records good except those for periods of backwater from debris or no gage-height record, which are fair. Discharge for periods of rapidly changing stage computed using rate of change of stage as a factor. Small diversions for irrigation above station; no regulation.

Revisions (water years).--W 1094: 1943.

Rating tables, water year 1949-50, except period of backwater from debris (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 5					Feb. 6 to Sept. 30						
0.9	29	3.0	170	13.0	1,630	0.5	16	2.5	131	14.0	1,900
1.2	42	4.0	271	18.0	2,680	.7	22	3.0	177	18.0	2,770
1.6	63	6.0	550	21.0	3,580	1.0	34	4.0	290	21.0	3,720
2.0	88	9.0	1,000	24.0	4,800	1.5	60	6.0	570	24.8	5,320
						2.0	92	10.0	1,190		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	146	1,280	1,310	1,500	2,280	1,210	656	295	125	44	21
2	34	134	1,200	1,180	1,200	1,830	1,380	790	284	115	40	21
3	32	125	1,100	1,030	1,000	1,940	1,300	764	268	107	36	21
4	33	120	946	925	1,000	1,950	1,150	765	253	99	34	21
5	71	110	1,000	1,000	1,200	1,870	1,050	908	238	94	33	19
6	193	105	1,150	2,100	1,550	1,970	1,040	956	219	86	34	19
7	311	100	1,050	3,000	1,980	1,690	951	905	250	82	34	19
8	205	105	915	2,900	2,250	1,450	832	825	362	78	32	19
9	160	150	805	3,000	2,550	1,340	900	762	273	82	31	18
10	384	250	743	4,000	2,360	1,290	831	723	304	91	29	19
11	364	450	658	3,500	2,200	1,230	784	720	365	79	29	19
12	312	560	584	3,100	2,020	1,100	905	762	371	74	27	19
13	238	450	612	2,800	2,060	985	1,150	780	382	67	25	19
14	191	350	577	2,500	2,520	907	1,100	748	320	62	28	19
15	163	270	544	2,200	2,920	837	1,080	690	282	60	28	19
16	146	240	702	1,900	3,630	1,020	1,180	633	266	58	26	20
17	134	210	806	1,500	3,960	1,710	1,170	600	330	58	23	19
18	118	190	1,160	1,200	3,330	2,140	1,060	555	283	52	22	19
19	107	170	1,210	1,700	2,740	2,360	963	494	243	54	21	19
20	98	160	1,050	3,000	2,350	2,260	932	467	212	59	20	19
21	94	150	922	4,200	1,980	1,940	873	474	200	54	20	20
22	89	200	912	4,500	1,660	1,810	820	502	185	49	20	19
23	84	600	1,620	4,600	1,700	1,710	765	482	200	46	28	18
24	81	900	2,390	4,200	3,210	1,650	686	444	228	46	50	18
25	78	900	2,230	3,900	5,300	1,520	630	421	222	40	71	36
26	75	960	2,030	3,600	4,320	1,400	590	411	198	39	44	125
27	75	1,500	1,750	3,500	3,520	1,450	598	414	177	38	35	149
28	119	1,700	1,500	3,100	2,710	1,430	662	381	162	43	30	73
29	315	1,500	1,360	2,700	-	1,310	598	339	149	62	26	55
30	202	1,420	1,330	2,500	-	1,210	566	319	137	59	22	46
31	166	-	1,330	1,900	-	1,130	-	300	-	50	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	4,707	384	32	152	0.734	0.85	9,340
November	14,225	1,700	100	474	2.29	2.56	28,210
December	35,464	2,390	544	1,144	5.53	6.37	70,340
Calendar year 1949	232,172	10,700	16	636	3.07	41.70	460,500
January	82,545	4,800	925	2,656	12.8	14.79	163,300
February	68,720	5,300	1,000	2,454	11.9	12.35	136,300
March	48,719	2,360	837	1,572	7.59	8.75	96,630
April	27,866	1,380	566	929	4.48	5.01	55,270
May	18,990	956	300	613	2.96	3.41	37,670
June	7,658	382	137	255	1.23	1.38	15,190
July	2,108	125	38	68.0	.329	.38	4,180
August	964	71	20	31.1	.150	.17	1,910
September	947	149	18	51.6	.153	.17	1,880
Water year 1949-50	312,713	5,300	18	857	4.14	56.19	620,200

Peak discharge (base, 2,000 sec.-ft.),--Dec. 24 (2:30 p.m.) 2,470 sec.-ft.; Jan. 10 (time and discharge unknown); Jan. 23 (time and discharge unknown); Feb. 17 (5 a.m.) 4,090 sec.-ft.; Feb. 25 (5 p.m.) 5,320 sec.-ft.; Mar. 19 (12 m. to 1 p.m.) 2,400 sec.-ft.

Note.--No gage-height record Nov. 4-27, Jan. 5 to Feb. 5, June 23; discharge computed on basis of weather records and records for station at Aurora. Backwater from debris Feb. 25 to Mar. 19.

Pudding River at Aurora, Oreg.

Location.--Wire-weight gage, lat. 45°14', long. 122°45', in SE $\frac{1}{4}$ sec. 12, T. 4 S., R. 1 W., at highway bridge at Aurora, half a mile upstream from Mill Creek. Datum of gage is 76.79 feet above mean sea level, datum of 1929.

Drainage area.--493 square miles.

Records available.--October 1928 to September 1950.

Average discharge.--22 years, 1,132 second-feet.

Extremes.--Maximum discharge observed during year, 7,980 second-feet Jan. 24 (gage height, 19.23 feet); minimum, 54 second-feet Sept. 11.

1928-50: Maximum discharge, 25,400 second-feet Dec. 30, 1937 (gage height, 24.5 feet, from graph based on gage readings), from rating curve extended above 16,000 second-feet; minimum, 37 second-feet Sept. 9, 12, 1935.

Maximum stage known, 25.0 feet Jan. 9, 1923 (discharge, 27,900 second-feet, from subsequent rating curve extended above 16,000 second-feet).

Remarks.--Records good. Gage read twice daily Oct. 1 to June 30, once daily thereafter. Small diversions above station; slight regulation at times in summer by mills on tributaries.

Revisions (water years).--W 1094: 1923(M), 1931, 1934, 1936(M), 1938, 1943.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.1	50	2.2	345	11.0	2,990
.4	78	3.0	505	14.0	4,250
1.0	151	5.0	1,010	17.0	6,000
1.6	238	8.0	1,910	19.3	8,060

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	85	262	2,340	2,910	3,260	5,710	2,100	905	493	261	115	66
2	89	233	2,070	2,680	2,490	5,200	2,390	1,120	485	240	102	62
3	85	213	1,990	2,250	1,980	4,720	2,460	1,160	469	224	90	61
4	88	200	1,740	1,840	1,650	4,420	2,280	1,260	451	203	82	61
5	103	186	1,540	1,630	1,730	4,190	1,990	1,290	437	193	79	60
6	166	180	1,860	1,680	2,540	4,200	1,860	1,480	413	180	77	57
7	333	176	1,900	3,660	3,990	4,000	1,790	1,510	399	176	78	56
8	461	166	1,690	5,340	4,620	3,620	1,700	1,420	455	164	78	56
9	353	169	1,430	4,920	4,920	3,190	1,670	1,290	548	151	82	56
10	299	258	1,260	5,220	4,780	2,790	1,550	1,200	485	157	75	55
11	501	415	1,140	6,610	4,500	2,660	1,430	1,140	690	171	75	54
12	521	752	1,010	5,910	4,240	2,460	1,420	1,160	860	161	69	56
13	477	929	905	5,300	4,120	2,160	1,910	1,230	708	151	71	56
14	385	712	880	5,030	4,240	1,910	2,110	1,240	632	141	76	57
15	317	548	870	4,640	4,330	1,760	1,930	1,180	533	130	66	57
16	274	459	935	4,060	4,650	1,670	1,880	1,080	487	125	70	59
17	249	401	1,310	3,450	5,320	2,260	1,960	992	481	123	69	57
18	232	349	1,910	2,730	5,450	3,590	1,900	944	610	120	63	58
19	204	316	2,450	2,240	5,160	3,890	1,730	862	525	120	64	59
20	193	273	2,160	3,520	4,890	3,980	1,600	785	449	115	60	58
21	178	257	1,750	6,050	4,500	3,860	1,530	752	401	119	56	60
22	168	248	1,550	7,880	4,050	3,690	1,430	772	373	118	60	60
23	164	321	1,770	7,800	3,520	3,600	1,330	802	349	109	65	58
24	162	958	3,240	7,980	3,760	3,550	1,220	772	369	105	73	60
25	155	1,500	3,710	7,440	5,280	3,350	1,090	705	401	91	90	77
26	152	1,500	3,710	6,660	6,780	3,050	1,010	675	389	94	123	99
27	148	1,570	3,590	6,360	6,440	2,840	944	665	357	87	115	172
28	143	2,450	3,220	6,220	6,180	2,890	986	660	321	86	91	268
29	183	2,590	2,770	5,540	-	2,720	1,020	602	295	93	80	179
30	389	2,440	2,700	4,840	-	2,420	926	545	281	112	76	130
31	337	-	2,730	4,070	-	2,230	-	517	-	125	70	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	7,594	521	85	245	0.497	0.57	15,060
November	20,991	2,590	166	700	1.42	1.58	41,640
December	62,120	3,710	870	2,004	4.06	4.89	123,200
Calendar year 1949	430,947	21,000	57	1,181	2.40	32.51	854,700
January	146,780	7,980	1,630	4,735	9.60	11.07	291,100
February	119,350	6,780	1,650	4,263	8.65	9.00	236,700
March	102,600	5,710	1,670	3,310	6.71	7.74	203,500
April	99,146	2,460	926	1,638	3.32	3.71	97,480
May	30,715	1,510	517	991	2.01	2.32	60,820
June	14,146	860	281	472	.957	1.07	28,060
July	4,445	261	86	143	.290	.34	8,820
August	2,440	123	58	78.7	.160	.18	4,840
September	2,324	268	54	77.5	.157	.18	4,610
Water year 1949-50	562,651	7,980	54	1,542	3.13	42.45	1,116,000

Peak discharge (base, 4,500 sec.-ft.),--Jan. 11 (10 a.m.), 6,950 sec.-ft.; Jan. 24 (4:50 p.m.) 7,980 sec.-ft.; Feb. 18 (8 a.m.) 5,490 sec.-ft.; Feb. 26 (8:30 a.m.) 6,830 sec.-ft.

A no gage-height record; discharge computed on basis of records for station near Mount Angel.

Butte Creek at Monitor, Oreg.

Location.--Staff gage, lat. 45°06', long. 122°45', in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 25, T. 5 S., R. 1 W., at highway bridge in Monitor, 5 miles upstream from mouth.

Drainage area.--64 square miles.

Records available.--October 1940 to September 1950 in reports of Geological Survey. January to December 1936 in reports of State engineer.

Average discharge.--10 years, 217 second-feet.

Extremes.--Maximum discharge during year, 3,710 second-feet Jan. 22 (gage height, 9.1 feet, from graph based on gage readings); minimum observed, 6.8 second-feet Sept. 23, 24.

1936, 1940-50: Maximum discharge, 5,600 second-feet Feb. 17, 1949 (gage height, 13.5 feet, from graph based on gage readings); minimum observed, 5 second-feet Sept. 7-12, 1944, Aug. 20-24, 1945.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Small diversions above station for irrigation. Some diurnal fluctuation caused by mills at Scotts Mills.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 20

Jan. 21 to Sept. 30

1.8	6.5	2.7	156	2.6	5.5	3.2	50	5.0	650
1.9	11	3.0	232	2.7	8.8	3.4	84	6.0	1,170
2.0	20	4.0	510	2.8	14	3.6	130	7.0	1,850
2.1	34	5.0	870	2.9	19	3.8	180	8.0	2,650
2.3	70	6.0	1,300	3.0	26	4.1	270	8.8	3,400
2.5	110	6.5	1,550	3.1	36	4.5	415		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	52	363	583	b80	660	395	a190	125	47	16	9.3
2	10	45	442	507	a70	580	549	a200	120	44	16	8.8
3	11	41	332	*258	a60	333	495	219	115	42	15	8.4
4	13	38	305	232	a75	780	391	222	110	36	14	8.1
5	41	36	397	198	a150	830	347	277	103	36	14	8.5
6	86	34	355	394	b350	780	399	284	92	34	15	8.8
7	110	31	289	870	608	826	322	270	88	32	15	8.5
8	76	34	242	534	880	540	312	246	138	30	14	8.5
9	78	48	211	450	640	483	288	228	101	31	14	7.8
10	139	90	193	1,400	526	455	261	222	112	34	13	8.1
11	134	201	161	648	479	415	252	240	105	30	13	8.1
12	108	318	139	444	463	361	294	284	135	27	12	8.1
13	86	216	149	416	603	330	375	284	118	26	12	7.8
14	74	158	132	a360	*785	298	333	277	101	24	12	8.1
15	74	123	132	a320	1,010	274	358	258	92	23	12	8.8
16	59	104	173	a280	1,700	340	347	234	92	20	12	8.1
17	50	88	201	242	1,270	1,290	387	228	110	20	12	8.1
18	45	78	411	232	750	990	330	192	92	19	11	8.1
19	41	68	289	439	585	874	305	175	80	22	10	7.5
20	36	63	232	1,550	526	670	312	165	75	24	9.7	7.5
21	34	57	206	3,400	439	427	305	175	75	21	8.8	7.5
22	31	56	201	3,200	383	423	277	192	73	19	8.8	7.2
23	28	224	645	1,990	540	554	270	192	70	18	12	6.8
24	27	310	743	1,180	2,010	508	a250	175	77	17	24	6.8
25	26	279	770	820	2,830	463	a230	170	70	16	24	14
26	24	544	507	b600	1,700	427	a220	170	64	16	17	40
27	26	874	425	b400	1,150	439	a210	175	63	15	14	52
28	39	634	383	a270	863	423	a200	145	60	18	12	26
29	65	450	411	b200	-	372	a190	140	53	24	11	19
30	59	510	405	b120	-	350	a180	130	50	22	11	17
31	56	-	433	b100	-	346	-	125	-	18	9.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	1,694	139	10	54.6	0.853	0.98	3,360
November	5,804	874	31	193	3.02	3.37	11,510
December	10,297	770	132	332	5.19	5.98	20,420
Calendar year 1949	79,099.7	3,980	5.9	217	3.39	45.95	156,900
January	22,234	3,400	100	717	11.2	12.92	44,100
February	21,525	2,830	60	769	12.0	12.51	42,690
March	16,641	1,290	274	537	8.39	9.67	33,010
April	9,384	549	180	313	4.89	5.45	18,610
May	6,484	284	125	209	3.27	3.77	12,860
June	2,759	138	50	92.0	1.44	1.60	5,470
July	805	47	15	26.0	.406	.47	1,600
August	414.0	24	8.8	13.4	.209	.24	821
September	361.4	52	6.8	12.0	.188	.21	717
Water year 1949-50	98,402.4	3,400	6.8	270	4.22	57.17	195,200

Peak discharge (base, 1,200 sec.-ft.).--Jan. 10 (8 a.m.), 2,020 sec.-ft.; Jan. 22 (about 4 a.m.), 3,710 sec.-ft.; Feb. 16 (8 a.m.), 1,710 sec.-ft.; Feb. 25 (about 4 a.m.), 3,500 sec.-ft.; Mar. 17 (8 a.m.), 1,430 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Molalla River above Pine Creek, near Wilhoit, and Pudding River at Aurora.

b Stage-discharge relation affected by ice.

Tualatin River at Gaston, Oreg.

Location.--Staff gage, lat. 45°26'10", long. 123°10'05", in W $\frac{1}{2}$ sec. 34, T. 1 S., R. 4 W., 1.5 miles west of Gaston.

Drainage area.--51 square miles at measuring section at Gaston.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 187 second-feet.

Extremes.--Maximum discharge observed during year, 4,300 second-feet Feb. 24 (gage height, 12.02 feet); minimum observed, 2.7 second-feet Sept. 10, 16-19.
1940-50: Maximum discharge, 4,820 second-feet on Feb. 17, 1949 (gage height, 12.23 feet, present datum); maximum gage height, 13.88 feet Dec. 19, 1941, site and datum then in use; minimum discharge observed, that of Sept. 10, 16-19, 1950.

Remarks.--Records fair. Staff gage read twice daily. Slight diurnal fluctuation caused by log ponds upstream. Small diversions above station for irrigation. In 1949 city of Hillsboro began diverting about 5 second-feet for municipal supply.

Revisions.--W 1044: Drainage area.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used June 29 to Sept. 30)

0.7	2.2	1.7	50	7.0	869
.8	3.5	2.0	75	8.5	1,150
.9	5.1	2.3	108	9.2	1,340
1.0	7.6	2.7	166	10.0	1,700
1.1	11	3.5	320	10.8	2,090
1.3	23	5.0	565	11.5	3,100

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.1	29	377	417	254	610	510	132	45	21	10	3.0
2	6.4	25	442	336	244	553	499	125	43	19	9.6	3.0
3	6.4	22	328	282	238	1,070	430	117	41	19	9.0	3.1
4	9.0	19	264	280	a230	1,580	371	118	39	18	8.6	3.5
5	32	18	244	262	a250	1,220	332	123	38	18	9.0	5.1
6	49	18	256	386	296	829	304	122	40	16	9.0	10
7	38	17	220	638	490	680	280	114	47	16	9.3	3.5
8	22	23	194	592	1,110	558	270	111	42	16	9.3	3.0
9	25	55	178	368	460	484	262	106	38	19	9.0	2.8
10	61	100	166	562	373	407	232	103	42	18	8.3	2.8
11	50	472	147	356	404	340	230	97	40	17	8.3	3.0
12	44	252	144	282	528	304	256	96	37	16	8.3	3.1
13	32	169	194	252	1,300	276	260	92	39	15	8.3	3.0
14	27	127	183	228	933	262	236	85	37	13	7.6	3.0
15	23	94	181	201	984	256	310	82	36	13	5.1	2.8
16	17	77	d210	183	1,080	427	407	79	36	13	4.6	2.8
17	16	64	270	166	917	1,010	362	79	46	13	8.3	2.7
18	13	55	324	162	748	835	280	88	39	13	15	2.7
19	13	50	248	212	556	859	258	75	35	13	5.8	2.7
20	12	45	220	1,030	499	721	232	71	32	14	4.5	3.0
21	11	42	214	1,150	475	535	209	68	30	13	3.2	3.1
22	11	46	332	1,310	489	504	190	65	30	12	3.2	3.0
23	11	98	578	1,040	686	474	180	63	37	12	11	3.0
24	11	529	772	3,100	519	166	61	39	11	25	3.8	
25	11	286	559	526	2,480	466	155	57	32	10	22	9.0
26	11	535	664	451	2,010	434	148	55	30	9.6	15	19
27	12	1,540	658	364	1,040	529	150	53	28	10	7.1	10
28	35	730	748	308	775	474	141	53	27	15	6.8	9.0
29	82	520	670	280	-	411	135	52	24	21	5.4	6.6
30	47	371	583	268	-	383	132	50	22	15	4.8	6.1
31	35	-	532	262	-	439	-	48	-	12	4.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	777.9	82	6.4	25.1	0.492	0.57	1,540
November	6,429	1,540	17	214	4.20	4.69	12,750
December	11,100	772	144	358	7.02	8.09	22,020
Calendar year 1949	66,723.2	3,500	5.4	183	3.59	48.65	132,300
January	13,876	1,310	163	448	8.78	10.12	27,520
February	22,929	3,100	230	819	16.1	16.72	45,480
March	18,428	1,580	256	594	11.6	13.44	36,550
April	7,917	510	132	264	5.18	5.77	15,700
May	2,846	132	48	85.4	1.67	1.93	5,250
June	1,092	47	22	36.4	.714	.80	2,170
July	460.6	21	9.6	14.9	.292	.34	814
August	274.4	25	3.2	8.85	.174	.20	544
September	141.2	19	2.7	4.71	.092	.10	280
Water year 1949-50	86,071.1	3,100	2.7	236	4.63	62.77	170,700

Peak discharge (base, 2,000 sec.-ft.).--Nov. 27 (about 9 a.m.) 2,620 sec.-ft.; Feb. 24 (8 a.m.) 4,300 sec.-ft.

a No gage-height record; discharge computed on basis of records for Tualatin River at Dilley and East Fork Dairy Creek near Mountaineer.

d Doubtful gage-height record; discharge computed as explained in footnote a.

Tualatin River near Dilley, Oreg.

Location.--Water-stage recorder lat. 45°28'25", long 123°07'20", in NW¼ sec. 24, T. 1 S., R. 4 W., at county road bridge three-quarters of a mile downstream from Scoggin Creek and 1½ miles south of Dilley. Datum of gage is 151.10 feet above mean sea level, datum of 1929. Type "A" wire-weight gage prior to June 17, 1950.

Drainage area.--133 square miles.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 373 second-feet.

Extremes.--Maximum discharge observed during year, 4,480 second-feet Feb. 24 (gage height, 12.83 feet); minimum, 2 second-feet Sept. 1.

1940-50: Maximum discharge, 9,460 second-feet Feb. 17, 1949 (gage height, 13.89 feet, from graph based on gage readings); minimum, that of Sept. 1, 1950.

Remarks.--Records good except those for periods of ice effect or no gage height record and those below 15 second-feet, which are fair. Gage read once daily until June 16 when water-stage recorder was installed. Diversions above station for irrigation, chiefly in Wapato Lake area. Diurnal fluctuation caused by dam below Gaston.

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 12)

Oct. 1 to Nov. 12				Nov. 13 to Sept. 30					
0.4	8	3.5	198	0.4	4	4.0	187	11.5	1,380
.6	17	5.0	319	.5	7	6.0	332	12.0	2,130
1.0	37	6.5	460	.7	13	8.0	502	12.5	3,380
1.5	65	8.0	620	1.0	24	10.0	700	12.8	4,370
2.5	127			1.3	37	10.5	850		
				2.5	97	11.0	1,030		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	38	663	940	516	1,340	876	253	88	40	14	4
2	11	40	646	836	478	1,180	952	237	84	37	7	6
3	12	37	635	*696	b460	1,480	872	223	79	36	12	7
4	15	36	532	590	b450	1,960	764	217	76	34	15	8
5	38	32	452	478	516	2,260	693	230	74	31	14	9
6	65	29	451	g587	596	1,790	664	221	73	26	15	8
7	70	22	438	g1,230	726	1,480	620	212	79	26	15	10
8	36	24	378	1,080	1,570	1,260	573	202	78	29	12	9
9	31	57	355	912	*1,420	1,130	570	198	74	34	9	8
10	30	85	338	1,410	1,200	1,020	517	194	76	32	8	9
11	65	g172	293	1,190	1,130	864	467	187	84	31	8	11
12	50	g614	268	940	1,180	743	478	185	76	29	12	6
13	38	g398	338	712	1,580	675	532	a170	68	28	12	9
14	34	g232	330	615	*1,920	836	494	a160	72	26	14	8
15	31	149	321	520	2,020	611	488	a150	76	26	15	12
16	27	111	349	506	1,940	599	541	145	75	28	9	12
17	25	96	424	454	1,870	1,400	663	148	94	28	10	11
18	23	85	632	393	1,650	1,530	801	168	84	21	17	10
19	22	77	548	g459	1,520	1,540	531	148	72	22	14	7
20	21	71	451	g1,040	1,330	1,390	469	143	66	22	12	6
21	18	65	411	1,820	1,150	1,230	436	133	64	17	8	6
22	20	60	386	2,190	1,070	1,150	397	130	61	17	6	9
23	20	g174	621	2,390	1,210	1,040	376	123	67	17	18	9
24	20	g591	818	1,840	3,630	1,180	341	116	80	16	42	11
25	19	g473	1,150	1,410	4,300	1,090	308	106	70	11	30	15
26	18	g406	1,300	1,180	3,210	1,020	289	103	64	9	25	27
27	18	g1,200	1,200	1,060	2,050	1,000	302	106	57	8	18	30
28	30	1,680	1,180	851	1,580	1,050	278	102	54	16	15	17
29	30	1,150	1,100	736	-	956	260	99	49	34	12	17
30	78	896	1,100	660	-	848	244	96	42	26	8	16
31	55	-	1,060	582	-	815	-	93	-	19	6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	1,000	78	10	32.3	0.243	0.26	1,980
November	9,100	1,680	22	303	2.28	2.54	18,050
December	19,168	1,300	268	618	4.65	5.36	38,020
Calendar year 1949	133,875	6,570	6	367	2.76	37.42	265,600
January	30,296	2,390	393	977	7.35	8.47	60,090
February	42,272	4,300	450	1,510	11.4	11.82	83,850
March	36,267	2,280	599	1,170	8.80	10.14	71,930
April	15,596	952	244	520	3.91	4.56	30,350
May	4,998	253	93	161	1.21	1.40	9,910
June	2,156	94	42	71.9	.541	.60	4,280
July	778	40	8	25.1	.189	.22	1,540
August	430	42	6	13.9	.105	.12	853
September	327	30	4	10.9	.082	.09	649
Water year 1949-50	162,386	4,300	4	445	3.35	45.40	322,100

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for Tualatin River at Gaston and Scoggin Creek near Gaston.

b Stage-discharge relation affected by ice.

c Computed from graph based on observer's gage readings.

WILLAMETTE RIVER BASIN

Tualatin River at Farmington, Oreg.

Location.--Staff gage, lat. 45°27'00", long. 122°57'00", in SE $\frac{1}{4}$ sec. 29, T. 1 S., R. 2 W.; at highway bridge at Farmington, $\frac{7}{8}$ miles southwest of Beaverton. Auxiliary staff gage at highway bridge $6\frac{1}{2}$ miles downstream, 1 mile northeast of Scholls. Datum of each gage is 100.42 feet above mean sea level, datum of 1929. All discharge measurements made at Farmington.

Drainage area.--568 square miles.

Records available.--October 1939 to September 1950.

Average discharge.--11 years, 1,254 second-feet.

Extremes.--Maximum discharge observed during year, 13,500 second-feet Feb. 26; maximum gage height, 33.5 feet Feb. 26, from graph based on gage readings; minimum discharge observed, 23 second-feet Sept. 3.

1939-50: Maximum discharge, 17,400 second-feet Feb. 18, 1949; maximum gage height, 34.5 feet Feb. 18, 1949, from graph based on gage readings; minimum discharge observed, that of Sept. 3, 1950.

Maximum stage known, about 37 feet at Farmington and 33.4 feet at gage near Scholls, Dec. 22 or 23, 1933.

Remarks.--Records good. Gages read twice daily. For gage heights above 8 feet, discharge computed using fall, as determined by twice-daily readings of auxiliary gage, as a factor. 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.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	156	2,500	3,620	3,290	8,840	3,620	840	240	122	67	32
2	60	121	2,360	3,590	43,000	7,690	3,410	4820	230	113	59	27
3	61	113	2,030	3,330	2,820	7,160	3,360	4800	213	104	44	23
4	62	114	1,700	3,170	2,380	6,500	2,990	755	206	99	31	27
5	72	112	41,600	2,980	1,990	6,740	2,870	4740	199	71	34	28
6	78	108	1,410	3,020	42,000	7,190	2,610	722	199	61	38	30
7	150	104	41,300	3,480	2,610	7,320	2,440	705	212	62	41	30
8	155	108	41,200	3,870	4,030	7,220	2,180	664	223	71	46	30
9	120	114	1,120	4,190	4,510	6,640	2,100	628	237	75	41	30
10	105	124	1,020	5,070	5,020	6,010	42,100	614	242	82	42	28
11	129	192	968	5,620	5,440	5,570	42,100	592	247	91	35	27
12	146	261	850	5,660	5,550	4,950	2,180	552	254	82	28	28
13	152	870	764	5,500	5,650	4,290	2,250	532	240	80	27	32
14	128	863	878	5,200	6,120	3,940	2,300	508	223	77	31	30
15	106	593	889	5,210	6,950	3,370	2,220	472	225	71	34	29
16	92	380	858	4,690	7,910	3,010	2,010	446	227	65	37	28
17	89	284	4910	3,520	8,450	2,940	1,990	415	269	67	38	30
18	81	251	1,370	3,020	7,730	3,190	41,900	413	314	71	31	36
19	81	207	1,840	2,960	7,450	3,620	41,800	428	305	64	31	37
20	81	182	1,860	3,000	7,000	4,150	1,770	407	247	58	32	36
21	81	171	1,670	4,230	6,530	4,640	1,550	390	213	54	31	32
22	75	176	1,410	5,650	6,020	4,900	1,470	372	197	55	28	32
23	77	205	1,460	6,930	5,790	4,830	1,340	354	179	43	32	34
24	81	372	1,860	8,560	6,030	5,000	1,270	330	197	44	32	32
25	81	870	2,680	7,780	8,490	4,780	1,170	300	240	44	73	37
26	82	810	2,870	6,970	13,500	4,800	1,100	281	221	41	98	59
27	85	870	2,960	6,730	12,300	4,620	1,040	283	206	35	78	82
28	87	1,500	3,060	5,910	10,000	4,360	991	287	177	33	63	109
29	108	2,280	3,100	5,600	-	4,250	944	284	161	37	54	91
30	210	2,470	3,130	5,180	-	4,070	878	273	146	63	44	82
31	191	-	3,420	4,340	-	3,650	-	254	-	80	38	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	3,159	210	53	102	0.180	0.21	6,270
November	14,981	2,470	104	499	.879	.98	29,710
December	55,107	3,420	764	1,778	3.13	3.61	109,300
Calendar year 1949	426,140	15,100	38	1,168	2.06	27.90	845,200
January	148,780	8,560	2,960	4,799	8.45	9.74	295,100
February	168,600	13,500	1,990	6,021	10.6	11.04	334,400
March	160,340	8,840	2,940	5,172	9.11	10.50	318,000
April	59,953	3,620	878	1,998	3.52	3.93	118,900
May	15,461	840	254	499	.879	1.01	30,670
June	6,689	314	146	223	.393	.44	13,270
July	2,115	122	33	68.2	1.120	.14	4,200
August	1,338	98	27	43.2	.076	.09	2,650
September	1,188	109	23	39.6	.070	.08	2,360
Water year 1949-50	637,711	13,500	23	1,747	3.08	41.77	1,265,000

d Doubtful gage-height record; discharge computed on basis of combined records for Tualatin River near Willamette and Oswego Canal near Oswego.

WILLAMETTE RIVER BASIN
Tualatin River near Willamette, Oreg.

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Location.--Water-stage recorder, lat. 45°21'05", long. 122°40'35", in SW 1/4 sec. 34, T. 2 S., R. 1 E., 300 feet upstream from county bridge and 1 mile northwest of Willamette. Datum of gage is 85.61 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.--710 square miles.

Records available.--July 1928 to September 1950.

Average discharge.--22 years, 1,399 second-feet (including flow of Oswego Canal).

Extremes (river only).--Maximum discharge during year, 11,100 second-feet Feb. 28 (gage height, 12.68 feet); minimum, 12 second-feet Sept. 18.

1928-50: Maximum discharge, 23,300 second-feet Dec. 23, 1933 (gage height, 17.72 feet, present datum); minimum observed, 2 second-feet Aug. 14-21, 1928 (gage height, 1.27 feet, present datum).

Revisions.--The minimum discharge for the water year 1947 has been revised to 6 second-feet Sept. 17-20, superseding figure published in Water-Supply Paper 1094.

Remarks.--Records excellent above 50 second-feet and good below except those for period of no gage-height record, which are fair. Oswego Canal (see p. 188) diverts water 4 1/2 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 of Oswego Canal.

Revisions (water years).--W 1014: 1943. Revised figures of discharge, in second-feet, for low-water period in the water year 1947, superseding those published in Water-Supply Papers 1094 and 1124, are given herewith:

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Sept. 5	9	Sept. 9	9	Sept. 20	6	Sept. 24	11
6	9	17	8	21	7	26	11
7	8	18	6	22	11	27	11
8	9	19	6	23	11	28	11

Month	Observed				Diversión by Oswego Canal (acre-feet)	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
September 1947.....	56	6	15.1	899	4,000	4,900	82.3	0.116	0.13
Water year 1946-47	8,870	6	1,297	939,200	56,600	995,800	1,375	1.94	26.29
Calendar year 1947	7,070	6	1,124	813,500	50,980	864,500	1,194	1.68	22.82

Discharge, in second-feet, water year October 1949 to September 1950											
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.
1	20	200	2,680	3,800	4,180	10,200	3,770	945	234	139	50
2	22	162	2,640	3,790	3,560	8,950	927	214	151	151	14
3	25	144	2,410	3,650	3,230	7,980	904	200	117	117	14
4	32	131	2,120	3,470	2,680	7,180	3,190	871	186	111	28
5	60	123	1,920	3,210	2,250	6,860	3,010	827	181	101	29
6	76	123	1,770	3,360	2,250	6,610	2,840	805	174	95	29
7	102	119	1,560	4,590	2,760	6,740	2,660	788	179	85	28
8	129	115	1,400	4,780	3,890	6,910	2,480	761	194	78	29
9	121	119	1,240	4,780	4,650	6,820	2,350	734	208	77	29
10	95	129	1,130	5,660	4,710	6,490	2,300	706	228	72	27
11	90	189	1,050	5,930	4,840	6,010	2,290	675	237	68	24
12	108	315	963	5,750	4,990	5,450	2,360	645	246	62	23
13	115	625	888	5,710	5,330	4,930	2,450	615	237	53	20
14	110	915	898	5,550	5,590	4,440	2,460	595	220	47	18
15	90	a850	945	5,190	5,820	3,930	2,360	565	208	46	18
16	71	a650	1,040	4,720	6,190	3,560	2,230	545	211	42	19
17	58	a350	1,170	4,190	6,580	3,550	2,130	514	225	39	17
18	53	271	1,510	3,610	7,030	3,700	2,060	491	265	40	16
19	48	231	1,880	3,140	7,350	3,930	1,960	481	299	38	16
20	45	203	2,010	3,500	7,290	4,080	1,860	496	265	37	15
21	46	192	1,930	4,680	6,940	4,280	1,720	473	220	36	16
22	47	214	1,740	5,570	6,520	4,520	1,610	447	189	36	16
23	45	186	1,840	5,790	6,160	4,660	1,490	426	176	34	16
24	46	532	2,420	6,130	6,280	4,770	1,370	402	176	33	16
25	47	910	2,840	6,640	6,490	4,720	1,280	374	186	34	17
26	51	1,200	3,070	6,990	7,370	4,620	1,180	228	211	33	16
27	55	1,460	3,180	6,860	9,870	4,500	1,120	181	203	30	21
28	65	1,880	3,260	6,440	11,000	4,360	1,110	237	181	30	22
29	106	2,350	3,370	5,890	-	4,200	1,040	262	162	27	20
30	174	2,620	3,520	5,360	-	4,060	987	265	150	28	16
31	222	-	3,690	4,750	-	3,920	-	252	-	28	15

Month	Observed			Runoff in acre-feet	Diversión by Oswego Canal (acre-feet)	Adjusted for diversion			
	Discharge in second-feet					Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
October.....	222	20	76.6	4,710	3,080	7,790	127	0.179	
November.....	2,620	115	584	34,730	1,990	36,720	617	.869	
December.....	3,690	888	2,003	123,100	7,090	130,200	2,118	3.44	
Calendar year 1949	14,400	11	1,333	964,800	51,130	1,016,000	1,403	1.98	
January.....	6,990	3,140	4,950	304,400	13,870	318,300	5,177	7.92	
February.....	11,000	2,250	5,564	309,000	13,680	322,700	5,811	8.18	
March.....	10,200	3,550	5,382	330,900	12,950	343,800	5,591	7.87	
April.....	3,770	987	2,153	128,100	5,850	134,000	2,252	3.17	
May.....	945	181	563	34,610	2,710	37,320	607	.855	
June.....	238	150	209	12,420	4,390	16,810	285	.399	
July.....	139	27	58.9	3,620	2,780	6,400	104	.146	
August.....	30	15	21.4	1,120	2,500	3,820	62.1	.087	
September.....	42	13	19.6	1,160	2,790	3,950	66.4	.10	
Water year 1949-50	11,000	13	1,779	1,288,000	73,680	1,362,000	1,881	2.65	
								35.96	

a No gage-height record; discharge computed on basis of records for station at Farmington compared with combined records for station and Oswego Canal near Oswego.

WILLAMETTE RIVER BASIN

Scoggin Creek near Gaston, Oreg.

Location.--Water-stage recorder, lat. 45°27', long. 123°09', in NW¼ sec. 26, T. 1 S., R. 4 W., 100 feet upstream from highway bridge, 1½ miles upstream from mouth, and 1.7 miles northwest of Gaston. Datum of gage is 168.44 feet above mean sea level, datum of 1929.

Prior to June 8, 1950, staff gage to same datum at site about 150 feet upstream.

Drainage area.--44.0 square miles.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 128 second-feet.

Extremes.--Maximum discharge during year, 1,590 second-feet Feb. 24 (gage height, 13.4 feet, from graph based on twice-daily staff-gage readings); minimum, 1.3 second-feet Sept. 12 (gage height, 1.75 feet).

1940-50: Maximum discharge, 3,460 second-feet Feb. 17, 1949 (gage height, 15.53 feet); minimum, 1.2 second-feet Aug. 22, 1941, Oct. 7, 8, 1943.

Remarks.--Records good except those for periods of doubtful or no gage-height record and those below 6 second-feet, which are fair. Staff gage read twice daily prior to June 7. Small diversions by pumping above station for irrigation. Part of water supply (about 1 second-foot) for Hillsboro is diverted from Sein Creek above station; some diurnal fluctuation caused by log ponds above station.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Feb. 13 to Apr. 3, Aug. 3 to Sept. 28)

1.8	1.8	2.5	9.8	3.1	75	6.0	421
1.9	2.7	2.4	15	3.3	100	8.0	690
2.0	3.8	2.5	20	3.5	126	10.0	1,020
2.1	5.3	2.7	36	4.0	198	13.0	1,630
2.2	7.2	2.9	54	5.0	314		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a9	9.5	210	d280	190	497	350	101	36	19	10	2.8
2	8.5	9.5	278	254	170	445	267	99	36	19	6.2	7.0
3	8.5	14	215	215	176	742	271	88	36	18	9.3	7.2
4	9.3	15	191	202	171	1,070	248	81	36	18	9.0	8.0
5	20	13	191	a190	181	1,030	243	87	36	14	9.0	7.0
6	23	12	177	366	234	760	240	80	38	10	9.3	4.0
7	18	a11	162	399	312	554	228	79	30	12	9.0	8.2
8	15	11	a150	a360	495	457	226	76	32	16	5.5	7.7
9	14	34	130	276	402	d400	215	79	31	17	3.8	7.7
10	29	29	123	447	375	d350	198	75	33	14	4.0	8.0
11	24	52	127	308	362	d310	184	75	32	11	5.9	7.5
12	18	229	133	d280	501	d280	198	75	28	12	8.0	2.2
13	e13	122	127	d250	768	268	188	73	28	14	8.0	5.5
14	12	70	122	d210	808	238	174	71	31	13	8.2	3.2
15	11	51	122	177	813	230	221	71	31	14	8.5	8.0
16	10	42	127	a150	840	356	240	68	30	14	8.8	8.0
17	10	38	a160	a130	744	813	231	65	36	13	8.8	8.0
18	9.5	34	269	a120	626	714	201	70	32	13	8.5	7.5
19	d9.5	30	191	a160	537	628	184	62	25	13	8.0	2.6
20	d9.5	a28	a160	a700	452	504	171	62	25	12	7.7	3.0
21	a9.5	26	148	a850	413	427	156	80	26	11	5.2	4.6
22	10	a40	162	a1,100	396	405	144	58	25	10	4.8	7.7
23	a10	52	a275	1,010	688	378	142	60	28	9.8	13	7.5
24	a10	262	439	649	1,550	443	130	56	32	8.2	17	8.2
25	9.5	168	512	528	1,430	350	122	51	27	6.1	11	9.8
26	11	204	423	395	1,210	350	116	51	23	5.9	9.3	14
27	11	1,010	423	306	847	401	116	48	19	6.4	8.5	9.5
28	21	522	411	264	623	385	106	48	20	10	7.2	7.8
29	27	a360	447	246	-	308	101	d45	21	18	6.2	9.5
30	18	264	399	225	-	343	106	42	20	15	3.4	9.3
31	10	-	a330	201	-	302	-	42	-	12	2.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	427.8	29	8.5	13.8	0.314	0.36	849
November	3,760.0	1,010	9.5	125	2.84	3.18	7,460
December	7,333	512	122	237	5.39	6.20	14,540
Calendar year 1949	45,298.4	1,630	2.4	124	2.82	38.29	89,800
January	11,248	1,100	120	363	8.25	9.51	22,310
February	16,314	1,550	170	583	13.3	13.79	32,360
March	14,738	1,070	230	475	10.8	12.46	29,230
April	5,715	350	101	190	4.32	4.83	11,340
May	2,098	101	42	67.7	1.54	1.77	4,160
June	885	38	19	29.4	.668	.75	1,750
July	398.4	19	5.9	12.9	.293	.34	790
August	243.3	17	2.2	7.85	.178	.21	483
September	211.0	14	2.2	7.03	.160	.18	419
Water year 1949-50	63,369.5	550	2.2	174	3.95	53.58	125,700

Peak discharge (base, 1,100 sec.-ft.).--Nov. 27 (about 9 a.m.) 1,390 sec.-ft.; Jan. 22 (time and discharge unknown); Feb. 24 (about 11 a.m.) 1,590 sec.-ft.; Mar. 4 (about 3 p.m.) 1,130 sec.-ft.

a No gage-height record; discharge computed on basis of records for North Yamhill River at Pike and Tualatin River at Gaston and near Dilley.

d Doubtful gage-height record; discharge computed as explained in footnote a.

e Gage reading not representative of mean for day; discharge computed as explained in footnote a.

Gales Creek near Forest Grove, Oreg.

Location.--Water-stage recorder, lat. 45°33'10", long. 123°11'10", in E½ sec. 21, T. 1 N., R. 4 W., at bridge 2½ miles southeast of village of Gales Creek and 4½ miles northwest of Forest Grove. Datum of gage is 208.01 feet above mean sea level, datum of 1929.

Drainage area.--66 square miles.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 204 second-feet.

Extremes.--Maximum discharge during year, 3,410 second-feet Feb. 24 (gage height, 7.88 feet); minimum, 6.8 second-feet Aug. 9 (gage height, 0.76 foot).
1940-50: Maximum discharge, 6,410 second-feet Feb. 17, 1949 (gage height, 10.90 feet, from floodmark); minimum, 1 second-foot Aug. 19, 1947.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Small diversions above station for irrigation; some diurnal fluctuations at low flow caused by log ponds upstream.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	24	348	538	290	744	436	131	55	31	19	13
2	11	23	417	430	270	776	422	125	a54	30	18	12
3	10	22	354	357	250	1,170	378	117	a52	30	17	12
4	12	20	300	315	250	1,700	359	114	a50	30	17	12
5	37	19	321	267	300	1,480	512	117	a50	29	18	12
6	41	19	278	592	350	a1,100	285	109	a50	28	18	12
7	34	19	237	642	467	a850	262	106	a52	28	18	12
8	24	21	209	494	856	a750	354	102	a50	24	22	11
9	24	41	202	424	720	a680	324	100	a50	29	12	11
10	34	40	187	598	648	a600	295	100	a52	29	15	12
11	34	116	159	452	656	a520	278	97	a45	27	14	12
12	30	300	151	366	704	a450	295	92	a45	26	14	13
13	25	180	157	333	1,290	a400	268	91	a45	25	14	13
14	22	108	155	280	1,310	a370	252	88	a45	24	15	13
15	19	75	153	250	1,460	a360	288	85	a45	25	15	13
16	18	63	165	230	1,490	a550	295	80	a50	25	18	13
17	17	55	292	210	1,320	a1,320	288	85	a45	24	14	13
18	16	48	387	200	1,130	a1,000	270	88	a45	24	14	12
19	16	46	315	260	1,000	a900	245	80	a42	23	14	12
20	16	43	257	900	868	a800	228	78	41	23	14	14
21	16	40	233	1,100	776	a740	208	74	39	21	13	12
22	16	40	235	1,200	752	a660	195	72	39	21	15	12
23	16	146	571	1,000	1,270	a620	188	69	45	21	23	12
24	16	330	815	800	2,870	a650	169	68	50	19	31	13
25	19	207	718	650	2,530	a620	161	66	41	19	18	13
26	15	498	690	600	1,870	a560	155	64	38	17	15	28
27	27	1,900	677	500	1,270	a600	153	62	36	20	14	20
28	48	820	668	450	885	a550	143	62	35	28	13	17
29	48	554	713	400	-	509	135	61	33	28	13	16
30	34	434	686	350	-	470	131	58	32	24	13	15
31	28	-	650	320	-	432	-	56	-	20	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	734	48	10	23.7	0.359	0.41	1,460
November	6,249	1,900	19	208	3.15	3.52	12,390
December	11,700	815	151	377	5.71	6.59	23,210
Calendar year 1949	74,579.2	4,600	8.0	204	3.09	42.03	147,900
January	15,508	1,200	200	500	7.58	8.74	30,760
February	27,852	2,870	250	995	15.1	15.68	55,240
March	22,711	1,700	360	733	11.1	12.80	45,050
April	7,752	436	131	258	3.91	4.37	15,380
May	2,697	131	56	87.0	1.32	1.52	5,350
June	1,351	55	32	45.0	.682	.76	2,680
July	772	31	17	24.9	.377	.44	1,530
August	501	31	12	16.2	.245	.28	994
September	403	26	11	13.4	.203	.23	799
Water year 1949-50	98,230	2,870	10	269	4.08	55.35	194,800

Peak discharge (base, 1,100 sec.-ft.).--Nov. 27 (4:30 a.m.) 2,650 sec.-ft.; Jan. 22 (time and discharge unknown); Feb. 15 (10 p.m.) 1,590 sec.-ft.; Feb. 24 (7:30 a.m.) 3,410 sec.-ft.; Mar. 4 (2:30 p.m.) 1,730 sec.-ft.; Mar. 17 (time unknown) 1,290 sec.-ft.

a No gage-height record Jan. 15 to Feb. 6, Mar. 6-28; discharge computed on basis of recorded range in stage when available, weather records, and records for Tualatin River near Gaston, Tualatin River near Dilley, and East Fork Dairy Creek near Mountindale.

East Fork Dairy Creek at Mountindale, Oreg.

Location.--Water-stage recorder, lat. 45°38'05", long. 123°02'35", in NW $\frac{1}{4}$ sec. 27, T. 2 N., R. 3 W., at dam site three-quarters of a mile north of village of Mountindale. Datum of gage is 183.04 feet above mean sea level, datum of 1929.

Drainage area.--43.0 square miles, including two small streams on left bank which enter creek below station.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 104 second-feet.

Extremes.--Maximum discharge during year, 1,270 second-feet Feb. 25 (gage height, 12.38 feet); minimum, 11 second-feet Oct. 1-3, 14-26, Aug. 18-21, Sept. 18, 19, 22, 23. 1940-50: Maximum discharge, 1,420 second-feet Feb. 17, 1949 (gage height, 12.54 feet); minimum, 7 second-feet Sept. 10-12, 1944.

Remarks.--Records fair. Records include measured or estimated discharge of two small streams which flow through dam site at station and enter creek from left bank about a mile below station. Probably some pumping for irrigation above station. Diurnal fluctuation at low flow caused by log pond upstream.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	12	92	231	a130	595	266	101	42	27	15	12
2	11	12	108	197	a120	526	252	94	42	26	14	12
3	11	12	99	166	*b115	586	231	90	41	26	14	12
4	12	13	92	155	a110	779	209	87	40	25	14	12
5	17	13	106	136	a130	854	206	87	40	24	14	12
6	15	13	99	*245	a200	723	191	81	40	24	14	12
7	15	13	95	307	a300	591	179	79	43	24	14	12
8	12	14	86	247	341	498	319	75	42	24	14	12
9	12	18	89	219	346	426	354	72	40	25	13	12
10	14	19	82	314	334	374	318	71	42	24	13	12
11	17	33	71	258	327	326	286	69	39	23	12	12
12	14	65	69	206	404	288	296	67	38	22	12	12
13	12	31	75	191	*768	262	264	65	38	21	12	12
14	11	24	73	161	900	244	240	62	38	21	12	12
15	11	21	73	148	1,040	228	228	61	38	21	12	12
16	11	17	79	133	1,010	244	213	60	37	21	12	12
17	11	16	124	120	875	423	196	60	42	20	12	12
18	11	15	175	134	751	431	175	59	39	19	11	11
19	11	14	200	145	200	690	537	57	36	20	11	11
20	11	14	124	407	603	490	155	56	35	19	11	12
21	11	13	114	506	510	435	144	55	34	18	11	12
22	11	14	115	575	458	409	137	53	34	18	12	11
23	11	38	246	570	573	404	130	52	39	17	21	11
24	11	68	439	471	1,200	426	122	51	45	16	19	12
25	11	42	346	369	1,260	401	115	49	38	16	15	19
26	11	53	297	328	1,180	371	111	48	34	16	15	21
27	12	338	288	279	949	366	112	47	32	16	14	17
28	19	172	287	238	730	336	105	47	31	20	14	15
29	17	120	288	207	-	314	99	45	29	18	13	15
30	13	108	263	a170	-	300	95	45	28	17	13	14
31	12	-	260	a150	-	282	-	43	-	16	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	389	19	11	12.5	0.291	0.34	772
November	1,355	338	12	45.2	1.05	1.17	2,690
December	4,899	439	69	158	3.67	4.24	9,720
Calendar year 1949	36,806	1,330	10	101	2.35	31.82	73,000
January	8,020	575	114	259	6.02	6.94	15,910
February	16,354	1,260	110	584	13.8	14.14	32,440
March	15,529	854	228	436	10.1	11.70	26,830
April	5,918	354	95	197	4.58	5.12	11,740
May	1,988	101	43	64.1	1.49	1.72	3,940
June	1,136	45	28	37.9	.881	.98	2,250
July	644	27	16	20.8	.484	.56	1,280
August	416	21	11	13.4	.312	.36	825
September	385	21	11	12.8	.298	.33	764
Water year 1949-50	55,033	1,260	11	151	3.51	47.60	109,200

Peak discharge (base, 700 sec.-ft.).--Feb. 15 (7 p.m.) 1,080 sec.-ft.; Feb. 25 (5 to 8 p.m.) 1,270 sec.-ft.; Mar. 5 (10 a.m.) 882 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Gales Creek near Forest Grove and Tualatin River at Gaston.

b Stage-discharge relation affected by ice.

McKay Creek near North Plains, Oreg.

Location.--Water-stage recorder, lat. 45°37'35", long. 122°58'25", in SE $\frac{1}{4}$ sec. 30, T. 2 N., R. 2 W., about 1 $\frac{1}{2}$ miles above Jackson Creek and 2 $\frac{1}{2}$ miles northeast of North Plains.

Drainage area.--27.6 square miles.

Records available.--October 1940 to September 1943, October 1948 to September 1950.

Extremes.--Maximum discharge during year, 1,170 second-feet Feb. 24 (gage height, 10.40 feet); minimum, 0.9 second-foot Sept. 9.

1940-43, 1948-50: Maximum discharge, 2,100 second-feet Feb. 17, 1949 (gage height, 11.23 feet); minimum, that of Sept. 9, 1950.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Some diurnal fluctuation in summer caused by pumping for irrigation.

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from debris Oct. 1 to Nov. 26)

Oct. 1 to Feb. 12

Feb. 13 to Sept. 30

0.7	2.6	2.5	28	6.0	170	0.5	0.8	2.5	33	8.0	412
1.0	5.7	3.0	42	7.0	234	.6	1.5	3.5	64	9.0	570
1.3	9.1	3.5	56	8.0	304	.7	2.4	4.0	85	9.5	700
1.6	13	4.0	74	8.5	365	.8	3.4	5.0	138	10.1	960
2.0	18	5.0	117	8.9	444	1.0	6.0	6.0	208		
						1.5	14	7.0	300		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.2	5.3	54	138	a55	301	104	37	10	5.3	2.8	1.9
2	3.1	5.0	58	110	a50	240	94	38	10	5.0	2.5	1.5
3	3.1	5.0	53	84	*b47	255	83	32	9.4	4.7	2.3	1.7
4	3.9	4.9	50	77	a50	344	76	30	9.3	4.4	2.5	1.5
5	6.8	5.0	53	63	60	406	76	32	9.3	4.4	2.9	1.9
6	6.7	5.3	51	*168	112	369	69	29	9.9	4.2	3.1	2.0
7	7.4	5.4	50	299	149	296	64	28	12	3.9	3.1	1.8
8	5.0	5.9	45	228	260	230	171	27	12	4.0	2.8	1.7
9	4.5	7.5	42	170	275	179	279	26	10	5.7	2.7	1.5
10	5.6	8.3	40	258	268	145	222	26	12	5.2	2.5	2.0
11	8.6	12	32	235	254	118	170	25	11	4.7	2.1	2.1
12	6.7	33	29	171	294	99	164	24	10	4.4	2.0	1.7
13	4.9	14	34	143	*754	92	134	22	11	3.8	2.0	1.7
14	4.2	10	40	110	772	86	114	21	10	3.9	2.6	2.1
15	3.8	8.7	42	88	804	80	104	20	11	3.8	2.6	2.0
16	3.7	7.4	45	76	727	94	94	20	11	4.0	2.7	1.9
17	3.9	6.6	72	62	568	253	83	19	12	3.6	2.6	2.0
18	3.8	6.0	132	57	481	360	73	19	11	3.5	2.3	2.0
19	3.9	5.7	106	103	440	393	68	18	9.4	3.5	2.2	1.9
20	4.0	5.4	79	289	383	346	63	17	8.6	3.8	2.0	2.1
21	4.0	5.2	66	367	309	285	57	16	8.0	3.2	1.4	2.3
22	4.1	5.4	84	414	266	239	54	16	7.8	2.7	1.9	2.0
23	4.1	15	228	404	354	227	50	15	10	2.7	5.3	2.0
24	4.1	40	309	310	946	264	46	14	13	2.9	5.3	2.6
25	4.2	28	250	240	918	238	44	14	9.9	2.7	3.9	5.4
26	4.3	27	210	195	676	201	41	13	8.7	2.6	2.9	6.9
27	4.6	202	180	152	495	177	43	13	7.8	2.5	2.5	4.7
28	7.0	135	156	118	388	144	40	12	7.4	4.7	2.3	3.4
29	8.1	85	146	93	-	130	35	12	6.4	4.7	2.1	3.4
30	5.7	68	132	a75	-	127	33	12	5.9	3.9	2.1	3.3
31	5.4	-	144	a65	-	114	-	11	-	3.3	1.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	152.4	8.6	3.1	4.92	0.178	0.21	302
November	777.0	202	4.9	25.9	.938	1.05	1,540
December	3,012	309	25	97.2	3.52	4.06	5,970
Calendar year 1949	19,880.2	1,580	2.4	54.5	1.97	26.80	39,430
January	5,562	414	57	173	6.27	7.23	10,640
February	11,155	946	47	398	14.4	15.03	22,130
March	6,832	406	80	220	7.97	9.21	13,550
April	2,748	279	33	91.6	3.32	3.70	5,450
May	856	37	11	21.2	.768	.68	1,300
June	295.8	13	5.9	9.79	.355	.40	583
July	121.7	5.7	2.5	3.93	.142	.16	241
August	81.9	5.3	1.4	2.64	.096	.11	162
September	73.0	6.9	1.5	2.43	.088	.10	145
Water year 1949-50	31,264.8	946	1.4	85.7	3.11	42.14	62,010

Peak discharge (base, 600 sec.-ft.)--Feb. 13 (5:30 p.m.) 1,090 sec.-ft.; Feb. 24 (11 a.m.) 1,170 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for East Fork Dairy Creek at Mountindale and Gales Creek near Forest Grove.

b Stage-discharge relation affected by ice.

Oswego Canal near Oswego, Oreg.

Location.--Water-stage recorder, lat. 45°23'30", long. 122°43'10", in NW¼ sec. 20, T. 2 S., R. 1 E., half a mile downstream from point of diversion from Tualatin River, 1 mile upstream from Oswego Lake, and 3 miles southwest of Oswego. Datum of gage is 96.50 feet above mean sea level, datum of 1929. Auxiliary gage at outlet of Oswego Lake for determination of backwater effect of lake on stages at canal gage.

Records available.--October 1928 to September 1950.

Average discharge.--22 years, 68.7 second-feet.

Extremes.--Maximum daily discharge during year, 395 second-feet Feb. 28; minimum daily, 0.5 second-foot Oct. 29.

1928-50: Maximum discharge, 6,000 second-feet Dec. 23, 1933 (gage height, 16.1 feet, site and datum then in use), computed by conveyance method and lake spillway data; practically no flow at times.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Oswego Canal diverts water from Tualatin River in NW¼ sec. 20, but diversion dam is in NE¼ sec. 33, about 3 miles downstream. Water used for development of power below Oswego Lake and returned to Willamette River at that point.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a48	1.5	134	182	a190	368	157	51	75	62	47	53
2	a48	2.0	140	181	a170	327	150	50	74	58	46	51
3	a50	2.0	134	178	a160	291	143	48	73	53	45	50
4	a50	2.0	124	171	a140	268	136	47	72	50	42	49
5	a50	2.0	53	163	a120	258	130	45	73	47	40	48
6	a50	2.0	1.0	170	124	254	124	44	73	44	40	46
7	a55	2.0	64	214	144	256	116	44	73	41	39	45
8	a55	2.5	103	222	188	259	111	43	74	39	38	44
9	a65	5.0	98	222	216	256	107	41	75	38	38	44
10	a65	5.0	95	252	218	248	105	39	77	40	37	44
11	a50	3.0	92	256	224	234	104	38	77	41	36	44
12	a50	3.0	89	250	230	216	107	37	77	44	35	43
13	a60	2.5	86	248	244	198	110	36	76	45	34	42
14	a65	a85	87	246	252	180	110	36	76	45	33	42
15	a60	a80	89	232	260	163	107	35	75	46	33	42
16	a60	55	92	a200	274	150	103	34	75	46	33	43
17	a55	51	97	a190	289	150	99	33	77	47	34	44
18	a55	49	107	a180	307	155	97	32	79	47	34	44
19	a55	48	118	a170	319	163	94	32	79	48	34	44
20	59	47	123	172	312	167	90	32	78	48	36	46
21	59	20	120	219	300	174	85	32	75	48	36	46
22	59	1.0	115	252	283	181	78	31	73	47	34	46
23	59	1.5	118	258	270	186	73	30	70	47	36	46
24	59	a20	138	268	275	190	68	30	70	46	38	a45
25	59	a40	152	287	284	188	64	30	73	44	40	a45
26	60	a60	159	301	319	185	60	44	74	42	46	a50
27	60	a80	162	299	388	182	58	68	73	40	52	a50
28	27	103	166	a290	395	177	56	76	71	39	55	56
29	.5	114	169	a260	-	172	55	77	62	38	56	57
30	1.5	119	173	a240	-	168	53	77	65	40	56	56
31	2.0	-	179	a220	-	163	-	76	-	44	55	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,551.0	65	0.5	50.0	3,080
November.....	1,004.0	119	1.0	33.5	1,890
December.....	3,577.0	179	1.0	115	7,090
Calendar year 1949	25,787.0	535	.5	70.6	51,130
January.....	6,993	301	163	226	13,870
February.....	6,895	395	120	246	13,680
March.....	6,527	368	150	211	12,950
April.....	2,950	157	53	98.3	5,850
May.....	1,368	77	30	44.1	2,710
June.....	2,214	79	62	73.8	4,390
July.....	1,404	62	38	45.3	2,780
August.....	1,258	56	33	40.6	2,500
September.....	1,405	57	42	46.8	2,790
Water year 1949-50	37,146.0	395	.5	102	73,680

a No gage-height record; discharge computed on basis of recorded range in stage when available, weather records, and records for Tualatin River at Farmington compared with combined flow of canal plus Tualatin River near Willamette.

Clackamas River at Big Bottom, Oreg.

Location.--Water-stage recorder, lat. 45°01', long. 121°55', in sec. 26, T. 6 S., R. 7 E., 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.

Drainage area.--132 square miles.

Records available.--April 1920 to September 1950.

Average discharge.--30 years, 454 second-feet.

Extremes.--Maximum discharge during year, 2,750 second-feet Feb. 25 (gauge height, 6.16 feet), from rating curve extended above 1,200 second-feet; minimum, 276 second-feet Oct. 2-4, 27 (gauge height, 1.88 feet).

1920-50: Maximum discharge, 6,750 second-feet Mar. 31, 1931, Dec. 15, 1946, from rating curves extended above 3,500 and 1,700 second-feet, respectively; maximum gauge height, 8.58 feet Dec. 15, 1946; minimum discharge, 184 second-feet Sept. 12, 1942.

Remarks.--Records excellent except those for Jan. 13 to Feb. 25, which are fair. No regulation or diversion above station.

Cooperation.--Water-stage recorder graph and 11 discharge measurements furnished by Portland General Electric Co.

Revisions.--W 594: Drainage area.

Rating tables, water year 1949-50, except periods of ice effect
(gauge height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 13, 18-21)

Oct. 1 to Jan. 13				Jan. 13 to Sept. 30			
1.8	257	3.2	745	2.1	297	4.0	1,030
2.2	362	3.8	1,040	2.3	341	5.0	1,850
2.6	495	4.1	1,220	2.6	421	6.0	2,570
				3.0	565		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	279	288	722	384	b440	*955	749	641	1,200	821	358	316
2	279	288	754	374	b430	880	855	648	1,260	776	353	316
3	279	286	635	359	447	1,060	805	628	1,280	740	351	316
4	284	284	567	*565	467	1,120	744	610	1,360	708	348	316
5	359	281	547	353	492	1,100	713	601	1,390	668	348	316
6	374	281	*499	368	484	1,010	690	589	1,290	632	346	316
7	336	281	467	378	470	905	668	565	1,120	597	343	314
8	309	286	440	356	467	835	677	561	1,070	565	341	314
9	320	304	426	353	453	772	654	577	1,030	553	339	312
10	356	301	406	359	447	726	628	614	1,150	522	339	312
11	336	408	397	348	440	668	618	688	1,350	496	336	312
12	322	423	391	345	431	623	641	816	1,540	478	336	312
13	309	350	378	344	478	593	708	1,000	1,320	464	334	312
14	301	328	371	b340	569	561	682	1,080	1,160	450	334	310
15	296	314	368	b340	726	538	682	1,080	1,080	440	330	310
16	294	306	365	b340	744	593	718	1,060	1,150	431	327	310
17	291	301	368	b330	749	1,270	762	1,090	1,360	424	325	310
18	288	298	365	360	700	1,210	758	1,020	1,190	415	325	310
19	288	296	350	398	654	1,170	744	940	1,180	412	323	308
20	286	291	342	551	623	1,010	772	935	1,210	404	323	308
21	286	288	339	916	597	920	830	1,000	1,150	395	323	308
22	284	291	348	1,500	573	920	845	1,140	1,080	389	323	305
23	284	530	426	1,240	659	850	808	1,180	1,040	384	326	305
24	281	551	460	990	1,480	794	754	1,100	940	381	351	308
25	279	484	416	821	2,390	736	722	1,090	860	373	330	320
26	279	519	400	740	1,740	708	686	1,140	812	370	325	384
27	279	1,210	390	677	1,320	686	677	1,260	808	370	323	330
28	328	1,060	406	605	1,080	641	664	1,200	840	373	323	316
29	322	830	413	561	605	605	650	1,140	885	373	320	312
30	298	930	406	513	-	589	636	1,120	870	365	320	312
31	291	-	400	467	-	585	-	1,110	-	360	318	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	9,399	374	279	303	2.30	2.65	18,640
November	12,886	1,210	281	430	3.26	3.63	25,560
December	13,542	754	339	437	3.31	3.82	26,860
Calendar year 1949	193,502	2,890	279	530	4.02	54.52	383,800
January	16,375	1,500	330	528	4.00	4.61	32,480
February	20,550	2,390	430	734	5.56	5.79	40,760
March	25,633	1,270	538	827	6.27	7.22	50,840
April	21,538	1,855	618	718	5.44	6.07	42,720
May	28,219	1,260	561	910	6.89	7.95	55,970
June	33,975	1,540	808	1,132	8.58	9.57	67,390
July	15,129	821	360	488	3.70	4.26	30,010
August	10,351	358	318	334	2.53	2.92	20,530
September	9,450	384	305	315	2.39	2.66	18,740
Water year 1949-50	217,047	2,390	279	595	4.51	61.15	430,500

Peak discharge, (base, 1,200 sec.-ft.),--Nov. 27 (3 p.m.) 1,590 sec.-ft.; Jan. 22 (8 a.m.) 1,620 sec.-ft.; Feb. 25 (5 a.m.) 2,750 sec.-ft.; Mar. 17 (2:30 p.m.) 1,540 sec.-ft.; June 12 (4 p.m.) 1,580 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Clackamas River above Three Lynx Creek, Oreg.

Location.--Water-stage recorder, lat. 45°07', long. 122°04', in NE $\frac{1}{4}$ sec. 21, T. 5 S., R. 6 E., just downstream from power plant, 500 feet upstream from Three Lynx Creek and 17 miles southeast of Estacada. Datum of gage is 1,098 feet above mean sea level (levels by Portland General Electric Co.).

Drainage area.--479 square miles (revised).

Records available.--October 1911 to December 1913, October 1921 to September 1950.

Average discharge.--31 years, 1,861 second-feet.

Extremes.--Maximum discharge during year, 15,300 second-feet Feb. 25 (gage height, 9.56 feet); minimum, 484 second-feet Oct. 3 (gage height, 0.64 foot); minimum daily, 782 second-feet Sept. 19.

1911-13, 1921-50: Maximum discharge, 34,800 second-feet Mar. 31, 1931 (gage height, 15.5 feet), from rating curve extended above 11,000 second-feet; minimum observed, 375 second-feet Aug. 10, 16, 1924, Sept. 20, 1936; minimum daily, 536 second-feet Oct. 22, 1930.

Remarks.--Records excellent except those above 12,000 second-feet, which are good. Water diverted from Oak Grove Fork is used in power plant 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.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.3	765	3.0	2,120	6.0	6,440
1.7	1,010	4.0	3,340	7.0	8,560
2.3	1,460	5.0	4,730	9.0	13,600

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	798	928	3,420	1,620	al,350	4,040	3,790	2,630	4,730	3,220	1,160	877
2	801	899	3,400	1,680	al,200	3,700	4,550	2,700	4,930	3,000	1,140	875
3	799	861	2,850	1,550	1,410	4,940	4,070	2,620	4,980	2,830	1,120	864
4	821	856	2,410	1,520	al,550	5,600	3,500	2,570	5,280	2,700	1,100	848
5	1,160	844	2,330	1,430	1,690	5,600	3,250	2,580	5,390	2,560	1,080	826
6	1,400	844	2,130	1,580	1,800	5,060	3,070	2,530	4,900	2,410	1,070	868
7	1,240	832	1,880	1,710	1,790	4,330	2,900	2,400	4,400	2,280	1,060	856
8	1,030	845	1,700	1,520	1,840	3,830	2,990	2,320	4,160	2,120	1,040	862
9	1,180	973	1,610	1,460	1,830	3,460	2,660	2,380	4,040	2,060	1,030	862
10	1,680	1,010	1,500	1,550	1,790	3,170	2,690	2,560	4,600	1,930	1,010	862
11	1,500	1,790	1,370	1,440	1,720	2,830	2,580	3,130	5,120	1,610	1,020	856
12	1,370	2,330	1,360	1,370	1,730	2,630	2,800	4,230	5,440	1,710	989	856
13	1,200	1,620	1,440	1,320	1,940	2,460	3,240	5,090	4,860	1,670	982	856
14	1,090	1,370	1,430	1,280	2,770	2,330	3,120	5,180	4,300	1,620	982	856
15	1,020	1,230	1,420	1,250	4,160	2,210	3,090	4,820	4,010	1,590	961	892
16	980	1,120	1,440	1,240	4,320	2,560	3,300	4,540	4,250	1,530	954	856
17	931	1,060	1,490	1,180	4,120	6,840	3,540	4,610	5,060	1,500	934	838
18	901	1,010	1,540	1,110	3,520	6,360	3,480	4,260	4,500	1,480	928	792
19	873	978	1,390	1,190	3,140	5,990	3,370	3,810	4,550	1,490	924	782
20	862	955	1,290	2,480	2,850	4,850	3,590	3,700	4,660	1,440	920	826
21	846	920	1,300	6,140	2,570	4,210	3,940	4,040	4,390	1,400	914	838
22	840	942	1,480	10,400	2,390	4,230	3,670	4,730	4,010	1,370	913	850
23	840	2,130	2,660	7,100	2,950	3,840	3,560	4,820	3,840	1,540	956	809
24	831	2,950	3,300	4,730	8,660	3,520	3,220	4,460	3,570	1,520	1,040	832
25	829	2,360	2,540	3,610	13,000	3,220	2,990	4,370	3,330	1,300	961	880
26	807	2,520	2,250	3,110	8,420	3,040	2,780	4,680	3,130	1,270	926	1,280
27	804	8,000	2,040	2,710	6,120	3,030	2,700	5,220	3,130	1,250	916	1,080
28	1,090	6,150	2,130	2,350	4,800	2,770	2,650	4,840	3,260	1,260	904	904
29	1,220	4,390	2,200	2,100	-	2,530	2,620	4,440	3,480	1,250	893	886
30	1,010	4,520	2,130	1,690	-	2,420	2,570	4,400	3,430	1,210	886	856
31	958	-	1,990	1,680	-	2,470	-	4,350	-	1,190	870	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-feet
October	37,711	1,680	798	1,023	2.14	2.46	62,900
November	57,257	8,000	832	1,909	3.99	4.45	113,600
December	61,440	3,420	1,290	1,982	4.14	4.77	121,900
Calendar year 1949	798,767	13,700	702	2,186	4.57	62.01	1,585,000
January	75,500	10,400	1,110	2,435	5.08	5.86	149,800
February	95,430	13,000	1,200	3,408	7.11	7.41	189,300
March	118,070	6,840	2,210	3,609	7.95	9.17	234,200
April	96,650	4,550	2,570	3,222	6.73	7.50	191,700
May	119,010	5,220	2,320	3,639	8.01	9.24	236,100
June	129,750	5,440	3,130	4,325	9.03	10.07	257,400
July	55,110	3,220	1,190	1,778	3.07	4.28	109,300
August	30,583	1,160	870	987	2.06	2.37	60,660
September	26,207	1,260	782	874	1.82	2.03	51,980
Water year 1949-50	896,718	13,000	782	2,457	5.13	69.61	1,779,000

Peak discharge (base, 8,100 sec.-ft.).--Nov. 27 (12:30 p.m.) 11,600 sec.-ft.; Jan. 22 (11 a.m.) 11,500 sec.-ft.; Feb. 25 (4:30 a.m.) 15,300 sec.-ft.; Mar. 17 (3:30 p.m.) 8,700 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for station near Cazadero.

Clackamas River near Cazadero, Oreg.

Location--Water-stage recorder, lat. 45°14', long. 122°16', in NE¼ sec. 11, T. 4 S., R. 4 E., half a mile upstream from backwater from Cazadero Dam of Portland General Electric Co. and 3 miles southeast of Cazadero. Datum of gage is 532.0 feet above mean sea level (levels by Portland General Electric Co.); gage readings have been reduced to elevations above mean sea level.

Drainage area--657 square miles (revised).

Records available--January 1909 to September 1950.

Average discharge--41 years, 2,611 second-feet.

Extremes--Maximum discharge during year, 23,600 second-feet Feb. 25 (elevation, 546.01 feet); minimum, 538 second-feet Oct. 3, 4 (elevation, 533.45 feet); minimum daily, 888 second-feet Sept. 19.

1909-50: Maximum discharge, 60,800 second-feet Mar. 31, 1931 (elevation, 556.5 feet), by computation of peak flow over dam, from data furnished by Portland General Electric Co.; minimum, 410 second-feet Oct. 20, 1925, Sept. 28, 1930 (elevation, 532.03 feet), caused by shut-down in power plant at Three Lynx; minimum daily, 587 second-feet Aug. 17, 1930.

Remarks--Records good. Some diurnal fluctuation during low flow caused by Oak Grove power plant. No diversion above station.

Cooperation--Water-stage recorder graph and 12 discharge measurements furnished by Portland General Electric Co.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

Oct. 1 to Feb. 24				Feb. 25 to Sept. 30			
534.1	860	538.0	4,920	534.2	870	538.5	5,490
534.2	920	539.0	6,670	534.8	1,250	540.0	8,280
534.8	1,310	541.0	10,900	535.8	2,060	542.0	13,000
535.7	2,040	543.0	15,900	537.0	3,380	545.0	20,900
537.0	3,490						

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	934	1,170	5,050	2,710	81,800	5,850	6,030	3,410	5,940	3,810	1,330	1,040
2	921	1,130	5,060	2,430	81,600	5,470	7,000	3,540	6,140	3,480	1,290	1,040
3	901	1,090	4,120	2,160	1,870	7,590	6,140	3,430	6,230	3,250	1,270	1,020
4	939	1,060	3,410	2,100	2,070	8,180	5,140	3,580	6,500	3,120	1,260	1,010
5	1,620	1,040	3,330	1,920	2,190	8,070	4,660	3,700	6,540	2,970	1,240	978
6												
7	2,080	1,020	3,110	2,120	2,540	7,310	4,380	3,630	6,060	2,770	1,230	1,010
8	1,820	998	2,660	2,630	2,540	6,270	4,070	3,440	5,600	2,610	1,220	1,010
9	1,440	1,030	2,370	2,250	2,710	5,310	4,310	3,270	5,430	2,440	1,200	1,000
10	1,820	1,190	2,240	2,110	2,710	4,680	4,080	3,260	5,160	2,360	1,190	996
11	2,910	1,250	2,080	2,370	2,630	4,170	3,810	3,460	5,690	2,240	1,170	990
12												
13	2,310	1,770	1,870	2,180	2,530	3,640	3,630	4,200	6,320	2,100	1,170	990
14	2,080	2,910	1,910	1,950	2,490	3,280	4,000	5,890	6,740	2,010	1,150	978
15	1,770	1,980	2,370	1,880	3,180	3,100	4,620	6,700	6,210	1,950	1,160	978
16	1,550	1,660	2,290	1,750	4,710	2,960	4,360	6,730	5,470	1,920	1,150	978
17	1,430	1,480	2,230	1,700	6,860	2,830	4,260	6,430	5,000	1,860	1,140	996
18												
19	1,320	1,370	2,220	1,670	7,070	3,780	4,570	6,020	5,190	1,800	1,130	1,010
20	1,270	1,280	2,400	1,550	6,730	9,940	4,920	6,040	6,320	1,740	1,110	960
21	1,200	1,230	2,540	1,460	5,570	8,880	4,760	5,590	5,770	1,690	1,100	918
22	1,160	1,180	2,130	1,780	4,940	8,640	4,590	4,940	5,670	1,740	1,090	888
23	1,120	1,150	1,890	4,210	4,300	7,060	4,960	4,710	5,770	1,670	1,080	954
24												
25	1,100	1,100	1,940	9,910	3,780	6,110	5,360	5,110	5,430	1,610	1,080	942
26	1,070	1,120	2,560	15,000	3,450	6,110	5,230	6,040	4,960	1,570	1,080	1,010
27	1,060	2,870	5,500	10,100	4,750	5,460	4,760	6,210	4,860	1,530	1,140	936
28	1,030	4,390	5,980	7,010	14,600	5,040	4,200	5,750	4,590	1,490	1,310	978
29	1,010	3,440	4,270	5,230	20,100	4,540	3,890	5,600	4,240	1,470	1,180	1,090
30												
31	1,010	3,500	3,780	4,270	12,700	4,220	3,550	5,990	3,690	1,430	1,100	1,690
32	995	10,400	3,270	3,700	8,830	4,220	3,500	6,570	3,820	1,410	1,090	1,360
33	1,340	8,560	3,300	3,170	7,040	3,900	3,500	6,210	3,950	1,460	1,090	1,120
34	1,660	6,440	3,350	2,790	-	3,510	3,420	5,770	4,190	1,450	1,070	1,060
35	1,340	6,970	3,230	2,480	-	3,360	3,360	5,630	4,100	1,390	1,060	1,030
36	1,250	-	3,010	2,180	-	3,610	-	5,510	-	1,350	1,050	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	43,420	2,910	901	1,401	2.13	2.46	86,120
November	75,778	10,400	998	2,526	3.84	4.29	150,300
December	95,490	5,980	1,870	5,080	4.69	5.41	189,400
Calendar year 1949	1,085,190	20,900	901	2,973	4.53	61.43	2,152,000
January	108,770	15,000	1,460	3,509	5.34	6.16	215,700
February	146,290	20,100	1,600	5,225	7.95	8.28	290,200
March	167,190	9,940	2,830	5,393	8.21	9.46	331,600
April	135,060	7,000	3,360	4,502	6.85	7.65	267,900
May	156,350	6,720	3,260	5,044	7.68	8.85	310,100
June	161,980	6,740	3,820	5,399	8.22	9.17	321,300
July	63,690	3,810	1,350	2,055	3.13	3.61	126,300
August	35,930	1,330	1,050	1,159	1.76	2.03	71,270
September	30,860	1,690	888	1,032	1.57	1.75	61,410
Water year 1949-50	1,220,908	20,100	888	3,345	5.09	69.12	2,422,000

Peak discharge (base, 11,000 sec.-ft.),--Nov. 27 (1:30 p.m.) 15,000 sec.-ft.; Jan. 22 (8 a.m.) 16,400 sec.-ft.; Feb. 25 (3:30 a.m.) 23,600 sec.-ft.; Mar. 17 (2:30 p.m.) 12,500 sec.-ft.

A No gage-height record; discharge computed on basis of weather records and records for station above Three Lynx Creek.

Oak Grove Fork above power-plant intake, Oreg.

Location.--Water-stage recorder, lat. 45°04', long. 121°57', in SW¹/₄ sec. 2, T. 6 S., R. 7 E., 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.

Drainage area.--126 square miles.

Records available.--December 1923 to September 1950. May 1909 to December 1923 (incomplete) at site 1 mile downstream, below Kink Creek; records equivalent except for slight inflow from springs and Kink Creek.

Average discharge.--26 years (1924-50), 468 second-feet.

Extremes.--Maximum discharge during year, 1,370 second-feet June 5 (gage height, 3.67 feet); maximum gage height, 3.70 feet June 16; minimum discharge, 330 second-feet Nov. 17-22.

1909-50: Maximum discharge, 5,000 second-feet Jan. 7, 1923 (gage height, 5.45 feet, site and datum then in use), computed from flow at stations on Clackamas River; minimum, 236 second-feet Oct. 15, 16, 18, 1931 (gage height, 1.42 feet).

Remarks.--Records good. Discharge includes flow of Spring Creek, just below gage. No diversion or regulation above station.

Cooperation.--Water-stage recorder graph and 10 discharge measurements furnished by Portland General Electric Co.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Backwater from debris June 7-10, 16-21)

Oct. 1 to Nov. 27	Nov. 27 to June 3	June 3 to Sept. 30
2.2 322	2.2 330	2.2 330
2.4 414	2.4 425	2.4 428
2.9 715	2.8 665	2.8 685
	3.2 945	3.2 980
	3.7 1,360	3.7 1,400

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	351	343	546	415	410	779	691	665	1,200	785	440	386
2	351	343	558	410	405	744	772	665	1,230	762	440	386
3	347	339	504	405	400	863	710	652	1,270	741	434	380
4	356	339	474	405	405	922	672	652	1,310	720	428	380
5	399	339	474	395	400	922	658	665	1,350	706	428	380
6	414	339	447	410	405	849	646	639	1,290	671	428	375
7	379	339	430	405	395	786	639	620	1,270	650	423	375
8	364	343	420	390	395	744	639	626	1,240	629	423	375
9	404	351	420	390	390	710	626	652	1,180	615	417	375
10	431	347	410	395	390	672	613	698	1,270	596	417	370
11	394	374	395	385	385	626	613	772	1,250	576	417	370
12	364	364	405	390	385	600	632	885	1,290	563	417	366
13	369	351	420	380	410	588	652	1,000	1,230	550	412	366
14	360	343	410	380	436	564	646	1,050	1,140	537	412	362
15	360	335	405	380	464	546	652	1,060	1,090	531	412	362
16	356	335	405	375	474	564	684	1,050	1,140	518	407	362
17	356	330	405	366	474	828	704	1,070	1,190	512	407	357
18	351	330	405	366	464	835	710	1,020	1,110	506	402	357
19	351	330	385	375	458	807	717	968	1,080	506	402	357
20	351	330	380	410	447	744	765	975	1,080	493	402	352
21	347	330	390	492	442	717	807	1,030	1,080	487	402	352
22	347	335	430	594	436	717	807	1,110	1,010	481	402	352
23	343	476	516	576	492	691	758	1,130	996	475	417	357
24	343	448	492	528	868	665	717	1,120	956	469	417	357
25	339	414	458	492	1,290	646	704	1,120	900	463	402	380
26	339	420	442	480	1,120	626	672	1,160	851	458	396	417
27	339	666	436	464	968	613	672	1,200	830	458	391	370
28	379	672	442	447	856	582	665	1,180	822	463	386	362
29	360	606	452	436	-	564	658	1,180	822	458	386	362
30	351	632	430	425	-	558	658	1,170	808	452	386	357
31	347	-	425	415	-	570	-	1,150	-	446	386	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	11,262	431	339	563	2.98	3.32	22,340
November	11,843	572	330	395	3.13	3.50	23,490
December	13,611	558	380	439	3.48	4.02	27,000
Calendar year 1949	202,424	1,920	330	555	4.40	59.75	401,500
January	13,166	594	366	425	3.37	3.89	26,110
February	14,864	1,290	385	531	4.21	4.39	29,480
March	21,642	922	546	698	5.54	6.39	42,930
April	20,559	807	613	685	5.44	6.07	40,780
May	29,934	1,200	620	933	7.40	8.54	57,390
June	33,255	1,350	808	1,108	8.79	9.82	65,960
July	17,277	785	446	557	4.42	5.10	34,270
August	12,739	440	386	411	3.26	3.76	25,270
September	11,059	417	352	369	2.93	3.26	21,940
Water year 1949-50	210,211	1,350	330	576	4.57	62.06	417,000

Peak discharge (base, 940 sec.-ft.)--Feb. 25 (4 a.m.) 1,340 sec.-ft.; June 5 (3 a.m.) 1,370 sec.-ft.

Johnson Creek at Sycamore, Oreg.

Location.--Water-stage recorder and concrete control with steel weir for low flows, lat. 45°28'40", long. 122°30'130", in lot 2, SW $\frac{1}{4}$ sec. 13, T. 1 S., R. 2 E., a third of a mile southwest of Sycamore station. Datum of gage is 228.03 feet above mean sea level, datum of 1929.

Drainage area.--28.2 square miles.

Records available.--June 1940 to September 1950.

Average discharge.--10 years, 49.3 second-feet.

Extremes.--Maximum discharge during year, 839 second-feet Jan. 10 (gage height, 8.99 feet); minimum, 0.7 second-foot Sept. 2 (gage height, 0.79 foot).

1940-50: Maximum discharge, 2,110 second-feet Feb. 10, 1949 (gage height, 13.77 feet, from floodmark); minimum, 0.2 second-foot Aug. 14-16, 18-22, 1940, Aug. 2, 21, 22, 1941.

Remarks.--Records good except those for periods of ice effect, no gage-height record, on Backwater from willow trees, and those below 3 second-feet, which are fair. Small diversions above station for irrigation. No regulation.

Rating table, water year 1949-50, except periods of ice effect or backwater from willow trees (gage height, in feet, and discharge, in second-feet)

0.8	0.7	1.3	13	3.5	142
.9	1.3	1.5	22	4.0	193
1.0	2.2	1.8	36	5.0	319
1.1	4.5	2.4	66	6.0	467
1.2	8.6	3.0	103	7.6	723

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.4	2.7	88	120	a50	92	62	20	2.4	2.7	2.0	1.4
2	2.2	2.7	94	88	a46	94	61	22	2.0	2.7	1.9	1.0
3	1.8	2.9	64	64	a44	152	57	18	1.9	2.0	2.1	1.1
4	4.0	2.7	52	56	a46	292	50	17	1.8	2.7	1.8	1.1
5	7.4	2.7	64	*50	b50	333	46	19	1.7	2.1	2.1	1.1
6	7.0	2.7	56	c245	b90	268	46	20	1.7	2.4	2.2	1.2
7	7.4	1.8	45	c551	b165	154	39	19	2.1	2.4	1.8	1.2
8	4.9	2.7	36	c304	480	121	80	17	4.9	2.4	1.9	1.1
9	3.8	3.8	34	c221	320	111	60	15	5.7	3.1	1.8	1.1
10	4.0	3.6	40	*c632	244	112	50	15	11	2.7	1.9	1.1
11	4.9	4.9	30	c305	219	110	44	13	9.4	3.1	1.9	1.1
12	4.0	7.4	35	c184	235	90	84	12	6.6	2.9	2.0	1.1
13	3.4	5.3	77	c145	398	77	91	10	5.7	2.2	1.9	1.2
14	3.6	4.3	60	114	326	68	83	9.9	4.9	1.9	1.8	1.2
15	3.4	4.0	67	87	348	57	75	9.4	4.5	2.0	1.8	1.4
16	2.4	4.0	121	76	430	80	63	8.6	4.5	1.8	2.0	1.8
17	2.2	3.8	c152	63	*247	186	58	8.2	4.5	1.8	1.9	1.3
18	2.9	3.8	c191	*67	150	176	47	7.4	4.9	1.7	1.8	1.2
19	2.9	3.4	125	77	120	182	39	7.0	4.5	2.4	1.8	1.2
20	2.2	2.9	85	c213	91	128	32	6.6	4.5	1.8	1.8	1.6
21	2.2	2.1	69	c428	75	111	27	6.1	4.0	1.8	1.6	1.2
22	3.1	4.3	70	c721	66	120	25	5.7	4.0	1.8	1.8	1.3
23	2.2	35	c241	c678	165	152	21	5.3	4.3	1.9	2.7	1.3
24	1.8	94	c235	c286	513	146	21	4.5	4.5	1.7	2.1	1.7
25	2.0	69	c185	159	456	104	17	3.8	4.5	1.9	1.8	3.8
26	2.0	56	c156	119	284	91	15	3.4	3.8	1.8	1.8	5.3
27	2.4	c142	112	97	192	88	23	3.4	3.8	1.9	1.8	2.7
28	2.9	c136	83	79	124	73	25	3.1	3.6	2.2	1.6	1.7
29	4.5	c172	89	a70	-	62	18	2.9	3.4	2.1	1.4	1.8
30	3.8	c139	114	a64	-	56	15	2.9	2.7	2.2	1.6	1.7
31	2.2	-	c154	a56	-	58	-	2.7	-	1.9	1.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	106.7	7.8	1.8	3.44	0.122	0.14	212
November	921.5	172	1.8	30.7	1.09	1.22	1,830
December	5,024	241	30	97.5	3.46	3.99	6,000
Calendar year 1949	17,564.0	1,680	1.8	47.6	1.69	22.91	34,460
January	6,399	721	50	206	7.30	8.44	12,690
February	5,974	513	44	213	7.55	7.88	11,850
March	3,942	333	56	127	4.50	5.20	7,820
April	1,374	91	15	45.8	1.62	1.81	2,730
May	517.9	22	2.7	10.3	.365	.42	631
June	127.8	11	1.7	4.26	.151	.17	253
July	68.0	3.1	1.7	2.19	.078	.09	135
August	58.0	2.7	1.4	1.87	.066	.08	115
September	46.8	5.3	1.0	1.56	.055	.06	93
Water year 1949-50	22,359.7	721	1.0	61.3	2.17	29.50	44,360

Peak discharge (base, 450 sec.-ft.)--Jan. 7 (4:30 a.m.) 600 sec.-ft.; Jan. 10 (11:30 a.m.) 839 sec.-ft.; Jan. 23 (3 a.m.) 805 sec.-ft.; Feb. 8 (5 p.m.) 574 sec.-ft.; Feb. 16 (9 a.m.) 502 sec.-ft.; Feb. 25 (12:30 a.m.) 678 sec.-ft.; Mar. 4 (1 p.m.) 467 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

b Stage-discharge relation affected by ice.

c Backwater from Willow trees.

Salmon Creek near Battle Ground, Wash.

Location.--Staff gage, lat. 45°46'25", long. 122°26'35", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4, T. 3 N., R. 3 E., 100 feet upstream from county highway bridge, 150 feet downstream from Rock Creek, and 4 miles east of Battle Ground.

Drainage area.--18.3 square miles.

Records available.--October 1943 to September 1950.

Extremes.--Maximum discharge observed during year, 709 second-feet Jan. 21 (gage height, 2.20 feet); minimum observed, 1.6 second-feet Aug. 19-22, Sept. 22, 23 (gage height, -0.07 foot).

1943-50: Maximum discharge observed, 1,440 second-feet Feb. 17, 1949 (gage height, 3.10 feet), from rating curve extended above 520 second-feet; minimum observed, 1.3 second-feet Aug. 20, 22, 28-30, Sept. 5-9, 13, 14, 1949.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Gage read once daily. No diversion or regulation.

Revisions (water years).--W 1044: 1944.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

-0.1	1.4	0.8	67
0.0	2.2	1.0	116
.2	4.8	1.3	224
.4	12.5	1.6	364
.6	33	2.1	646

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	5.3	111	135	b47	135	95	36	11.5	5.9	3.8	2.1
2	2.6	5.3	111	81	b47	111	116	48	11.5	5.9	3.2	2.0
3	2.4	4.8	106	85	b46	116	100	48	10.5	5.3	3.2	2.0
4	2.8	4.5	81	72	b45	177	122	42	9.4	5.3	3.0	2.0
5	14	4.5	100	63	45	233	106	59	9.4	4.8	3.0	2.0
6	17.5	4.6	67	292	81	*192	67	56	9.4	4.8	3.2	2.0
7	8.0	4.3	63	340	100	148	59	52	11.5	4.8	3.0	1.8
8	5.1	5.6	52	216	259	122	170	48	23	4.8	3.0	1.8
9	a6.0	12	48	148	177	95	135	45	12.5	11.5	2.8	1.8
10	8.9	11	48	*364	170	100	111	42	11.5	5.9	2.8	2.0
11	8.0	20	42	208	170	95	85	36	11.5	5.3	2.8	2.0
12	a7.5	16.5	48	148	162	90	142	33	10.5	4.8	2.8	2.0
13	6.7	44	90	122	259	90	142	33	11.5	4.5	2.6	1.8
14	5.1	38	85	90	242	85	116	31	11.5	4.6	2.6	1.8
15	4.3	29	95	76	233	76	135	26	11.5	4.5	2.8	2.0
16	4.3	22	85	65	224	116	111	26	10.5	4.5	3.1	2.0
17	4.3	20	100	48	177	296	111	23	10.5	4.2	2.8	1.8
18	a4.2	16.5	116	48	148	242	100	23	10.5	3.8	1.8	1.8
19	4.2	15	95	90	122	200	85	21	10.5	4.2	1.6	1.8
20	4.2	12	a70	442	177	162	72	21	7.5	4.5	1.6	2.0
21	3.8	12	72	646	170	135	63	19	8.5	4.2	1.6	1.8
22	3.8	11	242	585	106	116	59	19	7.5	3.5	1.6	1.6
23	3.8	46	390	442	111	122	52	17.5	10.5	3.2	5.3	1.6
24	3.5	246	306	268	556	95	45	17.5	10.5	3.0	5.3	4.3
25	3.5	237	296	184	415	95	42	16	11.5	3.0	3.1	12
26	3.8	159	250	148	296	85	39	16	9.4	3.5	2.8	12
27	4.5	259	208	111	242	72	42	14	7.5	3.2	2.6	4.6
28	36	200	208	95	184	95	42	12.5	7.5	4.8	2.6	3.1
29	10.5	122	148	76	-	90	42	12.5	7.0	11.5	2.4	2.9
30	9.4	11	116	52	-	90	33	12.5	6.4	4.8	2.4	2.7
31	6.4	-	148	b49	-	85	-	12.5	-	4.5	2.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	211.7	36	2.4	6.83	0.373	0.43	420
November	1,697.9	259	4.3	56.6	3.09	3.45	3,370
December	3,997	390	42	129	7.05	8.12	7,930
Calendar year 1949	18,501.8	1,440	1.3	50.7	2.77	37.60	36,700
January	5,789	646	48	187	10.2	11.76	11,480
February	5,011	556	45	179	9.78	10.18	9,940
March	3,961	296	72	128	6.99	8.05	7,860
April	2,639	170	33	88.0	4.81	5.36	5,230
May	918	59	12.5	29.6	1.62	1.87	1,820
June	312.5	23	6.4	10.4	.568	.64	620
July	153.1	11.5	3.0	4.94	.270	.31	304
August	87.6	5.3	1.6	2.83	.155	.18	174
September	85.1	12	1.6	2.84	.155	.17	169
Water year 1949-50	24,862.9	646	1.6	68.1	3.72	50.52	49,320

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for stations on nearby streams.

b Stage-discharge relation affected by ice.

Lewis River near Cougar, Wash.

Location.--Water-stage recorder, lat. 46°03'30", long. 122°12'50". In SE $\frac{1}{4}$ sec. 29, T. 7 N., R. 5 E., 1 mile downstream from Swift Creek and 4 miles east of Cougar. Datum of gage is 576.4 feet above mean sea level (from river-profile survey).

Drainage area.--481 square miles.

Records available.--July 1910 to March 1912 (gage heights only), June 1924 to September 1950. July 1909 to June 1910 at site 1,000 feet upstream from Swift Creek.

Average discharge.--26 years (1924-50), 2,764 second-feet.

Extremes.--Maximum discharge during year, 26,800 second-feet Nov. 27 (gage height, 11.88 feet); minimum, 773 second-feet Oct. 3, 4, (gage height, 2.99 feet).
1910-12, 1924-50: Maximum discharge, 54,400 second-feet Dec. 21, 1933 (gage height, 15.7 feet, datum then in use), from rating curve extended above 15,000 second-feet; minimum, 454 second-feet Oct. 21, 1931 (gage height, 0.01 foot, datum then in use).

Remarks.--Records excellent except those for period of shifting control, which are fair. No diversion or regulation.

Revisions (water years).--W 904: 1939.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	795	1,320	5,580	3,580	2,500	6,280	6,040	3,750	6,660	5,800	1,780	1,180
2	788	1,220	6,410	3,160	2,400	5,690	6,160	3,840	7,180	5,460	1,720	1,140
3	780	1,180	5,800	2,780	2,300	*7,450	5,350	3,750	7,450	5,130	1,670	1,140
4	848	1,140	5,020	2,700	2,250	12,200	4,810	3,750	8,000	4,920	1,620	1,140
5	1,180	1,090	4,710	2,550	2,270	15,000	4,510	4,030	8,280	4,810	1,560	1,090
6	1,220	1,050	4,120	2,550	2,270	13,000	4,220	3,840	7,180	4,610	1,560	1,090
7	1,090	1,050	3,660	2,410	2,140	9,460	3,940	3,660	6,280	4,320	1,510	1,050
8	986	1,050	3,320	2,270	2,200	7,450	3,940	3,660	6,040	3,940	1,510	1,050
9	1,030	1,410	3,160	2,140	2,080	6,160	3,660	3,660	5,690	3,750	1,460	1,050
10	1,270	1,460	2,850	2,140	2,020	5,240	3,490	3,940	6,040	3,400	1,460	1,050
11	1,460	2,480	2,620	*2,020	2,020	4,510	3,400	4,710	6,410	3,080	1,410	1,010
12	1,410	7,180	2,480	1,960	2,140	4,030	4,220	6,410	6,660	3,000	1,410	1,010
13	1,220	6,410	2,340	1,840	2,480	3,660	4,710	7,720	6,160	3,000	1,360	1,010
14	1,140	4,810	2,270	1,780	2,920	3,400	4,610	6,000	5,800	3,000	1,360	994
15	1,090	3,940	2,140	1,780	4,710	3,240	5,350	7,720	5,460	2,920	1,460	986
16	1,050	3,240	2,080	1,720	6,410	3,840	7,180	7,180	5,690	2,780	1,460	978
17	1,000	2,850	2,140	1,670	6,040	6,920	8,570	6,920	6,920	2,620	1,360	970
18	978	2,550	2,080	1,600	5,350	7,180	7,450	6,410	6,660	2,550	1,360	962
19	954	2,340	1,900	1,800	4,920	6,660	6,410	5,800	6,920	2,780	1,320	954
20	938	2,140	1,840	4,510	4,410	5,920	6,160	5,350	7,450	2,550	1,320	946
21	922	1,960	1,840	7,450	4,030	5,460	5,920	5,460	7,180	2,410	1,270	938
22	908	1,960	2,020	8,860	3,750	5,240	5,460	5,690	6,410	2,340	1,270	922
23	900	2,780	3,160	8,000	4,610	4,810	5,130	5,800	6,040	2,340	1,720	915
24	885	7,450	3,660	6,160	11,100	4,410	4,610	5,800	5,350	2,270	1,560	946
25	870	6,920	3,080	5,020	13,400	4,030	4,410	5,920	4,610	2,200	1,560	1,220
26	855	7,720	3,000	4,410	12,200	3,940	4,120	6,410	4,410	2,080	1,320	1,620
27	908	21,600	3,840	3,840	9,460	3,840	4,120	7,180	4,610	1,960	1,270	1,180
28	3,080	13,000	5,690	3,490	7,450	3,580	3,840	7,180	5,020	2,200	1,220	1,050
29	2,200	6,000	5,240	3,160	-	3,320	3,660	6,660	5,800	2,200	1,220	1,010
30	1,620	6,410	4,610	2,850	-	3,240	3,660	6,280	6,040	1,900	1,180	978
31	1,410	-	4,030	2,620	-	3,400	-	6,160	-	1,840	1,180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acre-feet
October	35,845	3,080	780	1,156	2.40	2.77	71,100
November	127,710	21,600	1,050	4,257	9.87	9.87	253,300
December	106,690	6,410	1,840	3,442	7.16	8.25	211,600
Calendar year 1949	1,108,219	21,600	780	3,036	6.31	85.68	2,198,000
January	102,820	8,860	1,600	3,317	6.90	7.95	203,900
February	129,830	13,400	2,020	4,637	9.64	10.04	257,500
March	182,560	15,000	3,240	5,889	12.2	14.12	362,100
April	149,110	8,570	3,400	4,970	10.3	11.53	295,800
May	172,640	8,000	3,660	5,569	11.6	13.35	342,400
June	188,600	6,280	4,410	6,287	13.1	14.58	374,100
July	98,160	5,800	1,840	3,166	6.58	7.59	194,700
August	44,240	1,780	1,160	1,427	2.97	3.42	87,750
September	31,579	1,620	915	1,053	2.19	2.44	62,640
Water year 1949-50	1,369,784	21,600	780	3,753	7.80	105.91	2,717,000

Peak discharge (base, 9,000 sec.-ft.).--Nov. 27 (12:30 p.m.) 26,800 sec.-ft.; Jan. 22 (12 m.) 9,160 sec.-ft.; Feb. 25 (2:45 p.m.) 15,000 sec.-ft.; Mar. 5 (3 p.m.) 16,700 sec.-ft.

* Winter discharge measurement made on this day.

No gage-height record; discharge computed on basis of records for nearby stations.

Note.--Shifting-control method used Mar. 6 to May 23, May 30 to Sept. 30.

Lewis River at Ariel, Wash.

Location.--Water-stage recorder, lat. 45°57'10", long. 122°33'45", in NW¼NE¼ sec. 4, T. 5 N., R. 2 E., at Ariel, half a mile downstream from Ariel Dam and power plant and 3 miles upstream from Cedar Creek. Datum of gage is 44 feet above mean sea level, unadjusted (levels by Northwestern Electric Co.).

Drainage area.--731 square miles.

Records available.--July 1922 to September 1950. July to November 1909 at site 3 miles upstream.

Average discharge.--27 years (1923-50), 4,526 second-feet, adjusted for storage since March 1931.

Extremes.--Maximum discharge during year, 49,000 second-feet Nov. 27 (gage height, 19.5 feet); minimum, 646 second-feet Oct. 1, 7, 19; minimum daily, 732 second-feet Sept. 4, 1909, 1922-50: Maximum discharge, 129,000 second-feet Dec. 22, 1933 (gage height, 35.0 feet, from floodmarks), from rating curve extended above 22,000 second-feet and from spillway gate openings; no flow at times June 30, July 1-3, 6-9, 1931 (caused by regulation during construction of Ariel Dam); minimum daily discharge, 1 second-foot July 6, 1931.

Remarks.--Records good. No diversions. Flow regulated by Lake Merwin Reservoir on Lewis River, lat. 45°57'10", long. 122°33'10", in SW¼ sec. 34, T. 6 N., R. 2 E., at Ariel, completed in 1931; usable storage, 246,000 acre-feet between elevations 165 feet (set by Federal Power Commission) and 235 feet (spillway crest) above mean sea level. Water is used for power.

Cooperation.--Gage-height record collected in cooperation with Pacific Power & Light Co.

Revisions (water years).--W 884: 1938. W 964: 1936-37, 1940-42.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	745	3,070	9,950	8,250	a7,350	11,200	12,200	7,210	8,560	7,410	2,380	1,890
2	812	3,240	12,400	7,900	a7,350	10,800	12,700	6,680	9,290	8,640	2,310	750
3	1,860	3,350	10,200	6,070	a7,300	15,200	10,000	6,320	9,710	6,920	2,130	743
4	2,220	1,970	8,970	6,370	a7,250	25,600	8,820	6,330	10,400	5,420	2,340	732
5	1,620	2,660	8,750	6,500	a6,350	28,200	8,310	6,100	10,600	6,590	1,630	1,840
6	2,540	2,310	7,200	6,870	7,270	22,900	8,150	5,080	9,270	6,020	757	1,750
7	1,420	2,750	7,130	7,530	5,780	16,200	8,150	5,320	8,300	6,080	2,030	1,350
8	1,360	2,600	6,600	5,680	5,840	12,600	8,150	6,420	8,020	5,680	1,970	1,160
9	2,110	3,180	5,830	5,910	5,730	10,500	7,720	6,070	7,780	1,540	2,010	1,030
10	3,270	3,060	6,630	6,060	5,190	8,920	5,770	6,140	7,600	4,730	2,040	936
11	3,040	3,160	3,420	5,770	5,990	8,250	5,940	6,200	7,820	4,600	2,000	2,030
12	3,980	14,600	5,450	6,170	5,220	8,210	5,920	8,340	8,540	3,800	1,480	1,330
13	2,720	10,700	5,650	6,210	5,580	8,000	6,300	11,300	8,150	3,870	756	2,020
14	2,360	8,000	5,580	6,900	5,640	6,210	8,160	11,200	7,690	4,600	1,960	1,780
15	1,880	6,010	5,370	7,980	5,730	5,910	9,730	10,400	7,530	3,360	2,240	1,940
16	1,660	4,720	5,660	7,760	5,410	6,380	14,000	9,910	7,180	928	2,080	966
17	2,090	4,220	5,620	7,820	5,300	17,100	15,900	9,560	7,380	3,550	2,190	957
18	2,100	3,790	4,940	7,840	5,230	15,400	12,700	8,740	8,160	3,810	2,260	1,850
19	2,100	5,890	5,800	7,840	6,830	13,500	10,900	8,230	8,660	4,100	776	1,250
20	1,800	2,750	5,790	7,820	6,660	11,400	9,790	7,830	9,000	3,950	761	1,350
21	1,580	3,840	5,720	7,990	8,270	9,870	9,520	7,450	9,070	3,860	2,240	954
22	892	3,010	5,790	8,180	7,260	9,660	9,010	7,230	8,270	2,830	1,820	953
23	790	4,170	5,980	8,200	11,100	8,720	8,160	7,940	7,900	1,010	2,100	917
24	1,500	16,300	6,040	8,310	30,400	8,290	8,160	8,050	7,530	2,480	2,520	1,120
25	1,540	13,100	5,550	8,370	28,500	8,140	7,930	8,110	7,610	2,780	2,480	1,300
26	1,490	16,800	4,870	8,390	24,200	8,160	6,080	8,080	7,410	2,900	1,610	1,810
27	1,350	36,100	8,740	8,390	18,100	8,160	6,300	9,500	6,450	2,990	749	1,650
28	3,030	21,400	15,100	6,830	11,500	6,220	6,350	9,290	5,490	3,880	2,050	1,670
29	4,210	14,500	12,300	7,530	-	5,970	6,200	8,580	5,110	2,290	1,750	1,200
30	3,410	11,700	9,480	a7,500	-	5,960	6,200	8,150	5,620	776	1,810	787
31	2,960	-	8,200	a7,400	-	5,710	-	8,080	-	2,400	1,750	-

Month	Observed			Change in contents in Lake Merwin Reservoir (acre-feet)		Adjusted for change in reservoir contents		
	Discharge in second-feet			Runoff in acre-feet	Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean			Mean	Per square mile	
October.....	4,210	745	2,078	127,800	+3,180	131,000	2,131	3.36
November.....	36,100	1,970	7,698	458,100	-800	457,300	7,685	11.73
December.....	15,100	3,420	7,243	445,300	+1,600	446,900	7,268	11.46
Calendar year 1949	36,100	568	4,835	3,500,000	+17,020	3,517,000	4,858	90.21
January.....	8,390	5,680	7,295	448,500	0	448,500	7,294	11.50
February.....	30,400	5,190	9,369	520,300	0	520,300	9,368	13.35
March.....	28,200	5,710	11,200	688,900	-1,600	687,300	11,180	17.63
April.....	15,900	5,770	8,774	522,100	-3,180	518,900	8,720	13.91
May.....	11,300	5,080	7,666	483,600	+4,780	488,400	7,943	12.53
June.....	10,600	5,110	8,007	476,500	0	476,500	8,008	12.22
July.....	7,410	776	3,928	241,500	-800	240,700	3,915	6.17
August.....	2,520	749	1,838	113,000	-3,160	109,800	1,766	2.82
September.....	2,030	732	1,334	79,370	+2,380	81,750	1,374	2.10
Water year 1949-50	36,100	732	6,361	4,605,000	+2,380	4,607,000	6,364	8.71

a No gage-height record; discharge computed by power company on basis of power output.

East Fork Lewis River near Heisson, Wash.

Location.--Water-stage recorder, lat. 45°50', long. 122°28', in N $\frac{1}{2}$ sec. 17, T. 4 N., R. 3 E., just downstream from Basket Creek, $\frac{1}{2}$ miles northeast of Heisson, and 20 miles upstream from mouth. Datum of gage is 366.8 feet above mean sea level (from river-profile surveys).

Drainage area.--125 square miles.

Records available.--September 1929 to September 1950.

Average discharge.--21 years, 722 second-feet.

Extremes.--Maximum discharge during year, 8,990 second-feet Feb. 24 (gage height, 9.53 feet); minimum, 38 second-feet Sept. 22, 23 (gage height, 0.18 foot).
1929-50: Maximum discharge, 15,600 second-feet Dec. 22, 1933 (gage height, 12.3 feet), from rating curve extended above 12,000 second-feet; minimum, 29 second-feet Nov. 3, 1935 (gage height, 0.04 foot).

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

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

0.2	39	1.6	258	4.0	1,340
.4	56	2.0	371	5.0	2,160
.6	77	2.5	547	6.0	3,240
.9	116	3.0	763	7.0	4,570
1.2	168	3.5	1,020	8.8	7,610

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57	290	1,300	1,270	500	1,640	3,120	811	437	206	77	48
2	57	256	1,900	1,050	450	1,680	2,410	811	437	186	77	48
3	55	228	1,300	885	400	3,480	1,760	740	454	174	76	48
4	92	210	1,000	811	360	4,280	1,380	811	437	164	74	48
5	326	190	1,200	740	350	4,280	1,240	1,020	406	157	73	47
6	547	180	1,100	1,630	763	3,120	1,110	938	341	147	78	47
7	437	180	900	1,640	787	2,120	965	836	403	139	73	46
8	284	190	787	1,200	1,240	1,680	1,140	763	454	137	72	44
9	454	380	740	992	1,050	1,410	1,080	717	371	158	67	44
10	717	490	629	1,720	1,110	1,200	965	763	384	130	67	45
11	787	1,000	567	1,270	1,140	1,020	938	910	374	124	63	45
12	650	1,300	567	992	1,300	885	1,520	1,140	341	115	64	43
13	454	960	650	880	2,460	811	1,640	1,080	326	106	62	43
14	547	700	629	717	2,890	787	1,380	910	298	108	62	47
15	290	520	629	672	4,000	740	1,640	811	287	105	67	45
16	246	430	672	587	3,740	1,660	2,070	763	295	103	67	44
17	217	380	787	528	2,780	4,570	2,310	740	332	97	59	43
18	197	340	836	509	2,260	3,120	1,720	629	304	96	56	41
19	174	310	717	1,730	1,980	2,510	1,410	528	287	109	54	43
20	162	280	650	4,420	1,640	1,980	1,300	509	292	102	52	45
21	151	280	694	6,340	1,380	1,680	1,200	547	274	90	52	43
22	144	250	1,600	5,340	1,380	1,600	1,020	587	274	87	52	38
23	135	620	4,090	3,610	4,340	1,440	860	567	329	84	93	38
24	132	4,200	3,360	2,460	7,610	1,240	740	528	298	82	93	53
25	124	3,000	2,460	1,800	5,830	1,080	694	547	281	82	67	190
26	127	3,300	2,160	1,410	4,140	1,050	650	567	256	81	58	287
27	153	3,900	2,260	1,140	2,780	1,140	717	567	246	78	53	132
28	880	2,400	2,360	965	2,070	1,080	672	490	243	130	54	88
29	629	1,900	2,070	811	-	965	650	454	238	122	52	74
30	427	1,500	1,680	717	-	965	650	437	228	96	50	67
31	341	-	1,520	560	-	1,140	-	420	-	88	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	9,793	880	55	316	2.53	2.91	19,420
November	30,144	4,200	180	1,005	8.04	8.97	59,790
December	41,814	4,090	567	1,349	10.8	12.44	82,940
Calendar year 1949	241,144	9,000	43	661	5.29	71.74	478,500
January	49,376	6,340	509	1,593	12.7	14.69	97,940
February	60,730	7,610	350	2,169	17.4	18.07	120,500
March	56,353	4,570	740	1,818	14.5	16.77	111,800
April	38,951	3,120	650	1,298	10.4	11.59	77,280
May	21,941	1,140	420	708	5.66	6.53	43,520
June	9,927	454	228	351	2.65	2.95	19,690
July	3,683	208	78	119	.952	1.10	7,310
August	2,014	93	50	65.0	.520	.60	3,990
September	1,914	287	38	63.8	.510	.57	3,800
Water year 1949-50	326,640	7,610	38	895	7.16	97.19	648,000

Peak discharge (base, 6,100 sec.-ft.).--Probably Nov. 24 (time unknown) 6,340 sec.-ft.; Jan. 21 (6:30 p.m.) 6,870 sec.-ft.; Feb. 24 (5:30 a.m.) 8,990 sec.-ft.

Note.--No gage-height record Nov. 6 to Dec. 7, Jan. 31 to Feb. 5; discharge computed on basis of recorded range in stage and records for station on Washougal River near Washougal.

KALAMA RIVER BASIN

Kalama River below Italian Creek, near Kalama, Wash.

Location.--Staff gage, lat. 46°02'30", long. 122°49'00", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 7 N., R. 1 W., $2\frac{1}{2}$ miles northeast of Kalama, 4 miles upstream from mouth, and 5 miles downstream from Italian Creek.

Drainage area.--201 square miles.

Records available.--September 1946 to September 1950.

Extremes.--Maximum discharge observed during year, 11,600 second-feet Feb. 24 (gage height, 11.90 feet), from rating curve extended above 6,700 second-feet; minimum observed, 204 second-feet Sept. 16, 17 (gage height, 1.90 feet).
1946-50: Maximum discharge observed, 14,400 second-feet Dec. 13, 1946 (gage height, 13.40 feet), from rating curve extended above 6,700 second-feet; minimum observed, that of Sept. 16, 17, 1950.

Remarks.--Records good except those for periods of shifting control, which are fair. Gage read twice daily. No known diversion or regulation.

Rating table, water year 1949-50, except periods of shifting control
(gage height, in feet, and discharge, in second-feet)

1.8	200	3.5	1,070	7.0	4,350
2.0	278	4.0	1,420	9.0	7,000
2.5	510	5.0	2,240	11.2	10,400
3.0	780	6.0	3,230		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	260	435	1,740	2,060	1,010	2,710	2,420	1,500	1,270	780	387	262
2	258	387	2,510	1,740	950	2,420	2,710	1,740	1,270	725	364	262
3	254	364	2,240	1,420	1,010	3,670	2,420	1,580	1,340	725	364	250
4	299	342	1,660	1,270	950	6,420	2,060	1,500	1,500	698	364	246
5	560	320	1,660	1,130	890	7,600	1,900	1,580	1,420	670	364	242
6	485	299	1,500	1,740	1,070	6,140	1,740	1,580	1,200	642	264	238
7	485	299	1,340	1,740	1,270	4,000	1,660	1,420	1,070	615	364	238
8	410	320	1,130	1,340	2,150	3,010	1,820	1,340	1,130	588	342	230
9	560	615	1,070	1,200	1,660	2,420	1,740	1,270	1,070	642	342	227
10	698	725	1,010	2,150	1,580	2,150	1,580	1,270	1,130	560	342	227
11	835	2,060	835	1,740	1,500	1,820	1,500	1,420	1,270	535	320	227
12	780	3,890	835	1,340	1,740	1,660	2,420	1,900	1,200	535	320	219
13	588	2,610	835	1,200	2,910	1,500	3,010	2,060	1,070	510	320	215
14	485	1,660	835	1,070	3,340	1,420	2,420	1,900	1,010	510	320	211
15	435	1,200	835	1,010	4,710	1,340	2,510	1,660	890	485	342	208
16	387	950	835	835	5,210	1,980	3,340	1,500	1,010	485	342	204
17	364	780	1,270	780	4,000	4,710	3,780	1,500	1,130	460	320	208
18	320	698	1,270	725	3,230	4,350	2,910	1,420	1,070	460	320	219
19	299	615	1,070	1,200	2,810	3,670	2,330	1,270	1,070	485	299	215
20	299	560	890	4,230	2,510	3,010	2,060	1,200	1,130	460	299	223
21	299	535	950	5,210	2,150	2,610	1,980	1,200	1,070	435	299	223
22	274	510	1,270	5,600	2,150	2,510	1,820	1,270	950	435	299	230
23	266	780	3,120	4,590	3,450	2,420	1,660	1,270	1,010	410	387	230
24	258	2,240	4,000	3,340	10,400	2,420	1,500	1,200	950	410	364	250
25	262	2,240	2,810	2,420	7,600	2,150	1,340	1,200	835	410	320	387
26	258	3,340	2,420	2,060	6,140	1,820	1,270	1,420	780	410	299	460
27	258	7,750	3,450	1,740	4,590	2,060	1,420	1,500	780	387	299	320
28	1,070	3,670	4,830	1,580	3,560	2,060	1,340	1,340	835	510	278	299
29	890	2,510	3,450	1,340	-	1,820	1,270	1,200	890	460	278	270
30	615	1,900	3,010	1,200	-	1,820	1,270	1,130	890	410	270	258
31	485	-	2,610	1,010	-	1,740	-	1,130	-	387	266	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	13,996	1,070	254	451	2.24	2.59	27,760
November	44,604	7,750	299	1,487	7.40	8.25	88,470
December	57,290	4,830	835	1,848	9.19	10.60	113,600
Calendar year 1949	391,980	7,750	208	1,074	5.34	72.52	777,400
January	60,010	5,600	725	1,936	9.63	11.10	119,000
February	84,540	10,400	890	3,019	15.0	15.64	167,700
March	89,430	7,600	1,340	2,885	14.4	16.55	177,400
April	61,200	3,780	1,270	2,040	10.1	11.32	121,400
May	44,470	2,060	1,130	1,435	7.14	8.23	88,200
June	32,240	1,500	780	1,075	5.35	5.97	63,950
July	16,234	780	387	524	2.61	3.00	32,200
August	10,158	387	266	328	1.63	1.88	20,150
September	7,498	460	204	250	1.24	1.39	14,870
Water year 1949-50	521,670	10,400	204	1,429	7.11	96.52	1,035,000

Note.--Shifting-control method used Oct. 12 to Nov. 10, Aug. 20 to Sept. 30.

Cowlitz River at Packwood, Wash.

Location.--Water-stage recorder, lat. 46°36'40", long. 121°40'45", in SE $\frac{1}{4}$ sec. 16, T. 13 N., R. 9 E., half a mile upstream from Skate Creek and half a mile northwest of Packwood.

Drainage area.--287 square miles.

Records available.--September 1929 to September 1950. July 1911 to December 1919 at site 1 mile upstream, published as Cowlitz River at Lewis.

Average discharge.--29 years, 1,586 second-feet.

Extremes.--Maximum discharge during year, 22,900 second-feet Nov. 27 (gage height, 11.98 feet), from rating curve extended above 13,200 second-feet; minimum, 370 second-feet Oct. 3 (gage height, 3.12 feet).

1911-19, 1929-50: Maximum discharge, 36,600 second-feet Dec. 21, 1933 (gage height, 13.0 feet), from rating curve extended above 12,600 second-feet; minimum, 160 second-feet Nov. 21, 1929 (gage height, 2.10 feet).

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

Revisions (water years).--W 884: 1938.

Rating table, water year 1949-50, except period of shifting control
(gage height, in feet, and discharge, in second-feet)

4.1	445	5.0	1,140	7.0	4,000
4.2	500	5.3	1,460	8.0	5,890
4.4	620	5.6	1,840	8.5	6,970
4.7	850	6.0	2,400		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	420	1,200	3,060	1,230	1,020	2,080	3,010	1,220	4,530	6,310	2,250	990
2	405	1,040	3,870	1,110	972	1,880	2,850	1,260	4,710	5,890	2,250	1,020
3	390	895	3,060	1,020	929	2,740	2,250	1,280	5,090	5,680	1,970	1,030
4	712	855	4,260	972	895	6,840	1,900	1,270	5,680	5,890	1,710	950
5	584	823	2,150	929	879	6,090	1,680	1,270	5,890	5,890	1,610	834
6	624	770	1,760	912	887	4,250	1,540	1,220	4,440	5,480	1,520	778
7	540	733	1,520	863	855	2,980	1,430	1,150	3,490	4,900	1,560	738
8	484	726	1,400	823	855	2,400	1,340	1,170	3,170	4,260	1,510	706
9	1,640	726	1,320	792	831	1,970	1,240	1,500	3,170	4,530	1,500	706
10	1,580	698	1,220	785	815	1,660	1,150	1,610	3,740	4,000	1,470	706
11	1,520	895	1,110	755	808	1,430	1,130	2,480	4,350	3,330	1,470	690
12	1,520	2,660	1,090	740	792	1,260	1,310	3,630	4,710	3,410	1,470	676
13	1,160	3,320	1,010	a720	887	1,150	1,560	4,900	4,440	3,830	1,390	855
14	895	4,060	954	a710	954	1,050	1,510	4,710	4,350	3,920	1,350	634
15	887	2,740	954	a740	1,260	980	1,610	4,350	4,000	3,660	2,700	614
16	770	2,020	920	a700	1,640	1,040	2,180	4,000	5,090	3,330	2,250	578
17	677	1,760	912	a670	1,580	1,780	2,780	3,920	6,100	3,330	1,780	548
18	612	1,520	895	a660	1,470	2,110	2,400	3,330	5,680	3,660	1,620	536
19	563	1,370	847	755	1,420	2,040	2,110	2,780	6,310	4,000	1,530	548
20	540	1,150	815	2,440	1,340	1,780	2,180	2,480	6,970	3,410	1,480	548
21	518	980	815	4,800	1,280	1,580	2,320	2,780	6,530	3,330	1,430	560
22	496	1,530	904	4,800	1,240	1,460	2,110	3,490	5,280	3,490	1,330	566
23	496	3,110	1,020	3,590	1,350	1,350	1,840	3,330	5,280	3,660	1,580	554
24	490	10,140	1,160	2,580	3,150	1,230	1,630	3,170	4,080	3,660	1,580	572
25	496	6,590	1,120	2,020	4,360	1,130	1,470	3,330	3,410	3,490	1,240	794
26	484	8,140	1,050	1,760	4,160	1,070	1,370	4,000	3,410	3,250	1,160	1,090
27	506	15,300	1,310	1,470	3,240	1,070	1,300	4,900	4,170	2,850	1,150	762
28	5,040	8,160	2,080	1,310	2,510	1,010	1,190	4,440	5,480	2,780	1,050	614
29	2,660	5,020	1,880	1,200	-	940	1,140	4,000	6,750	2,620	1,020	524
30	1,760	3,590	1,640	1,140	-	990	1,180	4,080	6,750	2,180	980	467
31	1,450	-	1,400	1,070	-	1,110	-	4,000	-	2,180	950	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	31,019	5,040	390	1,001	3.49	4.02	61,530
November	92,321	15,300	698	3,077	10.7	11.96	185,100
December	47,506	4,260	815	1,532	5.34	6.16	94,230
Calendar year 1949	741,277	15,300	370	2,031	7.08	96.07	1,470,000
January	44,066	4,800	660	1,421	4.95	5.71	87,400
February	42,389	4,360	792	1,514	5.28	5.49	84,080
March	60,460	6,840	940	1,950	6.79	7.83	119,900
April	52,710	3,010	1,130	1,757	6.12	6.83	104,500
May	91,040	4,900	1,160	2,937	10.2	11.80	180,600
June	147,060	6,970	3,170	4,902	17.1	19.06	291,700
July	122,200	6,310	2,180	3,942	13.7	15.85	242,400
August	47,860	2,700	950	1,544	5.38	6.20	94,930
September	20,988	1,090	467	700	2.44	2.72	41,630
Water year 1949-50	799,609	15,300	390	2,191	7.63	103.61	1,586,000

Peak discharge (base, 8,000 sec.-ft.)--Nov. 24 (4 a.m.) 14,600 sec.-ft.; Nov. 27 (5:30 a.m.) 22,900 sec.-ft.

a No gage-height record; discharge computed on basis of records for station near Mayfield.

Note.--Shifting-control method used Oct. 1 to Mar. 7*

Cowlitz River near Kosmos, Wash.

Location.--Water-stage recorder, lat. 46°28'00", long. 122°07'20", in SE $\frac{1}{4}$ sec. 1, T. 11 N., R. 5 E., half a mile downstream from Tumwater Creek, $\frac{1}{2}$ miles downstream from Cispus River, and 4 miles southeast of Kosmos.

Drainage area.--1,040 square miles.

Records available.--November 1947 to September 1950.

Extremes.--Maximum discharge during year, 27,600 second-feet Nov. 27 (gage height, 15.06 feet); minimum, 1,130 second-feet Oct. 3 (gage height, 3.43 feet).
1947-50: Maximum discharge, that of Nov. 27, 1949; minimum observed, 1,110 second-feet Sept. 26, 1948 (gage height, 3.14 feet, obtained by relation curve from temporary staff gage half a mile upstream).

Remarks.--Records fair. No diversion or regulation.

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

3.4	1,110	8.0	6,350
4.0	1,530	9.0	8,220
5.0	2,380	11.0	13,200
6.0	3,460	13.0	19,600
7.0	4,780	14.1	23,800

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,210	2,970	9,380	5,080	a3,700	9,350	7,680	4,630	12,400	14,100	3,990	2,030
2	1,170	2,680	10,000	4,470	a3,400	8,000	9,620	4,670	13,600	13,000	4,100	2,050
3	1,140	2,430	9,220	3,960	a3,250	8,180	8,460	4,670	14,100	11,900	3,870	2,060
4	1,220	2,250	7,780	3,730	a3,100	14,200	7,270	4,710	15,400	11,800	3,520	2,040
5	1,910	2,130	6,880	3,470	3,160	19,900	6,600	4,770	16,600	11,800	3,290	1,930
6	2,030	2,000	6,130	3,440	3,260	17,800	6,160	4,700	14,200	11,200	3,130	1,830
7	1,850	1,880	5,430	3,270	3,130	13,800	5,730	4,470	11,400	10,400	3,080	1,770
8	1,610	1,830	4,920	3,070	3,180	11,000	5,440	4,400	9,950	9,100	3,020	1,710
9	1,660	1,900	4,580	2,930	3,020	9,060	5,140	4,510	9,400	8,530	2,960	1,680
10	3,360	1,820	4,220	2,890	2,940	7,700	4,810	4,960	10,100	8,400	2,890	1,670
11	2,880	1,980	3,820	2,760	2,880	6,720	4,630	6,500	11,700	7,020	2,850	1,660
12	3,960	4,010	3,640	2,610	2,810	6,020	5,080	10,200	12,500	6,590	2,840	1,620
13	3,090	6,300	3,450	2,480	3,090	5,520	5,820	14,100	12,100	6,810	2,760	1,590
14	2,670	6,040	3,290	b2,350	3,410	5,080	5,840	15,100	11,400	7,200	2,660	1,550
15	2,400	5,660	*3,200	b2,280	4,300	4,770	5,820	14,200	10,800	6,900	2,890	1,520
16	2,310	4,770	3,160	b2,300	6,100	4,750	6,760	13,000	11,800	6,350	4,160	1,480
17	2,130	4,100	3,080	b2,200	6,440	6,400	8,550	12,400	15,800	6,100	3,220	1,440
18	1,970	3,650	3,030	b2,100	6,100	8,040	8,590	11,200	14,600	6,160	2,970	1,390
19	1,840	3,330	2,820	2,290	5,890	7,980	7,800	9,450	15,200	6,620	2,820	1,380
20	1,750	3,100	2,670	5,880	5,620	7,330	7,780	8,330	16,600	6,400	2,720	1,380
21	1,670	2,860	2,660	10,400	5,240	6,690	8,150	8,440	17,000	5,800	2,660	1,380
22	1,590	2,730	2,850	13,100	5,080	6,330	7,880	8,600	14,400	5,840	2,600	1,380
23	1,560	4,160	3,380	12,200	5,440	5,880	7,180	10,200	13,500	6,040	2,820	1,380
24	1,520	11,400	4,190	9,600	11,300	5,480	6,400	9,880	11,600	6,020	2,980	1,380
25	1,480	12,400	4,040	8,110	16,400	5,080	5,960	10,000	9,600	5,920	2,620	1,650
26	1,460	10,800	4,020	6,300	17,600	4,800	5,480	11,200	8,640	5,570	2,370	2,190
27	1,460	23,800	4,360	*5,760	14,700	4,710	5,200	13,200	9,220	5,160	2,340	2,160
28	4,520	23,400	6,660	5,110	11,600	4,510	4,860	13,400	11,000	4,810	a2,250	1,750
29	6,400	16,000	7,110	a4,700	-	4,230	4,630	11,900	13,400	4,980	a2,150	1,580
30	4,230	11,800	6,550	a4,300	-	4,280	4,600	11,600	14,700	4,560	a2,100	1,450
31	3,460	-	5,760	a3,900	-	4,440	-	11,400	-	4,090	2,030	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-foot
October	71,010	6,400	1,140	2,281	2.20	2.54	140,800
November	184,380	23,800	1,820	6,146	6.91	6.59	365,700
December	152,280	10,000	2,660	4,912	4.72	5.45	302,000
Calendar year 1949	1,922,950	23,800	1,140	5,268	5.07	68.76	3,814,000
January	147,050	13,100	2,100	4,744	4.56	5.26	291,700
February	166,140	17,600	2,810	5,934	5.71	5.94	329,500
March	238,040	19,900	4,230	7,679	7.38	8.51	472,100
April	184,220	9,620	4,600	6,474	6.22	6.85	385,200
May	281,790	15,100	4,400	9,090	8.74	10.08	558,900
June	382,510	17,000	8,640	12,750	12.3	13.68	758,700
July	235,040	14,100	4,090	7,562	7.29	8.40	466,200
August	90,660	4,160	2,030	2,925	2.81	3.24	179,800
September	50,080	2,190	1,380	1,669	1.60	1.79	99,330
Water year 1949-50	2,193,200	23,800	1,140	6,009	5.78	78.43	4,350,000

Peak discharge (base, 16,000 sec.-ft.).--Nov. 27 (6:30 p.m.) 27,600 sec.-ft.; Feb. 26 (3 and 5:30 a.m.) 18,000 sec.-ft.; Mar. 5 (5 p.m.) 20,700 sec.-ft.; June 5 (12 m.) 17,000 sec.-ft.; June 21 (9 a.m.) 17,500 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for station near Mayfield.

b Stage-discharge relation affected by ice.

Cowlitz River at Mossyrock, Wash.

Location.--Water-stage recorder, lat. 46°33'00", long. 122°29'30", in SE $\frac{1}{4}$ sec. 1, T. 12 N., R. 2 E., 200 feet upstream from Harmony Bridge and 1 mile north of Mossyrock.
Datum of gage is 357.31 feet above mean sea level (levels by city of Tacoma).

Drainage area.--1,170 square miles.

Records available.--January 1912 to September 1917 (incomplete), March 1926 to September 1935, August 1946 to September 1950.

Average discharge.--18 years, 5,311 second-feet.

Extremes.--Maximum discharge during year, 30,700 second-feet Nov. 27 (gage height, 18.87 feet); minimum, 1,030 second-feet Oct. 3 (gage height, 3.11 feet).
1912-17, 1926-35, 1946-50: Maximum discharge observed, 81,000 second-feet Dec. 22, 1933 (gage height, 36.55 feet); minimum, 630 second-feet Nov. 21-24, Dec. 3, 5-8, 1929.

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

Revisions (water years).--W 769: 1933.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,130	3,150	11,100	6,020	4,100	12,100	8,320	5,220	12,400	14,000	3,870	2,030
2	1,090	2,800	11,200	5,220	3,950	10,200	11,800	5,310	13,900	13,000	3,880	2,020
3	1,050	2,570	10,800	4,700	3,750	10,000	10,500	5,260	14,500	12,200	3,760	2,020
4	1,170	2,360	8,910	4,400	3,650	17,000	8,960	5,300	15,900	12,000	3,480	2,020
5	1,800	2,210	7,770	4,000	3,600	24,500	8,010	5,410	17,500	12,100	3,240	1,980
6	2,120	2,090	6,820	4,100	3,770	22,900	7,380	5,360	15,200	11,500	3,110	1,900
7	1,990	1,980	5,890	4,000	3,680	17,800	6,820	5,100	11,900	10,800	3,010	1,850
8	1,710	1,910	5,250	3,600	3,710	14,100	6,500	4,960	10,000	9,800	2,990	1,790
9	1,650	1,930	4,800	3,410	3,590	11,500	6,080	5,010	9,280	9,000	2,910	1,750
10	3,010	1,900	4,500	3,580	3,480	9,740	5,650	5,360	9,780	9,000	2,870	1,720
11	2,950	1,930	4,100	3,250	3,450	8,280	5,390	6,690	11,500	7,750	2,830	1,680
12	3,390	3,550	3,880	3,060	3,450	6,890	5,860	10,500	12,600	7,050	2,820	1,660
13	3,270	6,050	3,730	2,990	3,770	6,570	6,840	15,300	12,400	7,150	2,770	1,630
14	2,780	6,030	3,590	2,600	4,160	6,030	6,960	17,400	11,500	7,400	2,710	1,620
15	2,510	6,210	3,480	2,500	5,040	5,650	6,990	16,100	10,900	7,300	2,700	1,570
16	2,380	4,930	3,430	2,600	7,210	5,700	7,840	14,300	11,300	6,800	3,830	d1,530
17	2,190	4,200	3,390	2,500	7,840	7,420	9,910	13,400	15,800	6,450	3,210	d1,520
18	2,050	3,760	3,340	2,400	7,440	9,820	10,400	12,100	15,100	6,400	2,900	d1,450
19	1,890	3,420	2,150	2,900	7,130	9,850	9,400	10,100	15,400	6,800	2,770	d1,400
20	1,790	3,200	2,990	6,170	6,690	9,070	9,100	8,670	16,800	6,950	2,690	d1,400
21	1,720	2,940	2,960	13,000	6,240	8,190	9,490	8,510	17,600	6,200	2,640	d1,390
22	1,620	2,800	3,270	16,800	6,140	7,720	9,340	9,610	15,300	6,100	2,600	d1,380
23	1,600	3,770	4,010	16,000	7,030	7,110	8,580	10,500	14,000	6,250	2,690	d1,380
24	1,540	10,400	5,040	12,300	15,400	6,570	7,520	10,100	12,500	6,250	2,870	d1,420
25	1,490	15,000	4,820	9,440	21,800	6,050	6,860	10,100	11,500	6,200	2,650	1,630
26	1,490	12,100	4,840	7,990	23,100	5,660	6,300	11,200	9,350	5,800	2,380	2,100
27	1,480	24,100	5,330	6,840	19,600	5,600	5,980	13,500	9,500	5,400	2,310	2,280
28	3,010	28,700	6,040	5,950	15,300	5,410	5,580	14,300	10,800	4,950	2,250	1,970
29	7,430	20,600	9,080	5,300	-	5,040	5,300	12,500	13,000	5,000	2,140	d1,700
30	4,550	14,600	6,260	4,700	-	5,040	5,200	11,900	14,700	4,450	2,100	d1,580
31	3,640	-	7,010	4,250	-	5,220	-	11,700	-	3,950	2,040	-

Month	Second-feet-days	Maximum	Minimum	Mean	Per square mile	Inches	Acres-feet
October	71,470	7,430	1,050	2,305	1.97	2.27	141,800
November	201,190	28,700	1,900	6,706	5.73	6.40	399,100
December	174,880	11,200	2,960	5,641	4.82	5.56	346,900
Calendar year 1949	2,097,570	28,700	1,050	5,747	4.91	66.69	4,161,000
January	176,870	16,800	2,400	5,689	4.86	5.61	349,800
February	208,050	23,100	3,450	7,430	6.35	6.61	412,700
March	292,730	24,500	5,040	9,443	8.07	9.30	580,600
April	228,640	11,600	5,200	7,621	6.51	7.27	453,500
May	300,770	17,400	4,960	9,702	8.29	9.56	596,600
June	392,010	17,600	9,280	13,070	11.2	12.46	777,500
July	244,000	14,000	3,950	7,871	6.73	7.76	484,000
August	89,020	3,880	2,040	2,872	2.45	2.83	176,600
September	51,370	2,260	1,390	1,712	1.46	1.63	101,900
Water year 1949-50	2,430,500	28,700	1,050	6,659	5.69	77.26	4,821,000

Peak discharge (base, 15,000 sec.-ft.).--Nov. 24 (12 p.m.) 17,400 sec.-ft.; Nov. 27 (11:30 p.m.) 30,700 sec.-ft.; Jan. 22 (7 p.m.) 17,600 sec.-ft.; Feb. 26 (8:30 p.m.) 23,600 sec.-ft.; Mar. 5 (9:30 p.m.) 25,700 sec.-ft.; May 14 (12 m.) 17,600 sec.-ft.; June 5 (4:30 p.m.) 18,000 sec.-ft.; June 17 (4 p.m.) 16,700 sec.-ft.; probably June 21 (time unknown) about 18,000 sec.-ft.

d Doubtful gage-height record; discharge computed on basis of records for nearby stations.

Note.--No gage-height record Jan. 3-8, 14-18, Jan. 29 to Feb. 5, June 21 to July 31; discharge computed on basis of records for nearby stations.

Cowlitz River near Mayfield, Wash.

Location.--Water-stage recorder, lat. 46°30'40", long. 122°36'50", in NE $\frac{1}{4}$ sec. 24, T. 12 N., R. 1 E., 1 mile upstream from Mill Creek, 2 miles downstream from Winston Creek, and 2 $\frac{1}{2}$ miles west of Mayfield. Datum of gage is 226.6 feet above mean sea level, datum of 1929.

Drainage area.--1,400 square miles.

Records available.--April 1934 to September 1950. August 1910 to November 1911 at site 2 $\frac{1}{2}$ miles upstream, published as Cowlitz River at Mayfield.

Average discharge.--16 years, 5,760 second-feet.

Extremes.--Maximum discharge during year, 36,300 second-feet Nov. 28 (gage height, 19.52 feet); minimum, 1,360 second-feet Oct. 3 (gage height, 8.01 feet).
1910-11, 1934-50: Maximum discharge, 58,000 second-feet Dec. 13, 1946 (gage height, 24.75 feet); minimum, 766 second-feet Nov. 30, Dec. 1, 1936 (gage height, 7.18 feet).
Flood of December 1933 is known to have exceeded that of Dec. 13, 1946.

Remarks.--Records excellent except those for period of no gage-height record, which are fair. No diversion or regulation.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1-30			Oct. 31 to Sept. 30		
8.0	1,350		8.4	1,360	13.0
8.6	2,080		9.0	2,180	15.0
9.4	3,300		9.5	2,950	17.0
10.6	5,560		10.0	3,860	19.0
12.1	9,060		11.0	6,000	34,000

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,460	3,340	13,600	8,720	5,120	14,500	10,800	6,350	13,300	14,900	4,380	2,180
2	1,420	2,920	13,900	7,480	4,900	12,500	13,900	6,490	14,600	13,800	4,400	2,180
3	1,370	2,620	13,200	6,420	4,560	13,600	12,500	6,420	15,200	12,600	4,280	2,180
4	1,540	2,580	11,200	5,910	4,440	24,500	10,800	6,470	16,400	12,400	3,660	2,200
5	2,510	2,200	9,960	5,390	4,400	30,700	9,860	6,930	16,000	12,300	3,590	2,120
6	3,130	2,070	8,950	5,560	4,710	28,100	9,210	6,850	16,200	11,800	3,430	2,010
7	2,860	1,930	7,630	5,430	4,560	21,400	8,480	6,450	13,000	11,100	3,280	1,940
8	2,390	1,890	6,370	4,860	4,920	16,600	8,160	6,160	11,500	10,100	3,250	1,870
9	2,660	1,910	5,990	4,500	4,710	13,800	7,660	6,120	10,700	9,310	3,160	1,830
10	4,410	1,870	5,520	4,650	4,560	11,700	7,020	6,470	10,900	9,260	3,070	1,800
11	4,370	2,000	5,600	4,400	4,560	10,100	6,730	7,880	12,400	8,000	3,000	1,790
12	4,850	5,420	4,760	4,040	4,630	9,000	7,980	11,500	15,500	7,290	2,970	1,760
13	4,390	6,230	4,570	3,860	5,770	8,200	9,310	15,500	13,500	7,360	2,930	1,730
14	3,690	7,700	4,470	3,370	6,490	7,580	9,050	17,300	12,700	7,700	2,820	1,720
15	3,250	7,660	4,410	3,260	8,870	7,020	9,690	16,300	12,100	7,530	2,850	1,660
16	3,020	6,000	4,440	3,340	11,500	7,500	11,400	15,000	12,300	7,050	4,300	1,630
17	2,800	4,920	4,440	3,280	11,100	11,000	13,400	14,300	16,100	6,660	3,650	1,620
18	2,580	4,280	4,360	3,120	10,300	13,000	12,600	13,500	16,100	6,660	3,250	1,510
19	2,390	3,780	4,210	4,750	9,820	12,700	11,300	11,600	16,000	7,090	3,050	1,500
20	2,660	3,450	3,660	12,900	9,080	11,500	11,000	10,300	17,400	7,210	2,930	1,490
21	2,160	3,120	3,680	19,800	8,400	10,400	11,100	10,100	18,300	6,470	2,840	1,480
22	2,070	3,040	5,540	22,900	8,610	9,820	10,800	10,900	16,100	6,330	2,790	1,480
23	2,000	4,420	8,100	21,200	10,500	9,030	9,960	11,800	14,800	6,490	3,040	1,480
24	1,960	11,400	9,000	15,600	25,600	8,330	8,900	11,400	13,200	6,520	3,340	1,530
25	1,900	16,000	7,720	11,900	29,600	7,600	8,160	11,300	11,100	6,470	3,040	1,820
26	1,870	13,600	7,480	10,200	29,400	7,090	7,500	12,300	9,900	6,140	2,650	2,460
27	1,860	27,200	10,400	8,770	23,900	7,190	7,170	14,300	10,000	5,720	2,540	2,740
28	4,320	33,600	15,900	7,580	18,300	6,970	6,780	15,100	11,400	5,470	2,490	2,180
29	8,830	23,800	13,500	6,690	-	6,470	6,350	13,600	13,500	5,720	2,360	1,900
30	5,270	17,200	11,500	6,020	-	6,540	6,230	12,900	15,200	5,030	2,300	1,760
31	4,020	-	10,100	5,390	-	6,760	-	12,600	-	4,520	2,240	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	93,610	8,830	1,370	3,020	2.16	2.49	185,700
November	229,940	33,600	1,870	7,665	5.48	6.11	456,100
December	243,760	15,900	3,860	7,863	5.62	6.48	483,500
Calendar year 1949	2,438,600	33,600	1,370	6,681	4.77	64.79	4,837,000
January	241,270	22,900	3,120	7,783	5.56	6.41	478,600
February	285,310	29,600	4,400	10,120	7.23	7.53	561,900
March	370,980	30,700	6,470	11,970	8.55	9.85	735,800
April	285,820	13,900	8,230	9,461	6.76	7.54	562,900
May	334,190	17,300	6,120	10,780	7.70	8.88	662,900
June	415,400	18,300	9,900	13,850	9.89	11.03	823,900
July	255,000	14,900	4,520	8,226	5.88	6.77	505,800
August	98,090	4,400	2,240	3,164	2.26	2.61	194,600
September	55,750	2,740	1,480	1,858	1.33	1.48	110,600
Water year 1949-50	2,905,120	33,600	1,370	7,959	5.68	77.18	5,762,000

Peak discharge (base, 16,000 sec.-ft.)--Nov. 24 (12 p.m.) 17,900 sec.-ft.; Nov. 28 (4 a.m.) 36,300 sec.-ft.; probably Dec. 28 (time unknown) 17,600 sec.-ft.; Jan. 22 (7 to 8 p.m.) 23,800 sec.-ft.; Feb. 25 (10 p.m.) 30,400 sec.-ft.; Mar. 5 (5:30 p.m.) 32,600 sec.-ft.; May 14 (12:30 p.m.) 17,600 sec.-ft.; June 5 (6 p.m.) 18,400 sec.-ft.; June 17 (6 to 8 p.m.) 17,500 sec.-ft.; June 21 (4 p.m.) 18,700 sec.-ft.

Note.--No gage-height record Dec. 8-29; discharge computed on basis of recorded range in stage and records for stations on nearby streams.

Cowlitz River at Castle Rock, Wash.

Location.--Water-stage recorder, lat. 46°16'30", long. 122°55'00", in SE $\frac{1}{4}$ sec. 10, T. 9 N., R. 2 W., at highway bridge in Castle Rock, $2\frac{1}{2}$ miles downstream from Toutle River and 14 miles upstream from mouth. Datum of gage is 19.73 feet above mean sea level, datum of 1929.

Drainage area.--2,240 square miles.

Records available.--December 1926 to September 1950.

Average discharge.--23 years (1927-50), 8,692 second-feet.

Extremes.--Maximum discharge during year, 54,800 second-feet Feb. 25 (gage height, 19.94 feet); minimum, 1,810 second-feet Oct. 3, 4.

1926-50: Maximum discharge observed, 139,000 second-feet Dec. 23, 1933 (gage height, 31.6 feet, present datum), from rating curve extended above 65,000 second-feet; minimum discharge, 998 second-feet Nov. 7, 8, 1935.

Remarks.--Records excellent. No diversion or regulation.

Revisions.--W 964: Drainage area.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 25

Feb. 26 to Sept. 30

7.4	1,670	10.0	8,280	7.3	1,860	10.0	7,900
7.7	2,180	12.0	14,600	7.7	2,540	12.0	14,200
8.0	2,780	14.0	22,600	8.0	3,100	14.0	22,000
8.5	3,980	16.0	32,200	8.5	4,100	17.0	36,700
9.0	5,360	20.0	55,200	9.0	5,250	19.2	49,900

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,950	5,020	20,500	16,100	8,640	22,800	11,500	8,920	15,500	17,900	5,280	2,870
2	1,900	4,720	21,200	13,300	8,160	19,300	17,900	9,190	17,200	16,700	5,100	2,830
3	1,810	4,010	20,900	11,200	8,220	19,900	19,100	8,950	18,200	15,300	5,100	2,830
4	1,950	3,700	17,200	10,100	7,860	34,900	16,400	8,890	19,300	14,600	4,800	2,850
5	3,000	3,470	15,300	9,180	7,590	49,800	14,600	9,430	21,000	14,500	4,400	2,760
6	4,170	3,280	14,500	11,300	8,970	47,700	13,500	9,700	20,200	14,100	4,260	2,670
7	4,120	3,120	12,400	14,000	9,800	34,800	12,400	9,190	16,800	13,300	4,100	2,540
8	3,300	3,070	10,900	11,000	14,300	26,800	11,700	8,770	14,600	12,100	4,060	2,490
9	3,000	3,350	10,100	9,520	12,800	22,100	12,000	8,530	13,400	11,300	4,000	2,380
10	4,860	3,450	9,400	12,700	11,100	18,800	10,800	8,590	13,300	11,000	4,220	2,360
11	5,330	4,060	8,520	12,200	10,900	16,300	10,100	9,490	14,900	10,100	3,840	2,340
12	5,870	9,490	8,640	9,340	11,200	14,100	12,800	13,000	16,200	8,890	3,760	2,290
13	5,730	12,700	8,730	8,160	16,400	12,800	15,900	17,800	16,400	8,710	3,740	2,240
14	4,770	11,700	8,910	7,030	15,900	11,800	14,500	20,500	15,200	9,010	3,680	2,240
15	4,200	11,100	9,270	6,680	18,500	11,000	14,300	20,000	14,500	9,040	3,640	2,220
16	3,850	9,060	8,940	6,570	22,700	11,100	16,800	18,500	14,300	8,590	4,460	2,190
17	3,540	7,500	8,790	6,250	20,800	18,200	20,400	17,600	18,200	8,320	4,550	2,170
18	3,300	6,510	9,430	6,080	18,100	23,100	19,300	17,000	19,500	7,900	4,020	2,120
19	3,070	5,840	8,670	8,160	17,100	22,800	16,800	14,900	18,700	8,230	3,780	2,050
20	2,910	5,300	9,460	20,100	15,500	20,300	15,500	13,200	19,900	8,590	3,680	2,040
21	2,740	4,880	9,520	39,600	14,000	17,600	15,200	12,300	21,100	7,680	3,560	2,020
22	2,680	4,600	9,640	45,700	13,900	16,200	14,900	13,100	19,800	7,350	3,520	2,020
23	2,550	6,390	14,900	40,500	16,100	15,300	13,800	14,200	18,100	7,510	3,820	2,000
24	2,510	14,500	21,500	29,000	46,300	14,200	12,300	13,300	17,000	7,480	4,100	2,040
25	2,450	23,000	16,200	20,900	54,000	12,800	11,200	13,600	14,300	7,450	4,000	2,340
26	2,410	21,700	15,300	17,500	49,500	11,700	10,400	14,500	12,400	7,180	3,540	3,360
27	2,410	240,000	19,800	15,000	40,400	11,600	10,200	16,800	11,900	6,800	3,340	3,720
28	4,970	48,800	33,600	13,000	29,400	11,900	9,940	18,400	13,100	6,500	3,260	3,120
29	8,220	36,300	26,600	11,400	-	11,200	9,100	16,900	15,500	6,750	3,100	2,680
30	7,920	26,500	22,600	10,200	-	13,700	8,800	15,600	17,700	6,350	2,990	2,450
31	6,020	-	19,500	9,090	-	10,600	-	15,300	-	5,620	2,930	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	117,510	8,220	1,810	3,791	1.69	1.95	233,100
November	347,120	48,800	3,070	11,570	5.17	5.76	688,500
December	450,920	33,600	8,520	14,550	6.50	7.49	894,400
Calendar year 1949	3,510,690	48,800	1,810	9,618	4.29	58.29	6,963,000
January	458,860	43,700	6,080	14,800	6.61	7.62	910,100
February	528,140	54,000	7,590	18,860	8.42	8.77	1,048,000
March	605,200	49,800	10,600	19,520	8.71	10.05	1,200,000
April	412,140	20,400	8,800	13,740	6.13	6.84	817,500
May	416,750	20,500	8,530	13,440	6.00	6.92	826,800
June	498,200	21,100	11,900	16,610	7.42	8.27	988,200
July	304,840	17,500	5,620	9,834	4.39	5.06	604,600
August	122,630	5,280	2,930	3,958	1.77	2.04	243,200
September	74,230	3,720	2,000	2,474	1.10	1.23	147,200
Water year 1949-50	4,356,540	54,000	1,810	11,880	5.30	72.00	8,601,000

Peak discharge (base, 32,000 sec.-ft.)--Nov. 28 (10:30 a.m.) 50,400 sec.-ft.; Dec. 28 (7:30 a.m.) 36,600 sec.-ft.; Jan. 22 (9 p.m.) 45,200 sec.-ft.; Feb. 25 (3 p.m.) 54,800 sec.-ft.; Mar. 6 (1 a.m.) 51,600 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations on nearby streams.

COWLITZ RIVER BASIN

Clear Fork Cowlitz River near Packwood, Wash.

Location.--Water-stage recorder, lat. 46°40'50", long. 121°34'30", in NE $\frac{1}{4}$ sec. 29, T. 14 N., R. 10 E., three-quarters of a mile upstream from mouth and 7 miles northeast of Packwood.

Drainage area.--56 square miles.

Records available.--August 1907 to September 1917 (October 1913 to September 1917, gage heights only), August 1930 to December 1942, June to October 1950 (discontinued).

Average discharge.--17 years (1907-12, 1930-42), 236 second-feet.

Extremes.--Maximum discharge during period June to October 1950, 1,350 second-feet June 29 (gage height, 5.42 feet); minimum, 82 second-feet Sept. 23, 24 (gage height, 2.74 feet). 1907-17, 1930-42, 1950: Maximum discharge, 8,030 second-feet Dec. 22, 1933 (gage height, 11.7 feet), from rating curve extended above 1,200 second-feet; minimum, 30 second-feet Nov. 2, 1935, Nov. 29, 30, Dec. 1, 1936.

Remarks.--Records good except those for period of faulty intake action, which are fair. No diversion or regulation.

Rating table, June to October 1950 (gage height, in feet, and discharge, in second-feet)

2.7	76	3.8	354
2.9	108	4.2	526
3.2	171	4.7	807
3.5	252	5.2	1,180

Discharge, in second-feet, June to October 1950

Day	June	July	Aug.	Sept.	Oct.				
1	-	1,100	e295	131	91				
2	-	982	e280	131	88				
3	-	945	e265	131	90				
4	-	982	e250	129	108				
5	-	945	e240	121	184				
6	-	874	e230	116	196				
7	-	820	232	112	264				
8	-	709	229	108	297				
9	-	714	226	106	280				
10	-	618	223	106	732				
11	-	512	218	105	-				
12	-	531	218	101	-				
13	-	587	207	100	-				
14	-	597	199	100	-				
15	-	576	240	96	-				
16	-	517	218	93	-				
17	-	507	201	91	-				
18	-	546	199	90	-				
19	-	629	194	88	-				
20	-	507	186	86	-				
21	1,180	493	178	85	-				
22	1,060	512	178	84	-				
23	1,060	479	223	84	-				
24	782	444	184	86	-				
25	668	406	162	129	-				
26	651	362	155	201	-				
27	782	e325	153	138	-				
28	982	e310	144	116	-				
29	1,180	e300	142	105	-				
30	1,180	e270	138	98	-				
31	-	e275	131	-	-				

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
June 21-30.....	9,525	1,180	651	952	17.0	6.33	18,890
July.....	18,374	1,100	270	593	10.6	12.20	36,440
August.....	6,336	235	131	204	5.64	4.21	12,570
September.....	3,267	201	84	109	1.95	2.17	6,480
October 1-10.....	2,330	732	88	233	4.16	1.55	4,620
The period.....	-	-	-	-	-	-	79,000

e Faulty intake action; discharge computed on basis of records for Lake Creek at Packwood.

Lake Creek near Packwood, Wash.

Location.--Water-stage recorder, lat. 46°35'55", long. 121°34'15", in sec. 21, T. 13 N., R. 10 E., 500 feet downstream from outlet of Packwood Lake and 6 miles east of Packwood.

Drainage area.--18.8 square miles.

Records available.--September 1911 to September 1924, September 1930 to October 1942, October 1949 to September 1950.

Average discharge.--26 years, 99.5 second-feet.

Extremes.--Maximum discharge during year, 548 second-feet Nov. 27 (gage height, 4.14 feet); minimum not determined, probably occurred sometime during period of no gage-height record in October.

1911-24, 1930-42, 1950: Maximum discharge, 1,400 second-feet Dec. 22, 1933 (gage height, 5.9 feet); minimum, 19 second-feet Dec. 1, 1936, Oct. 9, 1941.

Maximum stage recorded, 6.0 feet (datum then in use) Dec. 18, 1917 (discharge not determined).

Remarks.--Records fair except those for periods of no gage-height record, which are poor. No diversions. Natural regulation in Packwood Lake.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Nov. 3-12)

1.7	31	2.6	137
1.9	45	3.0	215
2.1	65	3.5	340
2.3	89	4.0	495

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	83	184	77	60	94	127	75	235	460	157	79
2	36	78	178	70	58	102	117	75	261	445	164	82
3	35	74	159	65	58	139	102	76	281	400	157	84
4	56	69	137	63	59	186	95	79	318	415	142	84
5	82	64	127	59	60	200	88	76	370	415	130	77
6	79	60	114	64	58	172	81	73	340	400	118	74
7	77	57	102	65	59	148	79	72	281	370	114	67
8	44	56	92	60	59	128	75	70	259	329	114	62
9	64	54	92	59	56	114	72	73	211	315	112	59
10	86	52	85	56	55	100	69	80	211	294	110	58
11	94	56	79	55	54	89	73	98	239	247	112	56
12	90	68	75	52	55	82	75	125	266	224	114	55
13	90	74	72	51	56	77	76	176	271	228	112	54
14	78	80	68	50	56	74	81	219	268	244	110	51
15	60	79	68	49	60	76	96	226	261	242	127	50
16	60	75	65	48	63	89	110	222	294	226	146	50
17	55	70	67	47	61	101	110	217	400	217	137	48
18	50	65	68	46	61	101	107	202	400	224	134	47
19	47	61	63	55	60	94	106	178	415	256	132	46
20	45	58	60	89	59	85	109	157	478	249	128	45
21	42	55	58	109	61	84	112	150	495	228	127	44
22	42	60	64	132	66	79	112	161	445	250	120	42
23	42	64	69	134	114	74	104	174	460	244	146	41
24	42	274	122	151	131	73	96	174	367	254	144	43
25	43	312	74	101	153	67	89	176	289	259	122	58
26	42	286	76	92	141	73	86	192	244	242	109	102
27	45	495	82	84	118	75	82	230	242	222	101	98
28	68	478	96	77	106	68	77	247	291	209	94	81
29	94	323	98	73	-	69	76	239	385	204	89	69
30	94	233	92	67	-	73	75	228	460	178	85	61
31	88	-	85	68	-	112	-	224	-	161	80	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,907	94	35	61.5	3.27	3.77	3,780
November	3,933	495	52	131	6.97	7.78	7,800
December	2,825	184	58	91.1	4.85	5.59	5,600
Calendar year	-	-	-	-	-	-	-
January	2,239	134	46	72.2	3.84	4.43	4,440
February	2,077	153	54	74.2	3.95	4.11	4,120
March	3,098	200	67	99.9	5.31	6.13	6,140
April	2,757	127	69	91.9	4.89	5.45	5,470
May	4,764	247	70	154	8.19	9.42	9,450
June	9,717	495	211	324	17.2	19.22	19,270
July	8,631	460	161	278	14.8	17.07	17,120
August	3,787	164	80	122	6.49	7.49	7,510
September	1,867	102	41	62.2	3.31	3.69	3,700
Water year 1949-50	47,602	495	35	130	6.91	94.15	94,400

Peak discharge (base, 240 sec.-ft.)--Nov. 27 (5:30 p.m.) 548 sec.-ft.; June 5 (1 p.m.) 385 sec.-ft.; June 21 495 sec.-ft.; July 1 (6 a.m.) 478 sec.-ft.

Notes.--No gage-height record Oct. 1 to Nov. 2, Jan. 10-18; discharge computed on basis of 2 discharge measurements and records for stations on nearby streams.

COWLITZ RIVER BASIN

Skate Creek near Packwood, Wash.

Location.--Water-stage recorder, lat. 46°37'15", long. 121°41'15", in NW¼ sec. 16, T. 13 N., R. 9 E., 1 mile upstream from mouth and 1½ miles northwest of Packwood.

Drainage area.--35.3 square miles.

Records available.--July to October 1950 (discontinued).

Extremes.--Maximum discharge during period not determined, probably occurred July 1, before gage was installed; minimum, 20 second-feet Sept. 23 (gage height, 0.49 foot).

Remarks.--Records good. No diversion or regulation.

Discharge, in second-feet, July to October 1950

Day	July	Aug.	Sept.	Oct.	Day	July	Aug.	Sept.	Oct.
1	a475	a82	33	31	16	164	47	24	88
2	a450	a75	32	29	17	161	45	23	83
3	430	a70	31	29	18	164	41	23	118
4	430	a66	30	39	19	182	39	22	143
5	415	a62	29	83	20	161	37	22	161
6	376	a58	29	115	21	146	37	21	138
7	328	56	28	143	22	140	37	21	118
8	272	55	27	167	23	132	53	20	103
9	272	53	27	170	24	122	49	23	93
10	244	50	26	356	25	111	42	33	-
11	206	48	26	286	26	101	39	66	-
12	194	47	26	188	27	95	37	54	-
13	212	46	26	135	28	105	37	40	-
14	209	44	25	111	29	105	36	35	-
15	185	53	25	93	30	a95	34	33	-
					31	a90	33	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
July.....	6,772	475	90	218	6.18	7.13	13,430
August.....	1,506	82	33	48.6	1.38	1.59	2,990
September....	880	66	20	29.3	.830	.93	1,750
October 1-24	3,020	356	29	126	3.57	3.18	5,990
The period	-	-	-	-	-	-	24,160

a No gage-height record; discharge computed on basis of records for stations on nearby streams.

Hall Creek near Packwood, Wash.

Location.--Water-stage recorder, lat. 46°34'50", long. 121°41'10", in NW¼ sec. 33, T. 13 N., R. 9 E., 800 feet upstream from Washington State Highway 5 and 2 miles southwest of Packwood.

Drainage area.--10.9 square miles.

Records available.--October 1946 to November 1948, June to October 1950 (discontinued).

Extremes.--Maximum discharge during period June to October, 75 second-feet June 23 (gage height, 2.88 feet); minimum, 10.5 second-feet Sept. 22-24, Oct. 3 (gage height, 1.67 feet).

1946-48, 1950: Maximum discharge, 604 second-feet Dec. 13, 1946 (gage height, 6.63 feet); minimum, 3.7 second-feet probably Oct. 17, 18, 1946 (gage height, 1.59 feet, from recorded range in stage).

Remarks.--Records good. No diversion. Some regulation for power at Packwood Lumber Co. dam, 1 mile upstream.

Discharge, in second-feet, June to October 1950

Day	June	July	Aug.	Sept.	Oct.	Day	June	July	Aug.	Sept.	Oct.	Day	June	July	Aug.	Sept.	Oct.
1	-	59	26	15.5	11	11	-	43	21	13	-	21	71	32	18.5	11	-
2	-	57	25	15	11	12	-	41	21	12.5	-	22	70	31	18.5	10.5	-
3	-	55	24	15	10.5	13	-	39	21	12.5	-	23	72	30	20	10.5	-
4	-	54	24	14.5	11	14	-	37	20	12.5	-	24	67	30	19.5	10.5	-
5	-	53	24	14.5	14	15	-	36	21	12.5	-	25	62	29	18.5	12.5	-
6	-	51	23	14	16	16	-	35	21	12	-	26	59	28	18	15.5	-
7	-	49	23	14.5	16.5	17	-	34	20	12	-	27	57	28	17	15	-
8	-	48	22	13.5	17	18	-	33	19.5	11.5	-	28	57	29	16.5	13	-
9	-	47	22	13.5	16.5	19	-	35	19	11	-	29	57	30	16.5	12.5	-
10	-	45	22	13	30	20	-	33	19	11	-	30	59	28	16	12	-
												31	-	27	15.5	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
June 21-30.....	631	72	57	63.1	5.79	2.15	1,250
July.....	1,206	59	27	38.9	3.57	4.11	2,390
August.....	632	26	15.5	20.4	1.87	2.16	1,250
September.....	386.5	15.5	10.5	12.9	1.18	1.32	767
October 1-10.....	153.5	30	10.5	15.4	1.41	.52	304
The period.....	-	-	-	-	-	-	5,960

Johnson Creek near Packwood, Wash.

Location--Water-stage recorder, lat. 46°34'30", long. 121°42'00", in NE $\frac{1}{4}$ sec. 32, T. 13 N., R. 9 E., 400 feet upstream from mouth and 3 miles southwest of Packwood.

Drainage area--49.6 square miles.

Records available--August 1907 to September 1914, October 1918 to September 1924, October 1946 to November 1948, July to October 1950 (discontinued).

Extremes--Maximum discharge during period not determined, occurred during period of no gage-height record in July; minimum, 51 second-feet Sept. 23, 24 (gage height, 3.47 feet).

1907-14, 1918-24, 1946-48, 1950: Maximum discharge, 2,990 second-feet Dec. 11, 1946; maximum gage height, 8.22 feet Dec. 11, 1946 (result of drift caught on control for 7½ hours); minimum discharge, 15 second-feet Oct. 17-19, 1946.

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

Discharge, in second-feet, July to October 1950

Day	July	Aug.	Sept.	Oct.	Day	July	Aug.	Sept.	Oct.
1	a750	155	70	55	16	270	100	57	103
2	a700	150	70	54	17	262	96	55	100
3	a660	140	67	54	18	262	94	54	127
4	a620	131	67	62	19	278	92	52	178
5	a590	125	65	85	20	250	90	a52	222
6	568	121	f64	94	21	240	87	a52	185
7	542	117	f63	100	22	240	87	52	160
8	463	115	62	115	23	236	100	52	142
9	435	112	61	119	24	229	91	53	127
10	382	109	61	370	25	218	85	64	-
11	325	108	60	250	26	203	81	88	-
12	310	104	59	178	27	191	80	72	-
13	325	100	59	140	28	185	77	63	-
14	320	99	58	123	29	178	75	60	-
15	295	108	58	110	30	165	73	58	-
					31	160	72	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
July.....	10,852	750	160	350	7.06	8.14	21,520
August.....	3,174	155	72	102	2.06	2.38	6,300
September....	1,828	88	52	60.9	1.23	1.37	3,630
October 1-24	3,253	370	54	136	2.74	2.44	6,450
The period	-	-	-	-	-	-	37,900

a No gage-height record; discharge interpolated.

f Computed on basis of partly estimated gage-height record.

Silver Creek near Randle, Wash.

Location--Water-stage recorder, lat. 46°32'30", long. 121°55'00", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 12 N., R. 7 E., 500 feet upstream from highway and 2 miles east of Rangle.

Drainage area--51 square miles.

Records available--July to October 1950 (discontinued).

Extremes--Maximum discharge during period, 309 second-feet July 7 (gage height, 1.80 feet); minimum, 29 second-feet Sept. 23 (gage height, 0.21 foot).

Remarks--Records good except those for period of no gage-height record, which are fair. Small diversion for power by Silver Creek Lodge is returned to creek above station. No regulation.

Discharge, in second-feet, July to October 1950

Day	July	Aug.	Sept.	Oct.	Day	July	Aug.	Sept.	Oct.
1	-	82	42	a45	16	161	58	32	-
2	-	78	41	39	17	151	53	32	-
3	-	73	39	40	18	150	50	31	-
4	-	70	38	48	19	153	49	30	-
5	-	68	38	110	20	144	48	30	-
6	-	65	37	148	21	135	46	30	-
7	300	64	36	-	22	127	46	30	-
8	276	61	36	-	23	124	63	29	-
9	268	60	36	-	24	117	59	30	-
10	241	57	35	-	25	110	50	a51	-
11	206	57	34	-	26	103	48	a122	-
12	192	55	34	-	27	97	46	a90	-
13	194	54	34	-	28	110	45	a70	-
14	192	53	33	-	29	112	44	a60	-
15	175	63	33	-	30	94	43	a50	-
					31	86	42	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
July 7-31....	4,018	300	86	161	3.16	2.93	7,970
August.....	1,750	82	42	56.5	1.11	1.28	3,470
September....	1,263	122	29	42.1	1.025	.92	2,510
October 1-6..	430	148	39	71.7	1.41	.31	853
The period.	-	-	-	-	-	-	14,800

a No gage-height record; discharge computed on basis of recorded range in stage and records for stations on nearby streams.

COWLITZ RIVER BASIN

Siler Creek near Randle, Wash.

Location.--Water-stage recorder, lat. 46°30'15", long. 121°55'15", in NW $\frac{1}{4}$ sec. 27, T. 12 N., R. 7 E., at county road crossing 2 $\frac{1}{2}$ miles southeast of Randle.

Drainage area.--10.1 square miles.

Records available.--June to October 1950 (discontinued).

Extremes.--Maximum discharge during period, 24 second-feet June 23 (gage height, 2.07 feet); minimum, 2.4 second-feet Sept. 23 (gage height, 1.25 feet).

Remarks.--Records good. No known diversion or regulation.

Discharge, in second-feet, June to October 1950

Day				June	July	Aug.	Sept.	Oct.			
1				-	14.5	5.9	3.4	3.0			
2				-	14	5.7	3.3	2.9			
3				-	14	5.7	3.3	3.0			
4				-	14	5.5	3.3	3.3			
5				-	13.5	5.4	3.2	4.3			
6				-	13	5.4	3.2	5.2			
7				-	13	5.2	3.2	3.8			
8				-	12	5.0	3.2	4.7			
9				-	12.5	4.9	3.0	4.2			
10				-	11.5	4.9	2.9	7.0			
11				-	11.0	4.7	2.9	5.2			
12				-	10.5	4.6	2.9	4.4			
13				-	9.7	4.4	2.9	4.3			
14				-	9.4	4.4	2.9	4.3			
15				-	9.2	4.7	2.9	4.0			
16				-	8.9	4.7	2.9	4.3			
17				-	8.3	4.6	2.8	4.3			
18				-	8.0	4.4	2.7	5.4			
19				-	8.3	4.4	2.7	5.5			
20				17.5	7.8	4.6	2.7	5.9			
21				17.5	7.6	4.6	2.7	5.0			
22				19.0	7.4	4.7	2.6	4.7			
23				21.0	7.0	6.4	2.7	4.6			
24				20.0	7.0	4.4	2.9	4.4			
25				19.5	6.8	3.9	3.8	-			
26				18.5	6.8	3.8	5.2	-			
27				18.0	6.8	3.8	3.5	-			
28				16.5	7.6	3.8	3.2	-			
29				15.5	7.4	3.6	3.1	-			
30				15.0	6.6	3.5	3.1	-			
31				-	6.2	3.5	-	-			

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
June 20-30.....	198.0	21	15.0	18.0	1.78	0.73	393
July.....	300.3	14.5	6.2	9.69	.959	1.11	596
August.....	145.1	6.4	3.5	4.68	.463	.53	288
September.....	93.1	5.2	2.6	3.10	.307	.34	185
October 1-24.....	107.7	7.0	2.9	4.49	.445	.40	214
The period.....	-	-	-	-	-	-	1,680

Cispus River near Randle, Wash.

Location.--Water-stage recorder, lat. 46°26'50", long. 121°51'35", in NW¼ sec. 18, T. 11 N., R. 8 E. (unsurveyed), 60 feet upstream from bridge to Tower Rock ranger station, 4 miles downstream from North Fork, and 8 miles southeast of Randle. Prior to Nov. 27, 1949, at site 450 feet upstream, at different datum.

Drainage area.--323 square miles.

Records available.--October 1910 to February 1912, September 1929 to September 1950.

Average discharge.--22 years (1910-11, 1929-50), 1,281 second-feet.

Extremes.--Maximum discharge during year, 6,850 second-feet Nov. 27 (gage height, 7.95 feet); minimum, 372 second-feet Oct. 3.

1910-12, 1929-50: Maximum discharge, 20,000 second-feet Dec. 22, 1933 (gage height, 12.7 feet, site and datum then in use), from rating curve extended above 8,000 second-feet; minimum, 183 second-feet Dec. 30, 1936; minimum gage height, 2.55 feet Oct. 25, 1942, site and datum then in use.

Remarks.--Records good except those for periods of shifting control or no gage-height record, which are fair. No diversion or regulation.

Revisions (water years).--W 794: 1934.

Rating tables, water year 1949-50, except period of shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 26

Nov. 27 to Sept. 30

3.5	355	4.6	1,200	3.3	385	4.6	1,510
3.7	470	5.0	1,640	3.5	525	5.0	1,960
4.0	670	5.6	2,440	3.7	675	6.0	3,280
4.3	910			4.0	920	6.5	4,060
				4.3	1,200	7.6	6,050

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	388	635	2,080	1,010	1,070	2,450	2,140	1,400	3,980	3,580	1,060	622
2	382	600	2,450	903	1,020	2,200	2,200	1,400	4,230	3,360	1,060	622
3	377	572	2,140	827	992	2,260	1,960	1,460	4,400	3,130	1,020	622
4	399	544	1,900	819	965	3,900	1,780	1,460	4,930	3,060	938	615
5	506	530	1,780	779	947	5,110	1,680	1,460	4,930	2,990	903	578
6	530	524	1,560	803	974	4,400	1,560	1,400	4,140	2,850	878	570
7	482	506	1,400	771	929	3,360	1,510	1,350	3,500	2,640	878	555
8	440	506	1,280	731	947	2,710	1,400	1,350	3,200	2,380	860	548
9	454	544	1,200	707	894	2,320	1,350	1,460	3,130	2,320	835	540
10	600	530	1,090	723	860	2,020	1,260	1,730	3,280	2,200	819	525
11	579	700	983	683	835	1,780	1,240	2,380	3,660	1,900	819	518
12	663	1,640	965	652	811	1,620	1,620	3,500	3,740	1,840	803	504
13	628	1,520	912	600	878	1,460	1,840	4,570	3,580	1,900	787	504
14	579	1,290	878	a585	938	1,350	1,780	4,930	3,430	1,900	771	490
15	558	1,140	860	a575	1,400	1,270	1,730	4,570	3,280	1,840	835	483
16	537	982	835	a555	2,020	1,250	1,900	4,140	3,740	1,730	852	476
17	524	910	827	a540	1,960	2,020	2,260	3,900	4,570	1,680	771	462
18	500	842	787	a520	1,780	2,260	2,200	3,430	4,230	1,620	771	455
19	476	785	731	652	1,730	2,140	2,140	3,200	4,400	1,780	763	455
20	470	738	691	1,630	1,560	1,900	2,260	2,640	4,750	1,620	739	434
21	464	685	707	2,780	1,460	1,780	2,380	2,850	4,750	1,510	731	427
22	458	700	723	3,430	1,400	1,680	2,260	3,130	4,060	1,510	715	427
23	458	982	869	2,920	1,510	1,560	2,080	3,200	3,740	1,510	835	427
24	452	2,440	938	2,380	3,060	1,460	1,840	3,200	3,200	1,510	771	441
25	446	2,360	869	1,960	4,400	1,350	1,730	3,280	2,780	1,460	683	592
26	452	2,440	844	1,730	4,570	1,300	1,620	3,660	2,580	1,400	652	715
27	452	6,050	860	1,560	3,660	1,250	1,510	4,140	2,710	1,290	645	578
28	910	3,900	1,060	1,460	2,920	1,160	1,400	3,980	2,890	1,270	630	497
29	946	2,850	1,210	1,280	-	1,090	1,350	3,660	3,500	1,230	622	469
30	753	2,320	1,180	1,180	-	1,100	1,400	3,580	3,740	1,110	630	448
31	678	-	1,090	1,110	-	1,150	-	3,580	-	1,100	615	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	16,551	946	377	534	1.65	1.91	32,830
November	40,765	6,050	506	1,359	4.21	4.69	80,860
December	35,699	2,450	691	1,152	3.57	4.11	70,810
Calendar year 1949	527,379	7,500	377	1,445	4.47	60.72	1,046,000
January	36,855	3,430	520	1,189	3.68	4.24	73,100
February	46,490	4,570	811	1,680	5.14	5.35	92,210
March	62,660	5,110	1,090	2,021	6.26	7.21	124,500
April	53,380	2,380	1,240	1,779	5.51	6.15	105,900
May	89,710	4,930	1,350	2,894	8.96	10.33	177,900
June	113,150	4,930	2,580	3,772	11.7	13.03	224,400
July	61,220	3,580	1,100	1,975	6.11	7.05	121,400
August	24,691	1,060	615	796	2.46	2.84	48,970
September	15,599	715	427	520	1.61	1.80	30,940
Water year 1949-50	596,770	6,050	377	1,635	5.06	68.71	1,184,000

Peak discharge (base, 3,400 sec.-ft.).--Nov. 27 (7:30 a.m.) 6,850 sec.-ft.; Feb. 25 (11 p.m.) 4,930 sec.-ft.; Mar. 5 (3:30 p.m.) 5,460 sec.-ft.; May 14 (2 a.m.) 5,110 sec.-ft.; June 5 (5 a.m.) 5,290 sec.-ft.; June 21 (6 a.m.) 4,930 sec.-ft.; June 30 (8 a.m.) 3,920 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations on nearby streams.

Note.--Shifting-control method used Nov. 27 to Mar. 7.

Niggerhead Creek near Randle, Wash.

Location--Water-stage recorder, lat. 46°25'45", long. 121°49'45", in SE $\frac{1}{4}$ sec. 20, T. 11 N., R. 8 E., 1 mile upstream from mouth and 8 $\frac{1}{2}$ miles southwest of Randle.

Drainage area--66 square miles.

Records available---June to September 1950.

Extremes--Maximum discharge during period, 625 second-feet June 29, 30 (gage height, 2.68 feet); minimum, 36 second-feet Sept. 22, 23, 24.

Remarks---Records excellent. No diversion or regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-	565	105	50
2									-	499	101	49
3									-	454	96	48
4									-	433	94	47
5									-	413	89	47
6									-	389	84	46
7									-	357	82	44
8									-	311	82	43
9									-	297	78	43
10									-	268	76	42
11									-	235	73	42
12									-	221	70	41
13									-	226	68	41
14									-	224	67	40
15									-	216	68	40
16									-	202	67	40
17									-	194	63	39
18									-	192	61	38
19									-	205	60	38
20									-	182	59	38
21									-	168	58	37
22									-	161	59	36
23									-	159	72	36
24									-	154	64	37
25									-	150	60	59
26									-	139	58	96
27									-	127	56	61
28									-	139	55	52
29									615	129	52	50
30									610	116	52	47
31									-	110	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October							
November							
December							
Calendar year							
January	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-
July	7,635	565	110	246	3.73	4.30	15,140
August	2,179	105	50	70.3	1.07	1.23	4,320
September	1,367	96	36	45.6	.691	.77	2,710
The period	-	-	-	-	-	-	22,170

Tower Rock Springs near Randle, Wash.

Location.--Water-stage recorder, lat. 46°26'45", long. 121°52'00", in NE $\frac{1}{4}$ sec. 13, T. 11 N., R. 7 E., at culvert on road to Tower Rock ranger station, 8 miles southeast of Randle.

Drainage area.--2.2 square miles.

Records available.--June to September 1950.

Extremes.--Maximum discharge during period, 8.3 second-feet June 22 (gage height, 2.52 feet); minimum, 2.4 second-feet Aug. 9 (gage height, 1.82 feet).

Remarks.--Records good. No diversion or regulation.

Discharge, in second-feet, June to September 1950									
Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	-	7.2	3.9	4.0	16	-	5.1	5.8	3.6
2	-	7.2	3.7	4.1	17	-	5.1	6.4	3.6
3	-	7.2	3.6	4.1	18	-	5.0	5.2	3.6
4	-	7.1	3.6	4.1	19	-	5.0	5.8	3.5
5	-	7.0	3.4	4.1	20	8.0	4.6	5.5	3.6
6	-	7.0	3.4	4.1	21	8.0	4.6	5.5	3.5
7	-	6.6	3.4	3.9	22	8.0	4.5	5.7	3.4
8	-	6.6	3.6	4.1	23	8.1	4.4	6.1	3.6
9	-	6.8	3.3	3.9	24	7.9	4.3	5.3	3.6
10	-	6.5	3.8	3.9	25	7.7	4.3	4.6	3.9
11	-	6.1	6.1	3.8	26	7.4	4.3	4.6	4.3
12	-	5.7	5.8	3.6	27	7.2	4.3	4.2	4.3
13	-	5.5	5.8	3.6	28	7.2	4.4	4.2	4.0
14	-	5.3	6.0	3.7	29	7.1	4.2	4.3	3.6
15	-	5.2	5.7	3.7	30	7.2	4.1	4.3	3.6
					31	-	4.0	4.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
June 20-30..	83.8	8.1	7.1	7.62	3.46	1.42	166
July.....	169.2	7.2	4.0	5.46	2.48	2.86	336
August.....	146.7	6.1	3.3	4.73	2.15	2.48	291
September...	114.4	4.3	3.4	3.81	1.73	1.93	227
The period	-	-	-	-	-	-	1,020

Rainy Creek near Kosmos, Wash.

Location.--Water-stage recorder, lat. 46°30'30", long. 122°09'15", at west line sec. 23, T. 12 N., R. 5 E., at county bridge 2 miles northeast of Kosmos.

Drainage area.--17.5 square miles.

Records available.--June to September 1950.

Extremes.--Maximum discharge during period, 49 second-feet June 23; maximum gage height, 2.64 feet Sept. 26; minimum discharge, 0.8 second-foot Sept. 23.

Remarks.--Records good except those for Sept. 3-30, which are fair. No diversion or regulation.

Discharge, in second-feet, June to September 1950									
Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	-	31	8.4	6.6	16	-	11.5	7.9	2.0
2	-	27	7.4	5.8	17	-	11	9.3	1.7
3	-	24	7.0	5.7	18	-	9.8	9.3	1.5
4	-	22	7.0	5.4	19	-	10.5	9.3	1.6
5	-	20	6.6	5.0	20	-	10.5	8.8	1.6
6	-	18	6.6	4.2	21	46	9.3	8.4	1.4
7	-	16	7.0	4.8	22	45	8.4	8.8	1.4
8	-	16	6.2	3.1	23	47	7.9	15	1.0
9	-	17.5	5.8	2.5	24	41	7.4	13.5	2.0
10	-	15	5.8	2.4	25	37	7.9	11	6.8
11	-	13.5	5.3	2.4	26	34	7.4	9.8	17.5
12	-	13.5	4.9	2.1	27	35	7.0	8.8	11
13	-	13	4.9	2.1	28	35	11.5	8.4	7.2
14	-	12	5.3	2.4	29	36	14	7.9	5.9
15	-	12	5.8	2.1	30	35	9.3	7.4	4.7
					31	-	8.4	6.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
June 21-30.	391	47	34	39.1	2.23	0.83	776
July.....	422.3	31	7.0	13.6	.777	.90	838
August.....	244.2	15	4.9	7.88	.450	.52	484
September..	123.9	17.5	1.0	4.13	.236	.26	246
The period	-	-	-	-	-	-	2,340

COWLITZ RIVER BASIN

Landers Creek near Kosmos, Wash.

Location.--Water-stage recorder, lat. 46°27'30", long. 122°14'15", in NW¹/₄ sec. 7, T. 11 N., R. 5 E., 1,000 feet upstream from road crossing, $\frac{1}{2}$ miles upstream from mouth, and 3 miles southwest of Kosmos.

Drainage area.--9.6 square miles.

Records available.--June to October 1950 (discontinued).

Extremes.--Maximum discharge during period, 44 second-feet Oct. 6 (gage height, 2.22 feet); minimum, 3.3 second-feet Sept. 21-24 (gage height, 1.26 feet).

Remarks.--Records good. No known diversion or regulation.

Discharge, in second-feet, June to October 1950

Day	June	July	Aug.	Sept.	Oct.	Day	June	July	Aug.	Sept.	Oct.
1	-	24	7.6	4.9	5.8	16	-	11	5.8	3.8	-
2	-	23	7.3	4.7	5.5	17	-	10	5.2	3.6	-
3	-	21	7.0	4.7	6.1	18	-	9.8	5.2	3.6	-
4	-	20	6.7	4.9	8.5	19	-	11	5.2	3.6	-
5	-	18.5	6.7	4.7	22	20	-	9.8	4.9	3.6	-
6	-	17	6.7	4.4	34	21	-	9.2	4.7	3.3	-
7	-	16	6.7	4.4	22	22	-	8.8	5.2	3.3	-
8	-	15	6.4	4.4	30	23	-	8.2	15	3.3	-
9	-	18.5	6.1	4.1	32	24	-	8.2	9.8	4.7	-
10	-	14.5	6.1	3.8	-	25	-	7.9	7.6	9.8	-
11	-	13.5	5.8	3.8	-	26	-	7.6	6.4	19	-
12	-	12.5	5.8	3.8	-	27	26	7.3	5.8	11	-
13	-	12	5.5	3.8	-	28	26	12	5.5	7.9	-
14	-	11.5	5.8	3.8	-	29	26	11.5	5.2	6.7	-
15	-	11	5.8	3.8	-	30	26	9.5	4.9	6.1	-
						31	-	8.2	4.9	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
June.....	-	-	-	-	-	-	-
July.....	398	24	7.3	12.8	1.33	1.54	790
August.....	197.3	15	4.7	6.36	.662	.76	391
September.....	157.3	19	3.3	5.24	.546	.61	312
October 1-9.....	165.9	34	5.5	18.4	1.92	.64	329
The period.....	-	-	-	-	-	-	1,820

Tilton River at Morton, Wash.

Location.--Water-stage recorder, lat. 46°33'30", long. 122°17'00", in NW¹/₄ sec. 2, T. 12 N., R. 4 E., 500 feet upstream from highway and half a mile west of Morton.

Drainage area.--71 square miles.

Records available.--June to October 1950 (discontinued).

Extremes.--Maximum discharge during period, 522 second-feet Oct. 6 (gage height, 2.78 feet); minimum, 28 second-feet Sept. 21-24 (gage height, 0.84 foot).

Remarks.--Records good. Several diversions on tributaries for domestic and municipal use. No Known regulation.

Discharge, in second-feet, June to October 1950

Day	June	July	Aug.	Sept.	Oct.	Day	June	July	Aug.	Sept.	Oct.
1	-	a175	58	44	53	16	-	71	87	32	-
2	-	a160	54	42	50	17	-	66	65	31	-
3	-	142	52	41	50	18	-	63	56	30	-
4	-	136	51	41	62	19	-	65	51	30	-
5	-	126	50	39	258	20	-	63	46	30	-
6	-	120	50	38	410	21	-	58	43	30	-
7	-	110	49	37	316	22	-	56	45	29	-
8	-	102	44	36	316	23	-	55	104	29	-
9	-	116	43	34	296	24	-	51	136	38	-
10	-	98	42	34	-	25	-	50	93	93	-
11	-	91	41	34	-	26	-	48	74	215	-
12	-	84	40	33	-	27	-	46	63	110	-
13	-	79	39	33	-	28	-	98	58	80	-
14	-	76	39	33	-	29	-	126	54	66	-
15	-	74	102	32	-	30	200	79	51	58	-
						31	-	65	48	-	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
June.....	-	-	-	-	-	-	-
July.....	2,747	175	46	88.6	1.25	1.44	5,450
August.....	1,828	136	39	59.0	.831	.96	3,630
September.....	1,452	215	29	48.4	.682	.76	2,880
October 1-9.....	1,811	410	50	201	2.83	.95	3,590
The period.....	-	-	-	-	-	-	15,550

a No gage-height record; discharge computed on basis of records for stations on nearby streams.

Tilton River near Cinebar, Wash.

Location.--Water-stage recorder, lat. 46°34'35", long. 122°31'15", in SW $\frac{1}{4}$ sec. 26, T. 13 N., R. 2 E., 1,000 feet downstream from Cinnabar Creek, 2 miles southeast of Cinebar, and $\frac{1}{2}$ miles upstream from mouth. Datum of gage is 397.6 feet above mean sea level (from river-profile survey).

Drainage area.--158 square miles.

Records available.--February 1941 to September 1950.

Extremes.--Maximum discharge during year, 12,200 second-feet Feb. 24 (gage height, 12.63 feet), from rating curve extended above 4,000 second-feet; minimum, 91 second-feet Oct. 3.

1941-50: Maximum discharge, 14,500 second-feet sometime during period of no gage-height record in December 1946 (gage height, 14.36 feet, from high-water mark in well), from rating curve extended above 4,000 second-feet; minimum, 66 second-feet Sept. 11, 12, 1944.

Remarks.--Records good. No diversion or regulation.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 26					Nov. 27 to Sept. 30				
3.9	81	5.1	383	6.5	1,250	3.7	87	5.5	620
4.1	95	5.4	512	7.0	1,750	4.0	124	6.0	900
4.4	171	5.7	670	7.5	2,300	4.2	158	6.5	1,280
4.7	249	6.0	840	8.1	3,050	4.4	200	7.0	1,750
						4.7	282	7.5	2,320
						5.0	390	8.0	2,920

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	97	462	2,300	1,850	750	2,180	2,790	970	970	444	185	138
2	95	403	2,980	1,460	695	1,960	2,860	970	1,040	406	170	134
3	94	361	2,360	1,240	670	3,620	2,240	970	1,080	363	160	129
4	169	352	1,800	1,080	665	7,650	1,800	1,000	1,200	357	156	150
5	557	305	1,650	970	675	6,590	1,600	1,320	1,080	312	153	127
6	730	285	1,460	1,000	780	4,790	1,550	1,280	900	269	153	124
7	583	270	1,240	935	750	3,240	1,370	1,080	750	273	151	120
8	427	276	1,040	810	810	2,480	1,320	1,000	750	261	144	117
9	780	276	1,000	750	810	2,020	1,200	970	720	265	140	114
10	1,030	282	900	780	780	1,700	1,080	970	780	249	135	113
11	1,140	407	780	720	840	1,420	1,040	1,200	840	233	132	110
12	1,140	2,420	750	670	900	1,240	1,700	1,750	970	220	129	108
13	769	2,300	750	630	1,550	1,120	2,120	1,850	750	208	126	108
14	583	1,800	750	575	1,800	1,000	1,750	1,650	670	200	126	108
15	494	1,350	780	560	3,240	970	2,480	1,460	635	196	202	106
16	415	982	840	540	3,730	1,550	3,450	1,280	670	189	267	105
17	353	769	870	502	2,860	3,520	3,660	1,280	780	180	196	106
18	311	648	840	480	2,600	3,310	2,540	1,280	720	174	193	104
19	282	562	750	1,660	2,120	3,050	2,020	1,120	695	180	158	102
20	267	494	695	6,190	1,900	2,420	1,960	1,000	720	176	151	100
21	249	444	720	6,390	1,700	1,960	1,800	1,040	660	170	142	99
22	238	507	1,760	5,450	2,020	1,850	1,550	1,160	670	158	142	98
23	224	1,050	3,560	4,460	3,450	1,650	1,370	1,080	810	154	228	97
24	216	2,980	3,450	2,920	9,930	1,420	1,160	970	695	151	312	110
25	203	2,480	2,420	2,120	7,470	1,240	1,040	970	585	147	249	202
26	200	2,980	2,240	1,750	5,810	1,180	970	1,200	511	142	208	530
27	211	6,320	4,560	4,010	4,010	1,280	1,000	1,320	498	140	180	315
28	1,520	4,930	7,350	1,200	2,920	1,200	900	1,200	506	220	170	230
29	1,050	3,590	4,310	1,040	-	1,080	970	1,000	511	266	158	191
30	698	2,660	3,120	935	-	1,120	900	935	484	249	151	170
31	557	-	2,300	610	-	1,240	-	900	-	202	144	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	15,682	1,520	94	506	3.20	3.69	31,100
November	42,925	6,320	270	1,431	9.06	10.10	85,140
December	60,325	7,350	695	1,946	12.3	14.20	119,700
Calendar year 1949	342,153	7,350	81	937	5.93	80.51	678,700
January	51,897	6,390	480	1,674	10.6	12.22	102,900
February	65,935	9,930	665	2,355	14.9	15.52	130,800
March	71,010	7,630	970	2,291	14.5	16.71	140,800
April	52,090	3,660	870	1,736	11.0	12.26	103,300
May	36,175	1,850	900	1,167	7.39	8.51	71,750
June	22,550	1,200	484	752	4.76	5.31	44,730
July	7,294	444	140	235	1.49	1.72	14,470
August	5,311	312	126	171	1.08	1.25	10,530
September	4,345	530	97	145	.918	1.02	8,620
Water year 1949-50	435,539	9,930	94	1,193	7.55	102.51	863,800

Peak discharge (base, 7,000 sec.-ft.)--Nov. 27 (8 a.m.) 8,570 sec.-ft.; Dec. 28 (1 a.m.) 10,100 sec.-ft.; Jan. 21 (3:30 a.m.) 7,000 sec.-ft.; Feb. 24 (6:30 a.m., 8:45 a.m.) 12,200 sec.-ft.; Mar. 4 (8:30 a.m.) 9,550 sec.-ft.

COWLITZ RIVER BASIN

West Fork Tilton River near Morton Wash.

Location.--Water-stage recorder, lat. 46°36'45", long. 122°14'45", in NE¹/₄ sec. 13, T. 13 N., R. 4 E., three-quarters of a mile upstream from mouth and 4 miles northeast of Morton.

Drainage area.--16.4 square miles.

Records available.--June to September 1950.

Extremes.--Maximum discharge during period, 163 second-feet Sept. 26 (gage height, 2.89 feet); minimum, 8.6 second-feet Sept. 22-24 (gage height, 1.47 feet).

Remarks.--Records good. No diversion or regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									-	68	19	20
2									-	59	17	17.5
3									-	54	16	17
4									-	50	15.5	16
5									-	46	15	16
6									-	43	14.5	15
7									-	37	13.5	14
8									-	34	13	13
9									-	41	12.5	12.5
10									-	33	12.5	12
11									-	30	12	11.5
12									-	28	10.5	11.5
13									-	27	10.5	11.5
14									-	26	10.5	11
15									-	25	64	10.5
16									-	23	48	10.5
17									-	22	34	9.9
18									-	20	28	9.5
19									-	20	24	9.5
20									-	23	22	9.5
21									-	17.5	19	9.2
22									-	16	20	8.6
23									-	15.5	50	8.6
24									-	15	61	14
25									-	14.5	45	40
26									-	14	37	113
27									70	13.5	33	54
28									76	40	29	41
29									79	42	25	33
30									76	26	23	28
31									-	22	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October							
November							
December							
Calendar year							
January	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-
July	945	68	13.5	30.5	1.86	2.14	1,870
August	775	64	10.5	25.0	1.52	1.76	1,540
September	607.3	113	8.6	20.2	1.23	1.38	1,200
The period.....	-	-	-	-	-	-	4,610

Klickitat Creek at Mossyrock, Wash.

Location.--Water-stage recorder, lat. 46°31'15", long. 122°28'05", on line between secs. 17 and 18, T. 12 N., R. 3 E., 1 mile southeast of Mossyrock and 4¼ miles upstream from mouth.

Records available.--August 1948 to September 1950.

Extremes.--Maximum discharge during year, 95 second-feet Feb. 24 (gage height, 2.81 feet), from rating curve extended above 35 second-feet; no flow for long periods.
1948-50: Maximum discharge, 165 second-feet Feb. 17 (gage height, 3.62 feet); no flow for long periods each year.

Remarks.--Records fair except those for periods of no gage-height record and those below 1 second-foot, which are poor. No known diversion or regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.0	1.0	21	27	15	36	18	8.4	1.8	0.1	0.1	0
2	.0	.8	28	23	14	34	20	8.4	1.5	.1	0	0
3	.0	.7	20	20	13	31	17	7.2	1.4	0	0	0
4	.1	.6	16	18	13	57	14.5	7.8	1.3	0	0	0
5	1.5	.5	19	16	22	51	14.5	9.6	1.3	0	0	0
6	2.9	.5	16	30	21	43	14.5	8.7	1.5	0	0	0
7	1.6	.5	14	24	16	38	13	6.9	2.9	0	0	0
8	.8	.9	12.5	20	25	35	18	6.3	2.6	0	0	0
9	.5	1.1	14	17.5	20	32	14	6.0	1.9	.2	0	0
10	.7	1.0	12	25	21	28	12.5	5.4	1.9	.1	0	0
11	1.2	2.3	11	18.5	21	23	12.5	5.2	1.8	.1	0	0
12	2.0	6.9	11.5	16	24	21	25	4.7	1.6	0	0	0
13	.9	3.6	13	14	32	20	18.5	4.2	1.2	0	0	0
14	.5	11	11	12	31	18	16	4.2	1.0	0	0	0
15	.4	6.6	12.5	10	38	16	19	4.0	1.0	0	0	0
16	.4	4.4	13.5	9	38	20	20	3.6	.7	0	0	0
17	.2	3.6	16	8	36	27	19	4.9	.7	0	0	0
18	.2	3.0	14.5	7	32	22	15.5	6.0	.5	0	0	0
19	.1	2.7	12	20	34	23	14	4.7	.4	0	0	0
20	.1	2.6	11.5	64	28	21	13.5	3.7	.3	0	0	0
21	.1	2.3	16	55	28	19	13	3.6	.3	0	0	0
22	.1	5.8	25	65	30	21	14	3.4	.5	0	0	0
23	.1	11	34	63	47	18.5	13	2.9	1.3	0	.3	0
24	.1	13	29	50	72	17	11	2.6	1.4	0	.2	0
25	.1	15.5	51	40	67	15.5	11	2.3	1.0	0	.1	.2
26	.1	13	35	36	66	15	9.9	2.3	.5	0	.1	.7
27	.2	40	46	30	53	20	11.5	2.6	.3	0	0	.3
28	7.0	38	42	25	44	17	9.6	2.4	.2	.1	0	.1
29	2.6	24	40	22	-	14.5	8.1	2.4	.2	.2	0	.1
30	1.5	24	35	19	-	16	7.5	2.1	.1	.1	0	.1
31	1.2	-	32	17	-	15	-	1.9	-	.1	0	.1
Month						Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet		
October.....						27.2	7.0	0	0.88	54		
November.....						240.9	40	.5	8.03	478		
December.....						664.0	46	11	21.4	1,320		
Calendar year 1949.....						2,817.4	116	0	7.72	5,590		
January.....						821.0	65	7	26.5	1,630		
February.....						901	72	13	32.2	1,790		
March.....						784.5	57	14.5	25.3	1,560		
April.....						436.6	25	7.5	14.6	866		
May.....						148.4	9.6	1.9	4.79	294		
June.....						33.1	2.9	.1	1.10	66		
July.....						1.1	.2	0	.04	2.2		
August.....						.8	.3	0	.03	1.6		
September.....						1.5	.7	0	.05	3.0		
Water year 1949-50.....						4,060.1	72	0	11.1	8,060		

Note.--No gage-height record Jan. 3-5, 14-19, Jan. 29 to Feb. 4; discharge computed on basis of records for stations on nearby streams. Shifting-control method used Oct. 6 to Nov. 13, June 12 to Aug. 22, Sept. 25-30.

Winston Creek near Mayfield, Wash.

Location.--Water-stage recorder, lat. 46°29'00", long. 122°31'15", about center of sec. 35, T. 12 N., R. 2 E., 3 miles southeast of Mayfield and 3¼ miles upstream from mouth.

Drainage area.--40.0 square miles.

Records available.--October 1949 to September 1950.

Extremes.--Maximum discharge during year, 1,960 second-feet Feb. 24; minimum, 2.0 second-feet Sept. 18 (gage height, 1.80 feet).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Small regulation and diversion by Long Bell Lumber Co. for mill pond. Diverted water is returned to stream above gage.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Oct. 4 to Dec. 28)

1.8	2.0	3.0	5.0	6.95
2.0	6.2	3.3	150	5.5
2.2	14	3.6	215	6.0
2.4	26	4.0	323	6.6
2.7	56	4.5	490	1,680

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a8.5	50	274	263	a145	364	253	86	32	15.5	9.3	4.8
2	a8.2	44	306	210	a130	308	266	84	31	14	8.5	4.8
3	a8.0	38	258	181	a125	320	250	79	29	13.5	8.2	5.4
4	g26	34	222	158	a120	695	228	83	27	13	7.8	6.2
5	g82	32	222	140	119	770	208	96	26	13	8.9	4.8
6	g96	31	199	197	166	607	194	101	26	12	10	4.6
7	64	26	172	190	154	454	164	94	42	11.5	7.1	4.6
8	46	31	150	160	228	360	177	89	44	11	4.8	4.4
9	39	33	140	135	197	297	162	86	32	18.5	6.5	4.4
10	51	31	126	181	188	248	140	82	28	15.5	6.2	4.6
11	55	44	111	154	168	208	137	63	26	13	6.5	4.4
12	59	119	106	131	204	181	220	83	25	11.5	5.9	4.0
13	44	88	106	121	345	164	222	80	25	11	5.9	4.0
14	37	135	111	109	373	148	206	76	24	11.5	5.1	3.8
15	35	109	114	a100	527	142	228	70	24	10.5	6.8	5.1
16	31	92	126	a95	508	183	253	66	22	11	7.5	5.6
17	27	80	135	a92	430	314	261	73	21	9.7	6.5	5.4
18	22	68	137	90	364	314	232	90	22	8.9	5.1	2.8
19	23	57	121	314	338	300	206	73	22	11.5	5.4	3.8
20	18.5	56	111	955	280	256	194	62	19	11.5	5.1	4.2
21	19.5	48	128	1,130	250	225	168	60	18.5	9.7	3.6	4.2
22	19	62	258	1,220	306	225	158	56	21	8.5	4.8	3.2
23	17	109	490	928	502	204	144	53	32	8.2	26	3.8
24	14	206	546	586	1,640	183	122	49	37	5.9	23	5.6
25	16	243	440	412	1,250	164	117	44	32	7.1	13.5	18.5
26	16	238	412	335	928	143	106	47	25	8.2	10.5	56
27	16.5	566	546	261	628	179	111	44	22	7.8	8.5	29
28	178	527	710	215	454	166	101	43	19.5	24	6.5	15.5
29	109	393	546	a195	-	158	90	42	17.5	28	6.2	12
30	77	338	409	a175	-	179	86	40	16	15.5	5.6	11
31	61	-	323	a160	-	179	-	35	-	11.5	5.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,323.2	178	8.0	42.7	1.07	1.23	2,620
November	3,928	566	26	131	3.28	3.65	7,790
December	8,055	710	106	260	6.50	7.49	15,980
Calendar year	-	-	-	-	-	-	-
January	9,593	1,220	90	309	7.72	8.92	19,030
February	11,087	1,640	119	396	9.90	10.31	21,990
March	8,649	770	142	279	6.98	8.04	17,160
April	5,404	266	86	180	4.50	5.02	10,720
May	2,149	101	35	69.3	1.73	2.00	4,260
June	787.5	44	16	26.2	.655	.73	1,560
July	382.0	28	5.9	12.3	.308	.36	758
August	250.9	26	3.6	8.09	.202	.23	498
September	250.5	56	2.8	8.35	.209	.23	497
Water year 1949-50	51,859.1	1,640	2.8	142	3.55	48.21	102,900

Peak discharge (base, 900 sec.-ft.).--Dec. 27 (12 p.m.) 900 sec.-ft.; Jan. 22 (9 a.m.) 1,280 sec.-ft.; Feb. 24 (7 a.m.) 1,960 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations on nearby streams.

g Computed from graph based on staff-gage readings.

Olequa Creek at Winlock, Wash.

Location.--Water-stage recorder, lat. 46°29'20", long. 122°56'20", in NW $\frac{1}{4}$ sec. 33, T. 12 N., R. 2 W., at Winlock, 6 $\frac{1}{2}$ miles upstream from mouth.
 Drainage area.--33.2 square miles.

Records available.--March 1949 to October 1950 (discontinued).

Extremes.--Maximum discharge during period October 1949 to October 1950, 2,470 second-foot Nov. 27 (gage height, 7.10 feet); minimum, 0.4 second-foot July 1 (gage height, 0.87 foot).

1949-50: Maximum discharge, that of Nov. 27, 1949; minimum, that of July 1, 1950.
 Remarks.--Records good except those for periods of no gage-height record or shifting control, which are fair. Some diversion for domestic use. Some regulation from mill pond above station.

Rating table, Oct. 1949, to Oct. 1950, except period of shifting control
 (gage height, in feet, and discharge, in second-feet)

0.7	0.6	1.4	20	2.6	148	4.5	720
.8	1.3	1.7	40	3.0	222	5.0	950
1.0	4.6	2.0	67	3.5	352	5.5	1,220
1.2	10.5	2.3	103	4.0	517	6.0	1,550

Discharge, in second-feet, 1949-50

1949-50

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.0	6.9	202	286	a100	202	90	33	7.2	0.6	10.5	4.2
2	2.2	6.3	300	a200	a90	174	82	37	6.9	2.6	9.2	4.2
3	2.9	6.3	258	148	a80	214	77	54	6.9	4.0	31	4.2
4	4.8	6.3	191	122	a130	714	64	29	6.3	4.0	1.3	4.4
5	9.6	6.3	170	109	a180	758	57	31	6.3	4.2	1.8	4.4
6												
7	9.9	6.3	162	305	a250	383	54	32	6.6	4.2	2.9	4.2
8	10.5	6.3	130	432	a370	256	49	27	12.5	4.2	3.8	4.2
9	9.9	6.3	104	276	734	202	47	24	7.8	4.2	3.8	4.2
10	7.8	7.8	104	214	465	167	a44	22	7.2	2.6	4.6	-4.2
	6.6	8.5	104	556	352	148	a41	21	6.9	1.8	4.8	4.6
11	6.3	20	66	399	311	124	a40	21	6.9	2.9	4.0	4.6
12	6.3	132	78	242	383	104	a150	17.5	6.6	4.5	3.8	4.4
13	6.1	62	85	a170	846	98	140	15.5	6.6	3.2	4.2	4.4
14	6.1	43	78	a140	517	71	113	14.5	6.6	3.8	4.4	4.6
15	5.8	34	71	a115	500	68	113	13.5	6.6	3.6	9.3	4.6
16	5.8	24	70	a100	399	98	123	13.5	6.3	4.4	3.0	4.6
17	5.8	19	142	a90	284	422	129	13	28	4.6	4.2	8.9
18	5.8	16	169	a80	224	399	106	14	17.5	4.4	4.6	9.2
19	5.8	14	146	a160	216	399	88	15	12	4.6	4.8	3.6
20	5.8	13	110	505	174	266	71	14.5	9.2	4.8	12.5	3.8
21	5.5	11.5	118	1,130	145	212	59	11	7.8	4.8	7.6	14
22	5.8	11.5	132	1,100	104	208	52	9.6	7.8	4.8	3.0	12.5
23	5.8	51	324	655	292	208	50	9.6	8.5	4.8	4.4	.6
24	5.8	134	415	358	832	189	42	10.5	12	12.5	4.4	.9
25	5.5	198	276	a260	1,240	155	36	9.9	9.9	4.6	4.6	1.4
26	5.8	374	261	a210	742	137	32	9.9	8.2	2.1	4.4	2.9
27	6.1	1,430	368	a180	415	148	35	8.8	7.5	2.4	4.2	3.2
28	14.5	655	575	a160	271	138	54	8.8	7.2	5.6	4.2	3.2
29	14.5	371	448	a140	-	122	39	8.8	6.6	7.5	4.2	3.6
30	9.2	300	399	a120	-	111	32	24	4.4	6.6	4.2	3.8
31	7.8	-	452	a110	-	99	-	13.5	-	11.5	4.2	-

a No gage-height record; discharge computed on basis of weather records, recorded range in stage, and records for stations on nearby streams.

Note.--Shifting-control method used Sept. 23-30.

1950

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Oct. 1	4.0	Oct. 6	13.5	Oct. 11	24	Oct. 16	7.8
2	4.0	7	9.2	12	11	17	7.5
3	4.6	8	9.2	13	7.8	18	27
4	5.0	9	9.2	14	7.8	19	42
5	12	10	30	15	8.8		

Note.--Shifting-control method used Oct. 1-19.

Monthly discharge, in second-feet, 1949-50

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October 1949.....	214.1	14.5	2.2	6.91	0.208	0.24	425
November.....	3,980.9	1,430	6.3	133	4.01	4.46	7,300
December.....	6,528	575	6.6	211	6.36	7.31	12,950
Calendar year.....	-	-	-	-	-	-	-
January 1950.....	9,072	1,130	80	293	8.83	10.16	17,990
February.....	10,646	1,240	80	380	11.4	11.93	21,120
March.....	6,994	758	68	226	6.81	7.83	13,870
April.....	2,109	150	32	70.3	2.12	2.36	4,180
May.....	566.4	37	8.8	18.3	.551	.63	1,120
June.....	260.8	29	4.4	8.69	.262	.29	517
July.....	140.4	12.5	.6	4.53	.136	.16	278
August.....	176.9	31	1.3	5.71	.172	.20	351
September.....	141.6	14	.6	4.72	.142	.16	281
Water year 1949-50.....	40,830.1	1,430	.6	112	3.37	45.73	80,980
October 1-19, 1950.....	244.4	42	4.0	12.9	.369	.27	485

Toutle River near Silver Lake, Wash.

Location.--Water-stage recorder, lat. 46°20'10", long. 122°43'30", in SE $\frac{1}{4}$ sec. 19, T. 10 N., R. 1 E., at highway bridge half a mile downstream from confluence of North and South Forks and 5 miles northeast of Silver Lake. Datum of gage is 407.3 feet above mean sea level (from river-profile survey).

Drainage area.--474 square miles.

Records available.--October 1919 to December 1923, September 1929 to September 1950. September 1909 to August 1912 at site 2 miles downstream, published as Toutle River near Castle Rock.

Average discharge.--26 years (1909-11, 1919-21, 1922-23, 1929-50), 1,981 second-feet.

Extremes.--Maximum discharge during year, 17,200 second-feet Feb. 24 (gage height, 11.53 feet), from rating curve extended above 9,500 second-feet; minimum, 395 second-feet Sept. 24 (gage height, 1.81 feet).

1909-12, 1919-23, 1929-50: Maximum discharge observed, 35,600 second-feet Mar. 2, 1910; maximum gage height recorded, 22.7 feet Dec. 23, 1933; minimum discharge, 240 second-feet Nov. 21, 1929.

Remarks.--Records good except those for periods of no gage-height record or those above 10,000 second-feet, which are fair. No diversion or regulation.

Revisions (water years).--W 292: 1909 (calendar year). W 754: 1930-32.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.8	390	3.5	1,990	7.0	9,090
2.0	495	4.0	2,750	8.0	10,900
2.3	690	4.5	3,610	9.0	12,700
2.6	940	5.0	4,590	11.1	16,500
3.0	1,350	6.0	6,830		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	430	985	3,430	3,520	1,920	3,520	3,700	2,060	2,650	2,430	790	495
2	425	922	4,290	2,920	1,780	4,190	3,890	2,130	2,900	2,280	765	495
3	415	842	3,700	2,590	1,780	5,500	3,700	1,990	2,350	2,130	735	495
4	537	782	3,090	2,360	1,850	13,600	3,430	2,060	2,350	2,060	698	490
5	1,090	758	3,090	2,130	1,920	15,700	3,180	2,280	2,350	1,990	683	484
6	1,140	705	2,750	2,670	2,510	11,500	3,090	2,280	2,300	1,920	676	473
7	931	683	2,430	2,840	2,360	7,310	3,090	2,200	2,400	1,850	648	468
8	750	728	2,200	2,360	3,090	5,320	2,920	2,130	2,500	1,780	634	462
9	735	1,070	2,130	2,130	2,670	4,390	2,750	2,060	2,430	1,780	620	456
10	1,120	1,050	1,920	2,750	2,510	3,890	2,510	1,990	2,510	1,580	607	451
11	1,110	1,990	1,720	2,430	2,430	3,610	2,360	2,200	2,750	1,420	588	451
12	1,330	4,190	1,690	2,130	2,430	3,260	3,790	2,840	2,840	1,320	581	446
13	1,130	3,090	1,720	1,920	3,890	3,090	4,390	3,260	2,590	1,320	574	446
14	958	2,510	1,720	1,720	3,890	2,920	3,700	3,260	2,430	1,310	574	446
15	877	2,060	1,780	1,690	5,990	2,750	3,700	3,090	2,280	1,280	600	440
16	833	1,720	1,780	1,580	6,590	3,430	4,190	2,920	2,430	1,200	620	430
17	758	1,490	2,060	1,460	4,890	6,830	5,100	2,840	3,090	1,130	574	425
18	705	1,350	1,920	1,450	4,090	5,870	4,390	2,840	2,920	1,120	562	415
19	669	1,240	1,670	6,960	3,890	5,100	3,790	2,590	2,920	1,230	555	415
20	634	1,140	1,590	14,000	3,430	4,290	3,520	2,430	3,000	1,170	549	415
21	614	1,050	1,780	12,900	3,090	3,430	3,340	2,360	2,920	1,070	537	410
22	594	1,150	2,920	12,300	3,260	3,790	3,180	2,510	2,670	1,030	543	405
23	574	1,780	5,870	9,090	7,540	3,610	2,920	2,510	2,920	1,010	824	400
24	568	3,890	4,390	5,540	16,500	3,520	2,590	2,360	2,670	1,000	720	420
25	562	3,790	3,890	4,390	14,700	3,180	2,430	2,360	2,560	976	614	648
26	555	4,390	3,790	3,790	12,200	2,590	2,280	2,590	2,130	931	568	949
27	568	11,800	4,590	3,180	8,490	3,000	2,430	3,200	2,130	895	549	690
28	2,430	7,550	7,070	2,840	5,650	3,000	2,280	2,900	2,280	1,020	551	562
29	2,1750	4,790	6,110	2,510	-	2,840	2,130	2,700	2,510	1,030	519	501
30	1,340	4,090	4,890	2,280	-	2,840	1,990	2,600	2,590	886	513	490
31	1,120	-	4,190	1,990	-	2,840	-	2,500	-	842	495	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	28,222	3,400	415	910	1.92	2.21	55,980
November	73,585	11,800	683	2,453	5.18	5.77	146,000
December	96,170	7,070	1,590	3,102	6.54	7.55	190,800
Calendar year 1949	700,507	12,900	394	1,919	4.05	54.94	1,390,000
January	122,420	14,000	1,450	3,949	8.33	9.61	242,800
February	135,340	16,500	1,780	4,834	10.2	10.62	268,400
March	150,510	15,700	2,590	4,655	10.2	11.81	298,500
April	96,760	5,100	1,990	3,225	6.80	7.59	191,900
May	78,040	3,260	1,990	2,517	5.31	6.12	154,800
June	81,320	3,500	2,130	2,711	5.72	6.38	161,300
July	42,990	2,430	842	1,387	2.93	3.37	85,270
August	19,046	824	495	614	1.30	1.49	37,780
September	14,573	949	400	486	1.03	1.14	28,910
Water year 1949-50	938,976	16,500	400	2,573	5.43	73.66	1,862,000

Peak discharge (base, 9,000 sec.-ft.).--Nov. 27 (8 a.m.), 14,500 sec.-ft.; Dec. 27 or 28 (time and discharge unknown); Jan. 20 (9 a.m.) 14,300 sec.-ft.; Feb. 24 (3 a.m.) 17,200 sec.-ft.; Mar. 4 (10 a.m.) 17,000 sec.-ft.

A no gage-height record; discharge computed on basis of records for stations on nearby streams.

COWLITZ RIVER BASIN

219

Green River near Toutle, Wash.

Location.--Water-stage recorder, lat. 46°22'30", long. 122°33'50", in SW $\frac{1}{4}$ sec. 4, T. 10 N., R. 2 E., 1 mile upstream from mouth and 7 miles northeast of Toutle.

Drainage area.--131 square miles.

Records available.--October 1946 to December 1950 (discontinued).

Extremes.--Maximum discharge during period October 1949 to December 1950, 4,900 second-feet Feb. 24 (gage height, 9.16 feet), from rating curve extended above 2,800 second-feet by logarithmic plotting; minimum, 55 second-feet Oct. 3, 1949 (gage height, 2.67 feet).

1946-50: Maximum discharge, 12,000 second-feet Dec. 11, 1946 (gage height, 13.23 feet), from rating curve extended above 2,800 second-feet by logarithmic plotting; minimum, 52 second-feet probably Sept. 4, 1947 (gage height, 2.63 feet, from recorded range in stage).

Remarks.--Records good except those for periods of no gage-height record and those after July 1, which are fair. No diversion or regulation.

Discharge, in second-feet, 1949-50

1949-50

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	252	900	870	440	1,260	960	452	770	900	208	79
2	57	222	1,150	703	420	1,050	1,120	447	820	810	200	79
3	56	197	990	588	450	1,180	1,050	420	880	753	187	76
4	100	182	840	530	425	2,940	900	438	960	725	175	76
5	258	170	810	461	406	3,630	810	486	1,040	698	161	76
6	321	156	708	572	615	2,760	753	530	1,000	681	152	74
7	222	148	610	566	520	1,870	664	510	900	626	150	70
8	161	159	525	461	714	1,430	681	481	770	546	141	69
9	152	184	500	402	588	1,120	642	456	700	583	137	68
10	356	180	443	551	520	930	572	456	670	510	131	67
11	321	278	381	466	500	780	551	510	750	420	127	66
12	456	840	364	395	540	686	900	725	820	365	124	65
13	344	714	385	348	900	632	1,020	930	830	406	122	62
14	271	698	398	292	870	588	900	990	760	424	120	62
15	239	577	415	325	1,180	556	930	960	720	406	120	61
16	210	461	447	302	1,360	714	1,080	870	690	381	127	61
17	187	394	476	255	1,180	1,360	1,320	840	830	344	122	60
18	168	340	476	258	1,020	1,360	1,180	840	940	340	114	59
19	150	306	402	1,170	960	1,260	990	725	890	385	111	58
20	139	275	352	3,490	840	1,080	930	659	1,020	394	106	58
21	131	252	376	3,180	780	960	870	648	1,140	332	102	57
22	125	272	708	3,070	900	930	840	692	1,080	325	100	56
23	118	466	1,320	2,380	1,460	840	753	692	890	325	200	56
24	112	1,180	1,430	1,570	4,500	780	664	659	810	321	166	59
25	109	1,120	1,080	1,180	4,240	676	610	654	681	310	127	120
26	109	1,120	1,120	960	3,290	620	551	753	604	288	112	236
27	112	2,620	1,320	780	2,240	648	556	900	664	268	102	168
28	785	1,830	1,710	1,600	648	515	870	780	268	96	112	92
29	583	1,290	1,540	600	-	481	780	960	314	81	92	84
30	385	1,080	1,290	540	-	642	461	753	990	252	88	84
31	302	-	1,050	480	-	626	-	753	-	224	84	-

Peak discharge (base, 2,500 sec.-ft.).--Nov. 27 (7 a.m.) 3,180 sec.-ft.; Jan. 20 (2 p.m.) 3,870 sec.-ft.; Feb. 24 (9 p.m.) 4,900 sec.-ft.; Mar. 5 (1 p.m.) 3,990 sec.-ft.

Note.--No gage-height record Jan. 29 to Feb. 3, June 1-22; discharge computed on basis of records for stations on nearby streams.

1950

Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.
1	79	725	1,260	11	810	471	-	21	389	930	-
2	74	870	1,080	12	515	424	-	22	344	1,500	-
3	77	990	1,080	13	398	385	-	23	310	1,790	-
4	91	930	1,500	14	328	364	-	24	275	2,560	-
5	268	900	1,500	15	288	556	-	25	376	2,290	-
6	566	753	-	16	255	960	-	26	541	1,950	-
7	364	708	-	17	249	960	-	27	1,160	2,470	-
8	433	686	-	18	302	703	-	28	1,290	1,950	-
9	505	588	-	19	364	541	-	29	1,150	1,540	-
10	778	525	-	20	420	599	-	30	930	1,360	-
								31	753	-	-

Peak discharge (base, 2,500 sec.-ft.).--Nov. 24 (9:30 a.m.) 2,760 sec.-ft.; Nov. 27 (9 a.m.) 2,760 sec.-ft.

Monthly discharge, in second-feet, 1949-50

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October 1949	7,098	785	56	229	1.75	2.02	14,080
November	17,963	2,620	148	599	4.57	5.10	35,630
December	24,516	1,710	352	791	6.04	6.96	48,630
Calendar year 1949	175,601	3,170	56	481	3.67	49.86	348,300
January 1950	28,405	3,490	255	916	6.99	8.06	56,340
February	33,438	4,500	406	1,194	9.11	9.49	66,320
March	35,144	3,630	556	1,134	8.66	9.98	69,710
April	24,254	1,320	461	808	6.17	6.89	48,110
May	20,879	900	420	674	5.15	5.93	41,410
June	25,459	1,140	604	849	6.48	7.23	50,500
July	13,944	900	224	450	3.44	3.96	27,660
August	4,103	208	84	132	1.01	1.16	8,140
September	2,586	236	56	79.5	.607	.68	4,730
Water year 1949-50	237,589	4,500	56	651	4.97	67.46	471,300
October 1950	14,682	1,290	74	474	3.62	4.17	29,120
November	31,978	2,560	364	1,066	8.14	9.08	63,430
December 1-5	6,420	1,500	1,080	1,264	8.80	1.62	12,730

COWLITZ RIVER BASIN

South Fork Toutle River at Toutle, Wash.

Location.--Water-stage recorder, lat. 46°19'20", long. 122°41'45", in SW¼ sec. 28, T. 10 N., R. 1 E., half a mile southwest of Toutle, ½ miles upstream from mouth, and 3 miles downstream from Johnson Creek. Datum of gage is at mean sea level (from river-profile survey).

Drainage area.--118 square miles.

Records available.--October 1939 to September 1950.

Average discharge.--11 years, 576 second-feet.

Extremes.--Maximum discharge during year, 7,670 second-feet Mar. 5 (elevation, 457.30 feet); minimum, 85 second-feet Oct. 2-4 (elevation, 452.43 feet).

1939-50: Maximum discharge, 8,710 second-feet Dec. 11, 1946 (elevation, 458.54 feet); minimum, 63 second-feet Sept. 4, 1947.

Remarks.--Records good except those for period of no gage-height record, which are fair.

No diversion or regulation.

Revisions.--Revised figures of discharge, in second-feet, for the high-water period in the water year 1949, superseding those published in Water-Supply Paper 1154, are given herewith:

Feb. 22 4,350
23 4,370

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
February 1949.....	36,569	4,370	206	1,306	11.1	11.53	72,530
Water year 1948-49.....	229,769	4,370	86	630	5.34	72.42	455,700

Rating tables, water year 1949-50 (elevation, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 27 to Dec. 23, Aug. 16 to Sept. 30)

Oct. 1 to Mar. 4				Mar. 5 to Sept. 30			
452.4	81	453.5	530	455.5	2,840	452.7	92
452.6	111	454.0	950	456.0	3,890	452.9	135
452.9	200	454.5	1,450	456.8	6,020	453.2	232
453.2	338	455.0	2,040			453.5	380
						454.0	740
							456.8
							6,020

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	87	216	1,080	1,100	4,470	1,560	1,260	636	749	566	148	104
2	86	196	1,560	896	4,440	1,450	1,300	668	803	510	140	102
3	85	176	1,240	753	4,440	1,850	1,130	628	848	489	138	104
4	111	168	1,030	677	4,470	4,250	990	652	940	440	138	106
5	263	159	1,020	605	502	6,020	920	732	920	428	135	104
6	224	153	869	788	770	4,130	875	767	794	392	135	102
7	193	147	744	770	702	2,510	857	724	740	364	133	100
8	156	172	653	621	1,020	1,800	876	749	330	130	100	
9	172	390	613	552	842	1,390	821	644	715	374	126	98
10	224	402	545	797	770	1,140	740	636	758	310	124	96
11	254	1,180	474	677	736	970	708	692	812	275	121	96
12	286	2,410	460	538	762	866	1,450	940	812	262	119	98
13	240	1,430	495	481	1,380	812	1,610	1,080	716	254	119	98
14	208	959	488	467	1,420	749	1,280	1,020	680	241	117	98
15	190	677	474	441	2,490	708	1,260	950	620	232	130	96
16	172	538	481	379	2,750	1,230	1,560	866	684	224	138	98
17	156	441	568	333	1,910	2,880	1,990	839	821	209	121	98
18	144	384	590	409	1,500	2,420	1,550	830	749	202	117	96
19	138	338	474	1,310	1,410	1,970	1,240	716	767	228	114	96
20	130	302	422	4,370	1,210	1,540	1,130	660	812	209	112	96
21	125	277	441	4,370	1,060	1,290	1,040	668	740	194	110	96
22	121	296	753	3,890	1,100	1,280	970	724	678	184	114	96
23	116	523	1,560	2,750	1,560	1,130	857	754	732	178	108	94
24	111	1,500	1,850	1,790	5,870	1,060	758	676	684	172	159	100
25	109	1,360	1,430	1,330	5,150	940	716	676	580	168	130	175
26	111	1,850	1,210	1,140	4,130	884	652	794	524	162	119	254
27	116	4,750	1,850	941	2,750	902	708	911	538	162	117	154
28	726	2,410	2,750	806	1,980	857	767	857	580	209	114	124
29	447	1,560	2,110	694	-	785	620	776	628	205	112	119
30	317	1,290	1,620	621	-	830	580	724	604	172	108	114
31	249	-	1,320	4,540	-	839	-	692	-	159	106	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	6,087	726	85	198	1.66	1.91	12,030
November	26,654	4,750	147	888	7.53	8.40	52,870
December	31,174	2,750	422	1,006	8.53	9.83	61,830
Calendar year 1949	213,279	4,750	85	584	4.95	67.23	423,000
January	35,836	4,370	333	1,156	9.80	11.29	71,080
February	45,594	5,870	440	1,628	13.8	14.37	90,430
March	51,042	6,020	708	1,647	14.0	16.09	101,200
April	31,087	1,990	580	1,036	8.78	9.80	61,680
May	23,578	1,080	628	761	6.45	7.43	46,770
June	21,756	940	524	725	6.14	6.86	43,150
July	8,504	566	159	274	2.32	2.68	16,870
August	3,932	188	106	127	1.08	1.24	7,800
September	3,312	254	94	110	.932	1.04	6,570
Water year 1949-50	288,536	6,020	85	791	6.70	90.94	572,300

Peak discharge (base, 4,200 sec.-ft.),--Nov. 27 (8 a.m.) 6,650 sec.-ft.; Jan. 21 (1 to 3 a.m.) 4,620 sec.-ft.; Feb. 24 (8 a.m.) 7,150 sec.-ft.; Mar. 5 (3 p.m.) 7,670 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations on nearby streams.

Silver Lake at Silver Lake, Wash.

Location.--Staff gage, lat. 46°17'15", long. 122°48'30", in NW¼ sec. 4, T. 9 N., R. 1 W., at Silver Lake and 5 miles east of Castle Rock.

Records available.--July 1949 to September 1950 (fragmentary), discontinued.

Extremes.--Maximum gage height observed during period, 5.80 feet Jan. 31; minimum observed, 0.18 foot Sept. 22, 1950.

Remarks.--Gage read once daily about twice weekly.

Gage height, in feet, 1949-50
1949

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	-	-	-	11	-	-	-	21	1.43	-	-
2	-	1.36	-	12	-	1.27	-	22	-	-	.96
3	-	-	1.06	13	-	-	.80	23	-	1.18	-
4	-	-	-	14	-	-	-	24	-	-	-
5	-	1.31	-	15	-	-	-	25	-	-	-
6	-	-	1.00	16	-	1.23	.70	26	1.42	1.14	-
7	-	-	-	17	-	-	-	27	-	-	-
8	-	-	.98	18	-	-	-	28	-	-	-
9	-	1.29	-	19	-	1.20	-	29	1.40	-	-
10	-	-	-	20	-	-	-	30	-	-	-
								31	-	1.08	-

1949-50

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	1.07	-	-	-	-	-	2.80	-	1.08	-	0.38
2	-	-	2.98	-	-	-	-	-	1.64	-	-	-
3	-	-	3.02	4.55	4.00	5.18	-	-	-	-	.60	-
4	-	1.04	-	-	-	-	3.60	2.70	-	.80	.60	-
5	.91	-	-	-	-	-	-	-	-	-	-	.34
6	-	-	3.10	4.46	-	-	-	-	1.50	-	-	-
7	.99	-	-	-	3.92	5.09	3.80	-	-	.70	-	-
8	-	1.06	-	-	-	-	-	-	1.46	-	.58	.30
9	-	-	3.06	-	-	-	-	2.50	1.40	-	-	-
10	-	-	-	4.54	4.35	4.80	-	-	-	-	-	-
11	.99	1.28	-	-	-	-	3.43	-	-	.80	.56	-
12	-	-	-	-	-	-	-	2.40	-	-	-	-
13	-	-	2.94	4.50	-	-	-	-	1.30	-	-	-
14	.99	-	-	-	4.58	4.40	3.60	-	-	.78	-	.24
15	-	1.35	-	-	-	-	-	-	-	-	.50	-
16	-	-	2.90	-	-	-	-	2.20	1.20	-	-	-
17	-	-	-	4.47	4.50	4.20	-	-	-	-	-	-
18	.96	1.34	-	-	-	-	3.70	-	-	.74	.48	-
19	-	-	-	-	-	-	-	2.11	-	-	-	.20
20	-	-	2.96	4.44	-	-	-	-	1.19	-	-	-
21	.95	-	-	-	4.30	4.00	3.50	-	-	.73	-	-
22	-	1.40	-	-	-	-	-	-	1.16	-	.40	.18
23	-	-	3.32	-	-	-	-	2.00	1.19	-	-	-
24	-	-	-	4.58	5.14	3.89	-	-	-	-	-	-
25	.88	1.96	-	-	-	-	3.20	-	-	.68	.46	-
26	-	-	-	-	-	-	-	1.94	-	-	-	.26
27	-	-	3.84	5.58	-	-	-	-	1.13	-	-	-
28	1.00	-	-	-	5.16	3.86	3.20	-	-	.68	-	-
29	-	2.80	-	-	-	-	-	-	-	-	.40	.28
30	-	-	4.70	-	-	-	-	1.70	1.10	-	-	-
31	-	-	-	5.80	-	3.70	-	-	-	-	-	-

Arkansas Creek near Castle Rock, Wash.

Location.--Water-stage recorder, lat. 46°15'50", long. 122°58'00", in W $\frac{1}{2}$ sec. 17, T. 9 N., R. 2 W., 3 miles upstream from mouth and 3 miles west of Castle Rock.

Drainage area.--19.4 square miles.

Records available.--May 1949 to September 1950.

Extremes.--Maximum discharge during year, 1,790 second-feet Feb. 24 (gage height, 5.77 feet); minimum, 2.5 second-feet Sept. 8, 9.

1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, that of Sept. 8, 9, 1950.

Remarks.--Records good except those for periods of no gage-height record or shifting control, which are fair. Some diversion for domestic use. No regulation.

Rating tables, water year 1949-50, except periods of shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 17

Apr. 18 to Sept. 30

1.3	2.9	2.3	61	3.6	400	0.8	2.7	1.7	40	2.6	156
1.5	7.1	2.6	101	4.0	590	1.0	5.7	2.0	65	2.9	216
1.7	13.5	2.9	158	4.5	860	1.3	15	2.3	104	3.1	264
2.0	31	3.2	237	5.2	1,300						

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.0	19	174	244	150	244	143	86	22	10.	6.8	3.2
2	4.0	16	225	189	145	228	163	84	21	10	6.1	3.1
3	4.0	15	202	158	140	490	156	77	20	9.7	5.7	3.2
4	9.2	14	170	139	135	778	143	76	19	10	5.5	3.6
5	22	13	191	120	135	615	129	84	19	9.7	5.3	3.3
6	23	12.5	165	194	140	472	116	77	19	9.4	5.3	3.1
7	13.5	12.5	145	194	155	350	103	75	22	9.4	5.5	2.8
8	9.5	16	126	156	170	264	122	72	21	9.7	5.1	2.6
9	25	18	115	133	154	231	110	67	19	10.5	4.8	2.6
10	20	26	100	181	152	202	96	65	19	10	4.8	2.9
11	25	58	89	154	167	172	90	61	17	9.7	4.6	3.1
12	20	179	89	128	231	150	129	59	17	9.1	4.5	2.7
13	15	133	95	111	468	131	118	55	17.5	8.8	4.3	2.8
14	12.5	116	88	115	422	122	110	53	17	8.8	5.7	2.8
15	11	85	85	120	481	113	194	50	16.5	8.8	7.7	2.7
16	10	69	83	130	495	282	283	46	14.5	9.1	7.0	2.8
17	9.5	57	126	150	409	575	302	44	16.5	8.5	5.7	2.8
18	9.2	48	145	170	324	440	252	43	16	8.0	5.1	2.8
19	8.3	42	120	200	287	364	212	41	14	8.8	4.8	2.9
20	8.3	37	104	290	244	283	185	39	13.5	8.5	4.5	2.9
21	8.0	34	106	440	207	231	162	36	13.5	7.5	4.1	2.8
22	8.0	38	197	525	197	216	145	35	18	7.2	4.6	2.7
23	8.0	79	436	440	561	186	131	33	21	7.2	8.0	2.7
24	8.0	165	427	300	1,240	170	116	32	18.5	7.0	8.8	4.8
25	7.4	181	368	260	832	148	104	30	14.5	7.0	6.5	12
26	8.0	356	342	230	630	141	95	28	13.5	7.0	5.3	19
27	9.2	694	850	210	436	165	109	27	12	7.2	4.6	8.3
28	90	368	911	190	314	154	98	27	12	14.5	4.0	6.1
29	42	244	550	170	-	143	85	27	10.5	13.0	3.7	5.1
30	28	199	378	160	-	133	80	25	10.5	9.1	3.6	4.5
31	22	-	306	155	-	126	-	23	-	7.7	3.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	501.6	90	4.0	16.2	0.835	0.96	995
November	3,344	694	12.5	111	5.72	6.41	6,630
December	7,508	911	83	242	12.5	14.39	14,890
Calendar year	-	-	-	-	-	-	-
January	6,356	525	111	205	10.6	12.18	12,610
February	9,421	1,240	135	336	17.3	18.06	18,590
March	8,299	778	113	268	13.8	15.91	16,460
April	4,281	302	80	143	7.37	8.21	8,490
May	1,577	86	23	50.9	2.62	3.02	3,130
June	504.5	22	10.5	16.8	.866	.97	1,000
July	280.9	14.5	7.0	9.06	.467	.54	557
August	165.3	8.8	3.3	5.33	.275	.32	328
September	126.7	19	2.6	4.22	.218	.24	251
Water year 1949-50	42,365.0	1,240	2.6	116	5.98	81.21	84,030

Peak discharge (base, 1,000 sec.-ft.)--Nov. 27 (4 a.m.) 1,040 sec.-ft.; Dec. 27 (9 to 10 p.m.) 1,400 sec.-ft.; Feb. 24 (2:30 a.m.) 1,790 sec.-ft.

Note.--No gage-height record Jan. 14 to Feb. 8; discharge computed on basis of 1 discharge measurement, recorded range in stage, and records for stations on nearby streams. Shifting-control method used Dec. 27 to Jan. 8, Feb. 23 to Apr. 17, July 29 to Sept. 13.

Coweman River near Kelso, Wash.

Location.--Water-stage recorder, lat. $46^{\circ}07'40''$, long. $122^{\circ}50'10''$, in $S\frac{1}{2}$ sec. 32, T. 8 N., R. 1 W., 3.8 miles southeast of Kelso.

Drainage area.--119 square miles.

Records available.--July to September 1950.

Extremes.--Maximum discharge during period, 169 second-feet Aug. 23 (gage height, 4.77 feet); minimum, 25 second-feet Sept. 22 (gage height, 3.82 feet).

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. No known diversion or regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										a86	48	32
2										a82	44	31
3										a80	42	32
4										a78	42	34
5										a76	42	33
6												
7										a74	46	31
8										a72	46	29
9										a69	42	29
10										a80	40	28
										a75	39	29
11												
12										a68	38	30
13										a61	37	29
14										h59	36	28
15										h57	37	30
										a56	44	29
16												
17										a55	50	30
18										h54	40	29
19										h49	36	28
20										h63	35	28
										h63	35	30
21										h52	31	28
22										a50	38	27
23										a49	123	27
24										h47	86	32
25										h44	55	97
26												
27										a46	44	129
28										48	39	63
29										81	38	46
30										84	36	40
31										60	34	37
										52	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October							
November							
December							
Calendar year							
January	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-
July	1,970	86	44	63.5	0.534	0.62	3,910
August	1,373	123	31	44.3	.372	.43	2,720
September	1,125	129	27	37.5	.315	.35	2,230
The period	-	-	-	-	-	-	8,860

a No gage-height record; discharge computed on basis of records for stations on nearby streams.
h Computed from twice-daily staff-gage readings.

Abernethy Creek near Longview, Wash.

Location.--Water-stage recorder, lat. 46°12'10", long. 123°09'15", in SE $\frac{1}{4}$ sec. 3, T. 8 N., R. 4 W., 1 mile upstream from mouth and 11 miles northwest of Longview.

Drainage area.--20.3 square miles.

Records available.--April 1949 to September 1950.

Extremes.--Maximum discharge during year, 2,700 second-feet Feb. 24 (gage height, 6.66 feet), from rating curve extended above 650 second-feet; minimum, 5.7 second-feet Sept. 9.

1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, 5.5 second-feet Sept. 4, 14, 1949 (gage height, 0.94 foot).

Remarks.--Records fair. Some diversion for domestic use. No regulation.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 26 to Sept. 30)

Oct. 1 to Dec. 27

Dec. 28 to Sept. 30

1.0	6.9	1.8	54	3.0	285	1.1	6.0	2.3	117	4.5	890
1.2	13.5	2.1	96	3.5	445	1.3	14	2.6	172	5.0	1,210
1.4	23	2.4	150	4.0	635	1.5	26	3.0	272	5.7	1,760
1.6	36	2.7	213	4.5	890	1.7	41	3.5	432		
						2.0	74	4.0	632		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5	30	227	255	a84	308	206	91	30	17	11.5	8.4
2	7.2	28	*275	208	a75	339	236	86	30	15.5	10	8.4
3	7.2	25	246	176	a70	749	223	78	28	15.5	10	7.8
4	16.5	24	215	150	a80	980	201	79	27	15.5	9.5	8.1
5	37	22	231	129	a80	727	183	84	27	15	10	8.1
6	42	22	204	150	a90	506	164	78	28	15	10.5	7.8
7	27	21	180	136	103	375	147	74	31	14.5	10.5	6.7
8	18.5	24	156	126	152	318	174	69	29	15	9.5	6.4
9	71	30	148	117	145	275	154	67	26	16	8.8	6.0
10	45	38	131	143	148	241	139	64	26	14.5	8.8	7.0
11	56	85	113	131	176	201	132	62	24	13.5	8.8	7.0
12	42	294	111	115	236	176	156	59	25	12.5	8.8	6.4
13	32	215	122	b100	425	164	138	56	25	12	8.8	6.7
14	26	162	113	b93	*585	156	134	54	24	12	9.2	7.0
15	22	118	111	b85	472	154	266	51	23	12	17.5	6.7
16	20	94	110	*b77	468	321	296	50	21	12	14	6.7
17	18.5	77	162	b70	391	506	290	54	27	11	10.5	7.0
18	17	65	168	a65	339	429	250	54	24	11.5	9.2	6.7
19	16	58	142	126	311	378	206	49	21	15	8.8	7.4
20	15.5	50	131	266	275	324	176	46	21	13	8.1	7.0
21	14.5	45	133	339	250	290	150	44	20	11	7.8	6.4
22	14.5	55	232	418	289	269	138	43	27	10.5	10.5	6.0
23	13.5	125	462	385	886	244	124	40	35	10.5	23	6.4
24	13	268	480	297	1,750	228	109	39	27	10	28	11.5
25	13	262	420	b215	1,100	201	101	38	23	10	17.5	25
26	14.5	504	410	b180	753	190	94	36	22	10	12.5	35
27	16	734	885	b150	528	234	112	35	21	10.5	11.5	17
28	142	414	1,000	a135	372	221	97	35	19	24	10.5	12
29	60	291	567	a120	-	196	88	35	18.5	23	9.5	10.5
30	42	246	388	a105	-	179	84	34	18	15	8.8	9.5
31	35	-	311	a92	-	174	-	32	-	12.5	8.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	921.9	142	7.2	29.7	1.46	1.69	1,830
November	4,426	734	27	148	7.29	8.11	8,790
December	8,614	1,000	110	278	13.7	15.78	17,090
Calendar year	-	-	-	-	-	-	-
January	5,144	418	65	166	8.18	9.42	10,200
February	10,411	1,750	70	372	18.3	19.07	20,650
March	10,053	980	154	324	16.0	18.42	19,940
April	4,968	295	84	166	8.18	9.10	9,850
May	1,716	91	32	55.4	2.73	3.14	3,400
June	747.5	35	18	24.9	1.23	1.37	1,480
July	425	24	10	13.7	.675	.78	843
August	350.8	28	7.8	11.3	.557	.64	696
September	282.6	35	6.0	9.42	.464	.52	561
Water year 1949-50	48,059.8	1,750	6.0	132	6.50	88.04	95,320

Peak discharge (base, 1,100 sec.-ft.).--Dec. 27 (11 p.m.) 1,510 sec.-ft.; Feb. 24 (2:30 a.m.) 2,700 sec.-ft.; Mar. 4 (3 a.m.) 1,140 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for stations on nearby streams.

b Stage-discharge relation affected by ice.

Clatskanie River near Clatskanie, Oreg.

Location.--Water-stage recorder, lat. 46°03', long. 123°07', in sec. 36, T. 7 N., R. 4 W., 2 miles downstream from Carcus Creek and 5½ miles southeast of Clatskanie.

Drainage area.--52 square miles.

Records available.--August 1949 to September 1950.

Extremes.--Maximum discharge during year, 2,000 second-feet Feb. 24 (gage height, 5.29 feet); minimum, 5.4 second-feet Sept. 22, 23.

1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, that of Sept. 22, 23, 1950.

Remarks.--Records excellent except those for periods of backwater from debris, which are good. No diversion above station; occasional slight regulation by log ponds.

Rating tables, water year 1949-50, except periods of backwater from debris (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 24

Feb. 25 to Sept. 30

0.4	7.0	0.9	54	2.5	500	0.3	3.0	1.0	60	3.0	610
.5	12	1.0	69	3.0	700	.4	6.4	1.2	88	3.5	850
.6	20	1.3	125	4.0	1,200	.5	12	1.5	140	4.7	1,570
.7	30	1.6	195	5.0	1,800	.6	18	1.9	235		
.8	41	2.0	315			.8	36	2.5	420		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	9.8	154	346	103	410	242	70	23	12	7.5	7.5
2	7.0	9.2	182	276	84	335	235	70	22	11	6.9	6.9
3	7.0	8.6	170	217	90	335	230	65	20	11	6.9	7.5
4	11	8.6	156	185	111	578	222	63	20	11	6.9	7.5
5	17	8.1	154	154	103	685	212	63	19	12	6.4	7.5
6	18	8.1	138	332	158	562	188	59	18	11	6.9	6.9
7	16	8.6	123	568	190	444	158	55	23	11	7.5	6.4
8	12	9.2	109	452	436	374	245	52	22	12	7.5	6.4
9	13	11	107	354	456	311	323	51	20	13	6.9	6.1
10	15	12	101	432	399	260	305	51	20	12	6.4	6.1
11	15	17	83	392	368	218	269	50	19	12	6.4	6.4
12	15	41	78	308	448	182	275	47	18	11	6.4	6.4
13	12	30	79	251	770	165	240	45	19	11	6.1	6.4
14	11	23	84	198	800	154	220	44	19	10	6.4	6.1
15	9.8	19	97	161	1,010	144	208	42	19	10	6.4	5.7
16	9.8	16	115	134	920	144	190	40	18	10	6.4	6.1
17	9.2	14	204	113	760	228	170	43	18	10	6.4	5.7
18	9.8	13	332	96	648	287	148	44	18	10	6.1	5.7
19	10	12	276	177	612	329	134	39	18	11	6.1	5.7
20	9.2	11	222	388	520	317	119	37	17	10	5.7	6.1
21	8.6	10	192	544	410	284	109	35	16	9.6	6.1	5.7
22	8.6	12	225	705	368	287	102	35	16	9.0	8.5	5.7
23	8.6	39	463	700	656	296	99	32	20	9.0	14	5.7
24	8.6	92	656	552	1,790	332	85	30	21	9.0	12	6.9
25	9.2	72	592	413	1,550	314	78	29	20	9.0	10	11
26	8.1	87	580	329	1,080	281	76	27	18	8.0	9.0	14
27	8.6	236	572	257	720	296	82	26	16	8.0	8.5	9.6
28	25	245	548	203	528	326	80	26	15	12	8.0	7.5
29	18	200	492	165	-	326	70	25	14	12	7.5	6.4
30	12	178	415	138	-	302	66	24	12	9.6	7.5	6.4
31	11	-	402	105	-	266	-	24	-	8.5	6.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	360.1	25	7.0	11.6	0.223	0.26	714
November	1,480.2	245	8.1	48.7	0.937	1.04	2,800
December	8,099	656	78	261	5.02	5.79	16,060
Calendar year	-	-	-	-	-	-	-
January	9,645	705	96	311	5.98	6.90	19,130
February	16,086	1,790	84	574	11.0	11.50	31,910
March	9,772	685	144	315	6.06	6.99	19,380
April	5,180	323	66	173	3.33	3.70	10,270
May	1,543	70	24	43.3	.933	.96	2,660
June	558	23	12	18.6	.356	.40	1,110
July	324.7	13	8.0	10.5	.202	.23	644
August	230.2	14	5.7	7.43	.143	.16	457
September	208.0	14	5.7	6.93	.133	.15	413
Water year 1949-50	53,266.2	1,790	5.7	146	2.81	38.08	105,600

Peak discharge (base, 700 sec.-ft.)--Jan. 22 (10 p.m.) 795 sec.-ft.; Feb. 15 (8 p.m.) 1,110 sec.-ft.; Feb. 24 (7:30 a.m.) 2,000 sec.-ft.; Mar. 5 (4:30 a.m.) 725 sec.-ft.

Note.--Backwater from debris Oct. 1 to Nov. 23, June 6-8, July 27 to Aug. 3, Aug. 5 to Sept. 30.

Mill Creek near Cathlamet, Wash.

Location.--Water-stage recorder, lat. 46°11'40", long. 123°11'25", in NW¹ sec. 9, T. 8 N., R. 4 W., three-quarters of a mile upstream from mouth and 9½ miles east of Cathlamet.

Drainage area.--27.6 square miles.

Records available.--June 1949 to September 1950.

Extremes.--Maximum discharge during year, 4,460 second-feet Feb. 24 (gage height, 6.23 feet); minimum, 5.8 second-feet Sept. 22, 23 (gage height, 1.24 feet).
1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, that of Sept. 22, 23, 1950.

Remarks.--Records good except those for periods of shifting control, which are fair, and those for periods of no gage-height record, which are poor. No diversion or regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	22	202	300	120	388	211	94	33	17	12	7.1
2	7.7	21	238	250	95	380	247	90	32	16.5	10.5	7.1
3	7.7	20	205	210	80	614	241	82	30	15.5	9.9	7.1
4	19	19	183	170	84	1,030	217	82	29	15.5	9.6	7.4
5	48	18.5	214	150	86	853	199	87	28	15	9.9	7.1
6	46	18	188	175	98	614	172	82	31	14.5	10.5	6.8
7	29	18	163	160	110	453	158	76	35	14	9.9	6.5
8	19.5	24	142	145	205	367	188	73	35	14	9.6	6.2
9	64	30	144	135	185	318	160	71	32	16	8.9	6.2
10	48	33	122	160	188	282	148	69	30	15	8.6	6.5
11	47	67	105	145	232	241	137	67	29	14	8.6	6.8
12	39	170	105	130	290	214	151	65	28	13	8.3	6.5
13	30	130	112	110	470	197	130	62	28	12.5	8.3	6.8
14	25	110	103	100	453	188	122	60	27	12	6.9	6.8
15	22	81	103	90	554	183	188	57	26	12	11.5	6.5
16	19	67	105	84	566	296	197	54	24	12	12	6.8
17	17.5	57	183	78	480	480	194	59	31	12	9.9	6.8
18	18.5	50	197	72	420	442	172	60	29	12.5	8.6	6.5
19	15.5	44	160	151	416	380	158	53	26	16.5	8.3	6.8
20	15.5	40	146	241	355	332	144	50	24	13.5	8.0	6.8
21	14.5	37	151	296	321	293	128	48	23	12	7.4	6.5
22	14.5	47	250	436	332	280	128	47	30	12	9.9	5.8
23	14.5	105	497	480	1,260	250	120	44	38	11.5	18.5	6.2
24	14	265	440	347	3,070	229	107	42	31	11	20	11.5
25	14	226	400	279	1,750	211	102	40	25	10.5	14.5	22
26	15	351	380	250	1,190	202	98	40	22	10.5	11.5	38
27	17	602	720	214	748	238	110	39	22	11	9.9	19
28	70	363	900	165	524	235	100	38	21	24	8.9	12.5
29	45	265	740	165	-	217	93	37	19	25	8.3	10.5
30	30	226	560	151	-	202	88	36	18.5	17	8.0	9.6
31	25	-	360	130	-	197	-	35	-	13.5	7.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	817.4	70	7.7	26.4	0.957	1.10	1,620
November	3,526.5	602	18	118	4.28	4.75	6,990
December	8,518	900	103	275	9.96	11.48	16,900
Calendar year	-	-	-	-	-	-	-
January	5,989	480	72	193	6.99	8.07	11,880
February	14,682	3,070	60	524	19.0	19.78	29,120
March	10,806	1,030	183	349	12.6	14.56	21,430
April	4,606	247	88	154	5.58	6.21	9,140
May	1,839	94	35	59.3	2.15	2.48	3,650
June	836.5	38	18.5	27.9	1.01	1.13	1,660
July	441	25	10.5	14.2	.514	.59	875
August	316.4	20	7.4	10.2	.370	.43	628
September	276.7	38	5.8	9.22	.334	.37	549
Water year 1949-50	52,654.5	3,070	5.8	144	5.22	70.95	104,400

Peak discharge (base, 1,000 sec.-ft.)--Feb. 24 (2:30 a.m.) 4,460 sec.-ft.; Mar. 4 (10:30 a.m.) 1,140 sec.-ft.

Note.--No gage-height record Nov. 2-8, Dec. 24 to Jan. 15, Jan. 17, 18, Jan. 31 to Feb. 7, Mar. 22, 23, Apr. 26 to May 10, June 13-25; discharge computed on basis of recorded range in stage, weather records, and records for stations on nearby streams. Shifting-control method used Oct. 1 to Nov. 1, Nov. 9 to Dec. 23, Jan. 16, 19-30, Feb. 8-23.

Elokomin River near Cathlamet, Wash.

Location.--Water-stage recorder, lat. 46°13'10", long. 123°20'30", in SE $\frac{1}{4}$ sec. 31, T. 9 N., R. 5 W., 2 miles northeast of Cathlamet and 4 miles upstream from mouth. Datum of gage is 29.60 feet above mean sea level, datum of 1929.

Drainage area.--66 square miles.

Records available.--October 1940 to September 1950.

Average discharge.--10 years, 353 second-feet.

Extremes.--Maximum discharge during year, 7,020 second-feet Feb. 24 (gage height, 12.51 feet), from rating curve extended above 1,700 second-feet on basis of slope-area determination at gage height 12.66 feet; minimum, 25 second-feet Sept. 15, 22.
1940-50: Maximum discharge, 7,300 second-feet Feb. 17, 1949 (gage height, 12.66 feet), from rating curve extended above 2,000 second-feet on basis of slope-area determination of peak flow; minimum, 24 second-feet Aug. 21, 22, Sept. 2, 3, 1945, Sept. 13, 14, 1949.

Maximum stage known, 17.2 feet in December 1933, from information by local residents.

Remarks.--Records excellent. Some diversions for irrigation. No regulation.

Revisions (water years).--W 1154: 1948.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Nov. 26 to Apr. 17, Sept. 15-30)

Oct. 1 to Feb. 23

Feb. 24 to Sept. 30

2.0	17	3.5	325	6.0	1,420	1.9	26	3.4	396	6.0	1,820
2.2	41	4.0	485	7.0	2,050	2.1	46	3.7	515	7.0	2,520
2.5	89	4.5	670	9.0	3,630	2.3	79	4.0	655	9.0	4,080
2.8	149	5.0	890			2.5	122	4.5	910	10.2	5,130
3.1	218	5.5	1,140			2.8	197	5.0	1,190		
						3.1	288	5.5	1,490		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	164	868	890	334	1,020	730	344	104	56	46	41
2	27	147	1,230	710	310	1,100	882	319	100	54	44	40
3	27	132	915	593	296	2,400	780	288	94	52	42	39
4	52	122	731	520	308	3,360	655	295	90	52	41	40
5	156	114	774	468	308	2,590	587	329	90	50	41	39
6	182	108	670	631	386	1,820	511	305	94	49	41	38
7	118	102	574	574	402	1,310	447	285	100	49	42	37
8	82	122	502	485	796	1,050	511	269	98	49	40	35
9	256	164	468	451	690	910	443	256	87	54	38	33
10	208	220	418	593	670	805	368	244	85	50	37	34
11	223	504	367	485	774	680	358	232	83	49	37	34
12	185	1,590	364	418	940	596	443	220	81	48	36	33
13	145	1,160	374	367	1,910	542	400	212	85	46	35	34
14	120	751	349	331	1,600	507	377	200	79	46	34	
15	108	520	349	305	1,980	507	1,080	189	77	46	104	32
16	93	402	349	277	1,910	1,190	1,190	184	75	46	90	31
17	85	337	520	259	1,540	2,100	1,100	203	107	45	60	31
18	78	288	538	251	1,280	1,640	882	212	83	45	50	29
19	73	253	451	731	1,140	1,550	730	181	75	54	46	30
20	69	226	402	1,420	940	1,250	615	170	70	49	44	29
21	66	206	434	1,720	842	1,020	524	162	68	44	42	27
22	65	251	978	2,120	940	958	491	158	90	43	42	26
23	63	583	1,770	1,780	2,635	855	447	145	122	43	70	26
24	60	1,260	1,660	1,170	5,050	805	368	158	94	42	118	43
25	58	1,120	1,500	842	3,480	705	358	129	79	41	77	96
26	60	2,240	1,330	710	2,580	680	333	129	74	40	60	138
27	66	3,380	2,750	593	1,820	855	419	131	70	41	52	55
28	790	1,380	3,180	502	1,310	830	362	143	66	94	48	38
29	358	1,230	2,050	451	-	705	325	154	61	122	45	33
30	243	965	1,450	402	-	615	308	118	58	65	44	29
31	194	-	1,140	361	-	592	-	109	-	52	42	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	4,338	790	27	140	2.12	2.44	8,600
November	20,471	3,380	102	582	10.3	11.54	40,600
December	29,453	3,180	349	950	14.4	16.60	56,420
Calendar year 1949	129,063	4,680	25	354	5.36	72.74	256,000
January	21,410	2,120	251	691	10.5	12.06	42,470
February	37,268	5,050	296	1,331	20.2	21.00	73,920
March	35,527	3,580	507	1,146	17.4	20.02	70,470
April	17,045	1,190	308	588	8.61	9.60	33,810
May	6,433	344	109	208	3.15	3.62	12,760
June	2,437	122	58	64.6	1.28	1.43	5,030
July	1,616	122	40	52.1	.789	.91	3,210
August	1,591	118	35	51.3	.777	.90	3,160
September	1,204	138	26	40.1	.608	.88	2,390
Water year 1949-50	178,891	5,050	26	490	7.42	100.80	354,800

Peak discharge (base, 3,600 sec.-ft.)--Nov. 27 (4:30 a.m.) 4,820 sec.-ft.; Dec. 27 (11:30 p.m.) 4,620 sec.-ft.; Feb. 24 (3 a.m.) 7,020 sec.-ft.; Mar. 4 (5 a.m.) 3,920 sec.-ft.

SKAMOKAWA CREEK BASIN

Skamokawa Creek near Skamokawa, Wash.

Location.--Water-stage recorder, lat. 46°18'00", long. 123°26'30", on line between sec. 32, T. 10 N., R. 6 W., and sec. 5, T. 9 N., R. 6 W., three-quarters of a mile upstream from Wilson Creek and 2 miles north of Skamokawa.

Drainage area.--17.4 square miles.

Records available.--March 1949 to October 1950 (discontinued).

Extremes.--Maximum discharge during period October 1949 to October 1950, 2,400 second-feet Feb. 24 (gauge height, 8.06 feet); minimum, 5.4 second-feet Oct. 2, 3, 1949.

1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, 4.5 second-feet Sept. 12-14, 1949.

Remarks.--Records good except those for periods of shifting control, which are fair, and those for periods of no gage-height record, which are poor. Some diversion for domestic use. No regulation.

Rating table, Oct. 9, 1949, to Oct. 26, 1950, except periods of shifting control (gage height, in feet, and discharge, in second-feet)

0.8	6.3	1.2	26	2.0	102	3.0	264	4.5	650	6.0	1,190
.9	10	1.4	40	2.3	142	3.5	378	5.0	810	6.7	1,500
1.0	15	1.7	68	2.6	190	4.0	508	5.5	990		

Discharge, in second-feet, 1949-50

1949-50

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.7	45	342	256	a100	296	201	84	27	13	13	13.5
2	5.4	41	428	207	a90	342	214	80	25	13	11	13
3	5.4	38	307	176	a80	786	197	71	24	12	10	13
4	15.5	35	242	154	a90	915	173	77	22	11.5	9.8	13
5	46	34	225	141	a100	695	157	89	22	11.5	9.8	12.5
6	52	32	188	207	136	494	141	90	21	11	10	11.5
7	34	31	160	192	146	358	125	86	24	11	10	10.5
8	25	42	139	173	299	296	146	79	24	12	9.4	10
9	108	54	135	157	274	274	131	72	20	13.5	8.6	9.8
10	78	74	122	209	252	246	116	67	19.5	11.5	8.2	9.8
11	82	232	108	185	260	216	110	62	18.5	11	7.9	9.4
12	67	a750	108	157	296	194	136	58	17.5	10	7.5	9.4
13	55	a300	111	141	680	176	120	54	18.5	9.4	7.5	9.4
14	47	a170	102	a120	536	165	132	52	17.5	9.4	8.6	9.4
15	42	a140	105	a110	620	162	404	47	17	9.4	52	9.0
16	38	a110	110	a96	620	425	356	46	16.5	9.4	30	9.0
17	35	a85	160	a87	494	635	296	52	21	9.0	20	9.0
18	32	a68	156	a80	415	480	233	52	18.5	9.0	16	8.6
19	30	a60	134	320	356	415	187	46	16.5	13	14	8.6
20	29	a55	124	564	318	330	153	42	16	11	13	8.2
21	27	a50	139	650	307	274	132	39	16	9.0	11.5	7.9
22	26	a100	274	606	330	258	120	38	22	8.6	13	7.1
23	25	234	454	494	925	227	110	35	30	8.2	31	7.1
24	25	378	390	354	1,480	214	96	34	27	7.9	45	14
25	24	356	428	264	1,070	190	87	32	22	7.5	34	35
26	25	873	356	227	740	195	81	30	19.5	7.5	25	46
27	32	845	731	188	508	238	95	31	18.5	8.2	22	25
28	138	522	757	162	378	221	83	30	16.5	39	19.5	19
29	82	390	536	144	-	194	76	31	15.5	35	17.5	16
30	62	318	402	a125	-	169	70	30	14	20	16.5	14
31	52	-	318	a110	-	173	-	28	-	15.5	15	-

Peak discharge (base, 1.150 sec.-ft.).--Nov. 12 (time unknown) 1,270 sec.-ft.; Nov. 27 (3 a.m.) 1,190 sec.-ft.; Dec. 27 (9:30 p.m.) 1,270 sec.-ft.; Feb. 24 (1 a.m.) 2,400 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations on nearby streams.

Note.--Shifting-control method used Oct. 5-9, Jan. 20 to Mar. 1.

1950

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Oct. 1	13.5	Oct. 7	157	Oct. 13	127	Oct. 19	185
2	12	8	124	14	112	20	159
3	16.5	9	101	15	91	21	127
4	20	10	f526	16	80	22	107
5	60	11	264	17	75	23	94
6	97	12	168	18	134	24	84
						25	96

Monthly discharge, in second-feet, 1949-50

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October 1949	1,350.0	138	5.4	43.5	2.50	2.89	2,680
November	6,462	873	31	215	12.4	15.81	12,820
December	8,291	757	102	267	15.3	17.72	16,440
Calendar year	-	-	-	-	-	-	-
January 1950	7,056	650	80	228	13.1	15.08	14,000
February	11,900	1,490	80	425	24.4	25.43	23,600
March	10,251	915	162	331	19.0	21.91	20,330
April	4,678	404	70	156	8.97	10.00	9,280
May	1,664	90	28	53.7	3.09	3.56	3,300
June	607	30	14	20.2	1.16	1.30	1,200
July	387.0	39	7.5	12.5	.718	.83	768
August	526.3	52	7.5	17.0	.977	1.12	1,040
September	397.7	46	7.1	13.3	.764	.85	789
Water year 1949-50	53,570.0	1,480	5.4	147	8.45	114.50	106,200
October 1-25, 1950	3,030	526	12	121	6.95	6.48	6,010

Big Creek near Knappa, Oreg.

Location.--Water-stage recorder, lat. 46°09', long. 123°35', in NW¹ sec. 29, T. 8 N., R. 7 W., 0.3 mile downstream from fish hatchery and 2½ miles south of Knappa.

Drainage area.--31.9 square miles.

Records available.--August 1949 to September 1950.

Extremes.--Maximum discharge during year, 2,130 second-feet Feb. 24 (gage height, 4.01 feet); minimum, 18 second-feet Oct. 2 (gage height, 0.41 foot).
1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, 14 second-feet Aug. 12, 1949 (gage height, 0.36 foot).

Remarks.--Records good. Occasional slight regulation from fish hatchery above station.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)

Oct. 1 to Nov. 27

Nov. 28 to Sept. 30

0.4	17	1.1	172	0.3	17	0.7	74	1.8	455
.5	28	1.5	310	.4	27	.9	119	2.2	670
.6	43	1.8	438	.5	40	1.1	173	2.7	990
.7	61	2.1	595	.6	56	1.4	275	3.4	1,550
.8	85	2.4	775						

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	38	244	328	170	445	356	173	74	48	32	24
2	19	36	338	275	161	440	405	161	72	46	31	25
3	19	34	268	247	153	560	392	153	70	46	31	25
4	38	32	230	226	189	790	351	164	67	45	31	26
5	61	31	261	212	183	826	315	183	69	45	30	26
6	45	30	240	390	233	659	287	186	70	43	31	25
7	36	31	205	351	254	538	268	170	74	43	31	25
8	26	46	179	283	516	465	307	158	70	43	30	25
9	92	101	183	250	387	430	275	153	65	45	28	25
10	68	104	158	324	346	387	254	144	65	45	28	25
11	54	215	144	264	364	351	244	139	63	43	28	25
12	52	333	142	230	392	320	268	132	61	40	27	25
13	42	205	134	212	598	307	247	126	61	39	27	25
14	36	160	126	183	549	295	235	122	61	39	28	24
15	34	121	136	173	664	283	311	117	61	39	31	23
16	31	104	153	158	637	333	338	114	61	37	30	23
17	28	90	258	147	516	485	311	124	67	37	28	23
18	27	80	261	139	445	495	283	126	63	36	27	23
19	26	73	212	354	410	505	258	112	60	42	27	23
20	26	68	192	718	360	440	240	107	58	39	26	23
21	26	61	240	802	324	392	222	105	56	36	26	22
22	26	95	378	927	333	369	222	102	63	35	27	22
23	26	274	561	682	794	384	216	95	70	34	35	22
24	25	380	538	485	1,550	425	195	91	63	32	35	28
25	26	330	566	369	1,100	382	189	89	61	32	31	37
26	27	412	522	328	871	369	183	87	56	32	28	53
27	28	745	544	279	654	440	205	89	54	34	27	32
28	134	420	532	244	527	430	189	87	54	50	26	26
29	68	303	516	219	-	378	179	84	51	45	25	24
30	48	258	435	199	-	342	167	80	50	37	25	23
31	43	-	392	179	-	328	-	76	-	34	25	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,256	134	19	40.5	1.27	1.46	2,490
November	5,210	745	30	174	5.45	6.07	10,330
December	9,288	566	126	300	9.40	10.83	18,420
Calendar year	-	-	-	-	-	-	-
January	10,177	927	139	328	10.3	11.86	20,190
February	13,680	1,550	153	489	15.3	15.95	27,130
March	13,573	826	283	438	13.7	15.82	26,920
April	7,913	405	167	264	8.28	9.23	15,700
May	3,849	186	76	124	3.89	4.49	7,630
June	1,890	74	50	63.0	1.57	2.20	3,750
July	1,241	50	32	40.0	1.25	1.45	2,460
August	892	35	25	28.8	.903	1.04	1,770
September	777	53	22	25.9	.812	.91	1,540
Water year 1949-50	69,746	1,550	19	191	5.99	61.31	136,300

Peak discharge (base, 900 sec.-ft.).--Nov. 27 (3 a.m.) 1,190 sec.-ft.; Jan. 22 (9 a.m.) 1,030 sec.-ft.; Feb. 24 (4 a.m.) 2,130 sec.-ft.; Mar. 5 (6 a.m.) 900 sec.-ft.

Grays River near Grays River, Wash.

Location.--Water-stage recorder, lat. 46°22'40", long. 123°31'50", near center of sec. 3, T. 10 N., R. 7 W., $\frac{1}{2}$ miles upstream from West Branch Grays River and $\frac{1}{4}$ miles north-east of Grays River.

Drainage area.--64 square miles.

Records available.--March 1949 to September 1950.

Extremes.--Maximum discharge during year, 5,670 second-feet Feb. 24 (gage height, 8.83 feet); minimum, 37 second-feet Oct. 3 (gage height, 1.09 feet).
1949-50: Maximum discharge, that of Feb. 24, 1950; minimum, 27 second-feet Sept. 13, 14, 1949 (gage height, 1.01 feet).
Flood of Feb. 22, 1949, reached a stage of 12.2 feet, from floodmarks (discharge, 13,900 second-feet, by slope-area method).

Remarks.--Records good except those for periods of no gage-height record or shifting control, which are fair. No diversion or regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	252	1,290	878	360	1,050	1,100	416	117	72	94	128
2	39	222	1,720	878	320	1,150	1,080	396	113	70	82	117
3	38	200	1,290	575	300	2,880	950	358	108	66	75	108
4	87	180	1,020	500	330	3,410	810	380	104	65	70	104
5	267	170	950	447	400	2,610	742	447	102	63	68	98
6	255	180	832	536	500	1,820	675	440	100	62	68	92
7	195	150	720	482	580	1,320	595	410	110	62	66	88
8	145	200	635	427	850	1,080	595	377	113	63	62	82
9	452	250	595	393	800	950	555	342	100	72	60	79
10	393	350	518	433	750	832	518	320	96	63	58	77
11	393	800	482	380	800	720	500	305	92	62	57	75
12	354	500	464	339	1,000	635	788	293	88	58	55	72
13	296	1,300	482	302	2,200	575	698	270	88	57	52	68
14	250	800	464	280	2,000	536	675	247	84	55	55	66
15	219	600	482	270	2,200	575	1,520	230	81	55	549	65
16	182	450	482	260	2,000	1,400	1,550	214	81	54	354	63
17	157	350	655	250	1,700	2,440	1,340	238	92	54	241	62
18	138	300	635	240	1,400	1,820	1,000	267	84	54	187	60
19	124	250	555	800	2,200	1,780	810	227	79	62	157	60
20	113	230	518	1,700	1,050	1,370	698	211	77	58	138	58
21	102	210	615	2,200	925	1,180	595	195	73	54	119	55
22	98	450	1,260	2,000	1,080	1,150	518	187	94	51	121	55
23	92	350	1,890	1,600	2,170	1,050	484	174	128	51	354	55
24	84	1,610	1,610	1,500	3,780	1,080	410	162	119	49	464	92
25	81	1,720	1,550	1,000	3,100	950	380	157	102	48	348	200
26	88	2,740	1,460	800	2,680	925	345	152	92	48	281	281
27	121	3,180	2,910	700	1,780	1,000	437	157	88	48	230	157
28	913	1,820	3,380	600	1,320	950	410	145	84	239	200	119
29	500	1,370	2,210	500	-	810	274	147	81	276	174	102
30	374	1,150	1,550	450	-	720	358	135	75	270	157	92
31	302	-	1,120	400	-	742	-	124	-	106	142	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	6,893	913	38	222	3.47	4.01	13,670
November	22,814	3,180	150	760	11.9	13.26	45,250
December	34,344	3,380	464	1,108	17.3	19.96	68,120
Calendar year	-	-	-	-	-	-	-
January	21,920	2,200	240	707	11.0	12.74	43,480
February	38,575	3,780	300	1,378	21.5	22.42	76,510
March	39,510	3,410	536	1,275	19.9	22.96	78,370
April	21,390	1,550	274	713	11.1	12.43	42,430
May	8,123	447	124	262	4.09	4.72	16,110
June	2,845	128	73	94.8	1.48	1.65	5,640
July	2,467	276	48	79.6	1.24	1.43	4,680
August	5,138	549	52	165	2.59	2.99	10,190
September	2,930	281	55	94.3	1.47	1.64	5,610
Water year 1949-50	206,849	3,780	38	567	8.86	120.21	410,300

Peak discharge (base, 4,500 sec.-ft.),--Nov. 27 (2 a.m.) 5,210 sec.-ft.; Dec. 27 (8 p.m.) 4,640 sec.-ft.; Feb. 24 (3 a.m.) 5,670 sec.-ft.; Mar. 4 (1 a.m.) 4,780 sec.-ft.

Note.--No gage-height record Nov. 3-23, Jan. 14 to Feb. 20; discharge computed on basis of weather records and records for stations on nearby streams. Shifting-control method used Dec. 29 to Jan. 13, Feb. 25 to Sept. 30.

West Branch Grays River near Grays River, Wash.

Location.--Water-stage recorder, 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., 1 mile upstream from mouth and 3 $\frac{1}{2}$ miles northeast of Grays River.

Drainage area.--16.3 square miles.

Records available.--April 1949 to September 1950.

Extremes.--Maximum discharge during year, 2,830 second-feet Nov. 12 (gage height, 6.26 feet); minimum, 8.1 second-feet July 25-27 (gage height, 1.91 feet).
1949-50: Maximum discharge, that of Nov. 12, 1949; minimum, 7.9 second-feet Sept. 13, 14, 1949 (gage height, 1.90 feet).
Flood of Feb. 22, 1949, reached a stage of 6.89 feet, from floodmarks (discharge, 3,700 second-feet, by slope-area method).

Remarks.--Records good 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.

Rating tables, water year 1949-50, except period of shifting control
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 26

Dec. 27 to Sept. 30

2.0	10	2.9	127	4.5	1,040	1.9	7.7	2.6	78	4.0	540
2.2	21	3.2	274	5.0	1,480	2.0	12.5	2.9	137	4.5	830
2.4	41	3.5	344	5.3	1,770	2.2	27	3.2	217	5.1	1,300
2.6	69	4.0	660			2.4	49	3.5	317		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10.5	49	370	205	85	211	285	78	24	17	21	35
2	10	45	532	182	80	295	245	76	23	15	17.5	33
3	10	40	278	144	76	970	214	70	22	14	17	30
4	5	37	196	125	85	1,050	178	82	21	14	15	27
5	72	34	169	110	90	778	152	117	21	13	14	25
6	69	32	140	200	100	447	133	106	21	12.5	15	24
7	48	31	118	180	200	306	113	89	24	12	14	22
8	34	49	101	165	350	239	124	78	22	14	13	21
9	171	83	96	150	330	229	111	72	21	17	13.5	20
10	107	84	83	160	165	197	100	64	20	14	14	20
11	101	435	74	150	180	165	100	59	19	12.5	13.5	19
12	86	1,770	72	153	250	137	166	53	18.5	11.5	13	16.5
13	68	756	71	119	480	122	135	80	18.5	11	13	17.5
14	54	324	68	109	450	111	128	47	18.5	10.5	15	17
15	46	201	68	100	470	137	407	43	17.5	10.5	331	16
16	39	147	72	92	430	507	407	41	17	9.8	94	16
17	33	114	114	82	370	741	349	45	18.5	9.3	55	15.5
18	30	96	112	76	310	495	239	47	17.5	9.8	41	15
19	28	79	90	250	270	490	180	45	18.5	14	32	14
20	25	68	83	1,000	240	550	147	43	17	11.5	26	14
21	24	60	123	1,200	223	274	122	41	15.5	9.8	23	14
22	22	88	350	900	292	292	106	38	25	9.3	26	13.5
23	20	212	538	600	786	268	94	34	43	8.9	126	13
24	19.5	532	411	400	1,220	313	82	31	41	8.9	208	33
25	18.5	611	499	280	1,180	258	74	29	33	8.5	140	74
26	20	1,270	411	220	630	226	69	28	27	8.1	96	92
27	31	1,420	1,080	180	433	242	80	29	24	8.5	75	48
28	324	512	1,230	150	288	214	75	27	21	69	60	55
29	120	291	601	110	-	178	64	28	19	75	52	28
30	79	207	389	95	-	150	62	26	17.5	37	45	25
31	62	-	268	90	-	154	-	25	-	26	39	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	1,817.5	324	10	58.6	3.60	4.15	3,600
November	3,657	1,770	31	322	19.8	22.03	19,150
December	8,789	1,230	68	284	17.4	20.05	17,430
Calendar year	-	-	-	-	-	-	-
January	7,937	1,200	76	256	15.7	18.11	15,740
February	10,223	1,220	76	365	22.4	23.32	20,280
March	10,746	1,050	111	347	21.3	24.52	21,310
April	4,740	407	62	158	9.69	10.81	9,400
May	1,641	117	25	52.9	3.25	3.74	3,250
June	665.5	43	15.5	22.2	1.56	1.52	1,320
July	521.9	75	8.1	16.8	1.03	1.19	1,040
August	1,677.5	331	13	54.1	3.32	3.83	3,330
September	795	92	13	26.5	1.63	1.81	1,580
Water year 1949-50	59,210.4	1,770	8.1	162	9.94	135.08	117,400

Peak discharge (base, 1,500 sec.-ft.).--Nov. 12 (10 a.m.) 2,830 sec.-ft.; Nov. 27 (2 a.m.) 2,240 sec.-ft.; Dec. 27 (8:30 p.m.) 1,820 sec.-ft.; probably Jan. 21 (time unknown) 1,500 sec.-ft.; Feb. 24 (12:30 a.m.) 2,000 sec.-ft.; Mar. 4 (1 a.m.) 1,550 sec.-ft.

Note.--No gage-height record Jan. 4-10, Jan. 15 to Feb. 20; discharge computed on basis of recorded range in stage and records for stations on nearby streams. Shifting-control method used Aug. 15-25.

Youngs River near Astoria, Oreg.

Location.--Water-stage recorder, lat. 46°04', long. 123°47', in NW¼ sec. 27, T. 7 N., R. 9 W., 50 feet upstream from crest of Youngs River Falls, 2½ miles southwest of Olney, and 9 miles southeast of Astoria. Datum of gage is 62.64 feet above mean sea level, datum of 1929.

Drainage area.--32 square miles.

Records available.--January 1934 to September 1950. March 1916 to September 1917 (gage heights only) at site 3 miles upstream. August 1927 to December 1933 at site 1 mile upstream.

Average discharge.--16 years, (1934-50), 169 second-feet.

Extremes.--Maximum discharge during year, 3,120 second-feet Jan. 20 (gage height, 11.16 feet); minimum observed, 5.2 second-feet Sept. 23, but may have been lower during period of no gage-height record.

1927-50: Maximum discharge, 6,300 second-feet Nov. 24, 1927 (gage height, 6.52 feet, site and datum then in use), from rating curve extended above 2,000 second-feet; minimum, 3.7 second-feet Sept. 22, 23, 1938.

Remarks.--Records good except those below 10 second-feet and those for periods of no gage-height record, which are fair. No diversion or regulation above station.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a5.5	42	307	438	135	345	339	105	35	19	13	7.4
2	a5.5	36	538	317	123	368	395	108	35	18	11	7.0
3	a5.5	32	370	261	113	756	366	104	32	17	10	6.8
4	15	29	277	277	253	1,310	297	130	30	17	10	7.2
5	74	26	303	243	254	1,210	243	177	30	17	9.6	7.2
6	64	24	261	780	585	729	204	176	30	16	9.4	6.8
7	40	22	204	723	585	520	173	162	36	16	9.6	6.7
8	24	30	169	485	1,270	402	234	142	36	16	9.4	6.3
9	83	161	169	378	678	378	201	128	32	16	8.4	6.1
10	85	188	157	870	518	320	173	119	31	16	7.8	5.9
11	66	518	132	590	472	277	160	108	39	15	7.8	5.8
12	58	840	132	412	520	243	279	98	33	14	7.6	5.8
13	41	448	133	339	938	225	229	90	31	13	7.4	5.8
14	32	271	121	265	654	210	205	84	30	13	7.8	5.9
15	29	178	135	222	729	202	520	78	30	13	17	5.9
16	26	136	201	181	910	395	562	73	28	13	18	5.9
17	22	111	395	152	480	864	475	74	32	12	13	5.9
18	18	94	405	136	378	720	343	83	30	12	10	5.9
19	16	81	291	1,440	343	606	254	70	27	18	9.4	5.9
20	15	71	230	2,540	261	452	202	64	27	16	8.2	5.9
21	15	61	309	1,610	234	364	170	60	26	13	7.4	5.8
22	14	83	520	1,250	229	330	157	57	29	12	7.6	5.4
23	13	355	849	867	830	313	147	53	42	11	12	5.2
24	12	747	726	580	1,880	498	128	50	38	11	20	8.2
25	12	645	774	432	1,300	402	123	47	33	10	17	21
26	12	914	661	373	974	357	113	45	29	10	13	35
27	13	1,550	798	299	642	445	141	47	25	10	11	22
28	234	672	831	241	468	425	119	44	24	21	9.8	15
29	114	430	813	199	-	339	114	42	21	29	9.2	12
30	72	322	654	173	-	273	106	40	20	20	8.4	11
31	54	-	580	147	-	289	-	38	-	15	7.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,290.5	234	5.5	41.6	1.30	1.50	2,560
November	9,117	1,550	22	304	9.50	10.60	18,080
December	12,465	849	121	402	12.6	14.49	24,720
Calendar year 1949	58,690.2	3,030	5.4	161	5.03	66.20	116,400
January	17,220	2,540	136	555	17.3	20.01	34,160
February	16,776	1,880	113	599	18.7	19.50	33,270
March	14,567	1,310	202	470	14.7	16.93	28,890
April	7,172	562	106	239	7.47	8.34	14,230
May	2,696	177	38	87.0	2.72	3.13	5,350
June	921	42	20	30.7	.959	1.07	1,830
July	469	29	10	15.1	.472	.55	930
August	327.6	20	7.4	10.6	.331	.38	650
September	266.7	35	5.2	8.89	.278	.31	529
Water year 1949-50	83,287.8	2,540	5.2	228	7.12	96.81	165,200

Peak discharge (base, 2,100 sec.-ft.).--Nov. 27 (3:30 a.m.) 2,870 sec.-ft.; Jan. 20 (3 a.m.) 3,120 sec.-ft.; Feb. 8 (4:30 a.m.) 2,120 sec.-ft.; Feb. 24 (3:30 a.m.) 2,940 sec.-ft.

a No gage-height record; discharge computed on basis of records for North Fork Klaskanine River near Olney.

North Fork Klaskanine River near Olney, Oreg.

Location.--Water-stage recorder, lat. 46°04', long. 123°42', in NE¹ sec. 29, T. 7 N., R. 8 W., 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 square miles.

Records available.--August 1949 to September 1950.

Extremes.--Maximum discharge during year, 806 second-feet Jan. 20 (gage height, 4.59 feet); minimum, 2.0 second-feet Sept. 22 (gage height, 1.18 feet).
1949-50: Maximum discharge, that of Jan. 20, 1950; minimum, that of Sept. 22, 1950

Remarks.--Records good except those for period of no gage-height record, which are fair.
No Regulation or diversion above station.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Backwater from leaves Oct. 28 to Nov. 12)

Oct. 1 to Feb. 24

Feb. 25 to Sept. 30

1.3	2.6	1.9	44	3.5	378	1.2	2.2	1.5	10
1.4	5.3	2.1	68	4.0	555	1.3	3.9	1.6	16
1.5	9.5	2.3	97	4.3	678	1.4	6.4		
1.6	16	2.6	150						
1.7	24	3.0	238						

Note.--Same as preceding table above 1.6 feet.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.9	12	112	144	58	129	120	45	13	7.9	4.9	3.0
2	2.6	11	168	113	54	129	130	44	13	7.5	4.6	3.2
3	2.6	9.5	131	97	49	166	120	42	11	7.2	4.6	3.2
4	11	9.5	105	91	82	339	110	54	11	7.2	4.4	3.6
5	27	9.1	110	85	79	334	100	66	11	6.8	4.4	3.4
6	19	8.7	97	194	127	238	90	72	13	7.2	4.4	3.2
7	14	8.2	82	191	180	174	85	67	20	6.8	4.6	3.0
8	8.7	15	72	146	360	140	95	61	15	6.4	4.4	2.9
9	26	37	74	122	226	126	85	56	12	7.2	3.9	2.9
10	24	40	64	259	176	111	80	50	13	7.2	3.9	2.9
11	21	81	56	187	164	102	78	43	11	6.4	3.9	2.9
12	22	144	55	140	164	94	85	39	11	5.9	3.9	2.7
13	16	88	50	120	294	90	80	37	11	5.6	3.6	2.9
14	13	69	46	97	228	85	76	34	11	5.6	3.9	2.9
15	14	52	52	82	243	82	95	32	11	5.6	5.2	2.7
16	11	43	67	71	214	103	100	29	10	5.6	4.9	2.7
17	9.1	37	122	62	170	196	90	32	13	5.4	3.9	2.7
18	8.7	33	127	57	142	198	80	32	11	5.4	3.6	2.9
19	7.8	29	100	413	131	189	75	27	9.4	8.7	3.4	2.9
20	7.4	26	90	665	111	154	70	25	9.8	6.4	3.4	2.7
21	7.4	24	115	505	97	133	65	23	9.8	5.6	3.4	2.4
22	7.4	36	170	458	94	120	62	22	13	5.2	3.6	2.2
23	7.0	139	270	334	303	118	58	21	18	5.2	6.2	2.4
24	6.6	197	246	224	575	150	54	19	16	4.9	6.8	3.6
25	6.6	170	248	160	420	131	50	18	15	4.9	5.9	6.8
26	6.6	252	214	140	325	122	48	17	12	4.9	4.4	13
27	7.4	434	224	113	226	150	58	19	11	5.2	4.2	5.9
28	53	209	214	97	166	145	52	18	10	10	3.9	4.4
29	25	150	221	82	-	130	49	16	9.1	9.4	3.6	3.7
30	17	120	189	71	-	115	46	15	8.3	6.4	3.4	3.4
31	15	-	174	64	-	110	-	14	-	5.4	3.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	426.8	53	2.6	13.8	0.986	1.13	847
November	2,493.0	434	8.2	83.1	5.94	6.82	4,940
December	4,065	270	46	131	9.36	10.80	8,060
Calendar year	-	-	-	-	-	-	-
January	5,584	665	57	180	12.9	14.83	11,080
February	5,438	575	49	194	13.9	14.45	10,790
March	4,603	339	82	148	10.6	12.23	9,130
April	2,386	130	46	79.5	5.68	6.34	4,730
May	1,089	72	14	35.1	2.51	2.89	2,160
June	362.4	20	8.3	12.1	.864	.96	719
July	199.1	10	4.9	6.42	.459	.53	395
August	132.4	6.8	3.2	4.27	.305	.35	265
September	107.1	13	2.2	3.57	.255	.28	212
Water year 1949-50	26,885.8	665	2.2	73.7	5.26	71.41	53,330

Peak discharge (base, 500 sec.-ft.).--Nov. 27 (3:30 a.m.) 691 sec.-ft.; Jan. 20 (3 a.m.) 806 sec.-ft.; Feb. 8 (4:30 a.m.) 518 sec.-ft.; Feb. 24 (3 a.m.) 778 sec.-ft.

Note.--No gage-height record Mar. 27 to Apr. 24; discharge computed on basis of recorded range in stage, weather records, and records for Big Creek near Knappa.

NEHALEM RIVER BASIN

Nehalem River near Foss, Oreg.

Location.--Water-stage recorder, lat. 45°42', long. 123°45', in NW $\frac{1}{4}$ sec. 35, T. 3 N., R. 9 W., a quarter of a mile upstream from Cook Creek and 2.2 miles northeast of Foss. Datum of gage is 32.60 feet above mean sea level, datum of 1929 (Oregon State Highway Department bench mark).

Drainage area.--667 square miles.

Records available.--October 1939 to September 1950.

Average discharge.--11 years, 2,573 second-feet.

Extremes.--Maximum discharge during year, 30,800 second-feet Feb. 25 (gage height, 17.15 feet); minimum, 80 second-feet Sept. 23.

1939-50: Maximum discharge, 36,900 second-feet Feb. 17, 1949 (gage height, 19.04 feet); minimum, 77 second-feet Sept. 9, 1949.

Remarks.--Records good except those for period of ice effect, which are fair. No known diversion or regulation.

Rating tables, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 24

Feb. 25 to Sept. 30

1.3	62	2.9	870	7.5	5,950	1.4	72	2.3	440	5.5	3,150
1.5	124	3.5	1,320	9.0	8,940	1.6	130	2.8	750	6.5	4,400
1.7	195	4.5	2,170	11.0	13,900	1.8	200	3.5	1,250	8.0	6,760
2.0	325	5.5	3,170			2.0	280	4.5	2,110	9.0	8,710
2.3	480	6.0	3,760								

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	92	452	5,060	6,740	b3,000	8,080	5,430	1,650	566	280	190	100
2	92	390	3,340	5,580	b2,500	6,740	5,360	1,630	548	264	172	97
3	89	345	8,850	4,660	b2,500	9,890	5,320	1,540	518	248	151	94
4	111	320	5,040	4,150	b3,500	16,100	4,920	1,510	500	240	140	94
5	258	298	4,760	3,680	4,190	20,500	4,430	1,620	482	232	137	92
6	380	280	4,530	5,900	5,240	16,800	4,000	1,750	470	228	130	92
7	375	271	4,150	7,690	5,430	11,600	3,570	1,720	500	224	130	92
8	340	294	3,680	7,270	9,100	8,300	3,630	1,620	500	224	130	92
9	425	684	3,350	5,630	9,610	6,580	4,860	1,520	488	224	130	89
10	665	1,030	3,100	6,940	8,270	5,560	4,980	1,460	488	228	127	92
11	576	3,400	2,840	6,940	7,450	4,770	4,230	1,410	458	228	124	92
12	516	7,970	2,650	5,730	7,590	4,160	4,340	1,370	440	228	118	86
13	469	5,560	2,660	4,810	12,700	3,750	4,170	1,300	410	212	115	83
14	395	3,580	2,610	4,150	15,300	3,460	3,750	1,210	398	204	115	66
15	345	2,570	2,610	3,640	17,100	3,270	4,400	1,140	398	200	137	68
16	307	2,020	2,770	3,280	17,500	4,640	5,280	1,080	386	196	151	86
17	271	1,650	3,560	2,960	15,000	9,240	5,130	1,070	398	190	137	86
18	244	1,400	4,810	2,700	11,700	9,680	4,400	1,110	422	186	127	86
19	231	1,200	4,990	10,600	9,730	10,200	3,810	1,040	428	190	121	83
20	223	1,060	4,150	23,100	8,450	8,650	3,390	995	386	193	112	86
21	203	940	3,940	22,600	7,100	7,110	2,950	925	360	190	106	86
22	195	1,010	*4,700	24,000	6,190	6,320	2,690	890	355	186	109	86
23	195	2,130	8,400	20,200	10,000	6,060	2,510	834	386	176	130	80
24	191	6,940	12,100	14,800	25,500	6,760	2,300	792	410	168	168	89
25	187	6,430	12,400	10,000	*29,900	6,670	2,070	757	410	165	176	112
26	187	8,930	11,300	7,630	26,400	6,060	1,910	722	386	158	162	193
27	191	18,500	11,000	6,350	18,300	6,130	1,930	701	360	151	148	236
28	1,000	12,300	11,100	5,400	11,800	6,350	1,940	680	335	182	134	204
29	1,020	7,990	9,970	4,640	-	6,110	1,820	650	315	204	124	172
30	665	5,970	8,780	b3,800	-	5,280	1,690	626	300	204	115	162
31	546	-	7,800	*b3,300	-	5,080	-	602	-	200	106	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	10,984	1,020	89	354	0.531	0.61	21,790
November	105,914	18,500	271	3,530	5.29	5.91	210,100
December	181,000	12,400	2,610	5,839	8.75	10.09	359,000
Calendar year 1949	931,687	34,700	80	2,553	3.83	51.94	1,848,000
January	248,890	24,000	2,700	8,028	12.0	13.88	493,600
February	311,150	29,900	2,500	11,110	16.7	17.35	617,200
March	239,900	20,500	3,270	7,739	11.6	13.38	475,800
April	111,210	5,430	1,690	3,707	5.56	6.20	220,600
May	35,924	1,750	602	1,159	1.74	2.00	71,250
June	12,801	568	300	427	.640	.71	25,390
July	6,403	280	151	207	.310	.36	12,700
August	4,172	190	106	135	.202	.23	8,280
September	3,214	236	80	107	.160	.18	6,370
Water year 1949-50	1,271,552	29,900	80	3,484	5.22	70.90	2,522,000

Peak discharge (base, 17,000 sec.-ft.).--Nov. 27 (6:30 a.m.) 21,900 sec.-ft.; Jan. 22 (10:30 a.m.) 25,300 sec.-ft.; Feb. 15 (11:30 p.m.) 18,300 sec.-ft.; Feb. 25 (12:30 p.m.) 30,800 sec.-ft.; Mar. 5 (11 a.m.) 21,400 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Location.--Water-stage recorder, lat. 45°29', long. 123°43', in NW $\frac{1}{4}$ sec. 18, T. 1 S., R. 8 W., 1 mile upstream from North Fork and 6 $\frac{1}{2}$ miles east of Tillamook. Datum of gage is 42.13 feet above mean sea level, datum of 1929.

Records available.--July 1931 to September 1950. December 1914 to November 1916 (incomplete) at site three-quarters of a mile downstream.

Extremes.--Maximum discharge during year, 20,200 second-feet Nov. 27 (gage height, 15.95 feet); minimum, 68 second-feet Sept. 22, 23.

1914-16, 1931-50: Maximum discharge, 30,000 second-feet Dec. 21, 1933 (gage height, 19.28 feet, site and datum then in use), from rating curve extended above 15,000 second-feet; minimum observed, 55 second-feet Sept. 10-12, 1944.

Revisions.--W 1014: Drainage area.

Rating tables, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used July 13 to Sept. 30)

Feb. 25 to Sept. 30

0.8	60	2.5	680	7.0	5,420	0.7	68	1.8	422	4.5	2,470
1.0	100	3.0	1,000	9.0	8,220	.9	110	2.4	720	6.0	4,210
1.3	174	3.5	1,370	11.0	11,100	1.1	162	3.0	1,120	9.3	8,640
1.7	298	4.5	2,280	12.8	14,000	1.4	259	3.5	1,520		
2.0	420	5.5	3,430								

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	545	2,520	2,280	898	2,340	3,330	878	325	159	110	88
2	71	475	3,700	1,850	806	2,520	3,020	897	313	148	103	86
3	70	411	2,760	1,550	752	6,220	2,520	819	305	145	99	84
4	110	367	2,150	1,390	993	8,570	2,100	852	301	138	97	84
5	313	335	2,040	1,290	1,770	7,460	1,830	1,040	289	135	95	82
6	455	313	1,800	3,220	1,600	5,060	1,650	1,030	274	132	95	82
7	388	295	1,550	3,200	1,660	3,390	1,460	973	286	130	95	82
8	284	339	1,350	2,260	2,750	2,610	1,500	910	274	132	95	80
9	770	625	1,230	1,850	2,320	2,270	1,420	852	252	140	92	78
10	891	740	1,100	2,390	2,110	1,960	1,300	812	256	138	90	78
11	865	2,820	979	1,980	2,190	1,690	1,220	819	252	130	88	78
12	764	5,740	1,040	1,650	2,290	1,490	1,680	852	231	125	86	78
13	581	3,720	1,250	1,470	5,730	1,340	1,750	793	224	122	86	78
14	485	2,160	1,230	1,260	5,080	1,260	1,580	720	218	118	86	76
15	384	1,490	1,190	1,130	6,320	1,230	3,010	665	211	115	130	76
16	324	1,150	1,210	1,000	5,910	3,470	3,970	610	211	115	118	74
17	291	951	1,590	858	4,350	7,620	3,430	621	231	112	97	72
18	261	813	1,760	806	3,260	5,530	2,650	616	214	108	92	70
19	238	716	1,470	5,100	2,730	5,140	2,040	632	198	118	86	70
20	220	630	1,310	12,700	2,230	3,840	1,770	494	192	115	82	72
21	208	570	1,310	11,000	1,840	3,030	1,520	475	192	110	82	70
22	196	647	2,070	10,800	1,730	2,780	1,380	208	106	90	70	70
23	180	1,730	4,860	7,170	4,450	2,460	1,220	278	103	183	68	68
24	180	5,110	5,250	4,540	11,300	2,700	1,060	431	248	99	238	76
25	174	3,860	4,560	2,950	9,650	2,380	973	422	228	99	165	130
26	171	6,540	4,370	2,360	6,780	2,280	897	418	211	99	130	293
27	196	13,900	4,820	1,870	4,270	2,760	966	426	195	97	118	183
28	2,010	6,050	5,690	1,530	3,010	2,570	910	396	189	168	106	128
29	1,400	3,940	4,690	1,300	-	2,160	852	379	174	192	99	110
30	884	2,990	3,600	1,150	-	1,910	832	354	168	138	97	99
31	669	-	2,860	1,000	-	2,060	-	341	-	115	92	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	14,093	2,010	70	455	2.86	3.30	27,950
November	69,972	13,900	295	2,332	14.7	16.37	139,800
December	77,409	5,690	979	2,497	15.7	18.11	153,500
Calendar year 1949	420,685	17,200	64	1,153	7.25	98.42	834,300
January	94,704	12,700	806	3,055	19.2	22.15	187,800
February	88,173	11,300	753	3,508	22.1	22.96	192,700
March	102,100	8,570	1,230	3,294	20.7	23.88	202,500
April	53,690	3,970	832	1,790	11.3	12.56	106,500
May	20,459	1,040	341	660	4.15	4.79	40,580
June	7,148	325	168	238	1.50	1.67	14,180
July	3,899	192	97	126	.792	.91	7,730
August	3,322	238	82	107	.673	.78	6,590
September	2,793	293	68	93.1	.586	.65	5,540

Water year 1949-50.....	547,768	13,900	68	1,501	9.44	128.13	1,086,000
Peak discharge (base, 12,000 sec.-ft.)--Nov. 27 (5 a.m.) 20,200 sec.-ft.; Jan. 20 (3 a.m.) 14,400 sec.-ft.; Feb. 24 (7:30 a.m.) 13,500 sec.-ft.							

TRASK RIVER BASIN

Trask River near Tillamook, Oreg.

Location.--Water-stage recorder, lat. 45°27', long. 123°44', in NW¹ sec. 31, T. 1 S., R. 8 W., half a mile upstream from Gold Creek and 6 miles east of Tillamook.

Drainage area.--143 square miles.

Records available.--July 1931 to September 1950.

Average discharge.--19 years, 976 second-feet.

Extremes.--Maximum discharge during year, 12,300 second-feet Nov. 27 (gage height, 9.52 feet); minimum, 60 second-feet Sept. 22, 23, 24.

1931-50: Maximum discharge, 20,000 second-feet Dec. 22, 1933 (gage height, 13.00 feet); minimum, 58 second-feet Sept. 26, 27, 1939.

Maximum stage known, about 17 feet, probably occurred during flood of November 1921 or Mar. 31, 1931 (discharge, 30,000 second-feet, from rating curve extended above 12,000 second-feet).

Remarks.--Records excellent except those for periods of shifting control, which are good. No diversion or regulation above station.

Revisions.--W 1044: Drainage area.

Rating table, water year 1949-50, except periods of shifting control
(gage height, in feet, and discharge, in second-feet)

0.4	62	1.7	520	4.0	2,640
.6	105	2.0	690	4.8	3,800
.8	158	2.4	960	6.0	5,710
1.1	255	2.8	1,290	8.3	9,910
1.4	375	3.5	1,800		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	318	2,000	2,020	885	1,980	2,610	690	294	170	110	76
2	70	286	2,540	1,660	808	2,060	2,560	702	290	170	105	74
3	68	266	2,040	1,390	750	3,860	2,220	654	286	161	100	74
4	110	248	1,690	1,280	878	5,710	1,830	702	280	158	98	74
5	286	230	1,620	1,180	952	5,340	1,590	878	272	155	96	74
6	370	220	1,410	2,500	1,310	3,900	1,400	985	269	152	96	74
7	284	117	1,250	2,630	1,450	2,820	1,220	915	283	150	96	72
8	204	238	1,110	1,940	2,520	2,180	1,250	770	276	152	96	70
9	607	402	1,090	1,660	2,140	1,670	1,060	708	265	158	94	70
10	630	398	968	2,160	1,870	1,620	960	678	269	152	91	72
11	592	1,210	878	1,790	2,030	1,380	900	648	290	144	89	70
12	526	3,050	960	1,460	2,150	1,240	1,120	630	255	166	87	70
13	411	2,010	1,170	1,330	4,010	1,140	1,080	614	248	138	87	70
14	339	1,300	1,100	1,150	3,920	1,090	1,020	575	241	136	89	70
15	298	952	1,110	1,070	4,350	1,040	1,650	531	234	133	110	68
16	255	770	1,170	958	4,360	1,860	2,210	510	224	133	105	68
17	234	648	1,590	843	3,480	4,670	2,000	520	272	128	89	68
18	217	570	1,770	796	2,770	3,920	1,610	526	238	125	87	66
19	194	515	1,450	2,840	2,350	3,860	1,360	470	220	133	80	66
20	185	475	1,280	7,680	1,940	3,060	1,200	440	217	130	80	68
21	178	430	1,280	7,370	1,670	2,430	1,080	425	210	120	78	66
22	170	475	1,930	8,260	1,560	2,140	984	416	224	118	89	64
23	164	1,140	4,180	6,220	4,150	1,960	915	393	280	112	173	64
24	158	3,070	4,430	3,860	9,780	2,210	815	375	252	108	179	68
25	155	2,540	3,890	2,640	7,600	1,960	763	366	230	105	150	103
26	152	3,410	3,890	2,090	5,270	1,910	726	362	217	108	103	241
27	164	9,070	3,880	1,710	3,520	2,300	776	357	207	108	94	136
28	796	4,790	3,780	1,400	2,540	2,260	726	339	201	161	87	100
29	619	3,400	3,580	1,220	-	1,910	690	334	188	167	82	87
30	435	2,510	2,810	1,090	-	1,710	666	322	185	150	78	82
31	362	-	2,470	992	-	1,720	-	306	-	115	78	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	9,313	796	68	300	2.10	2.42	18,470
November	45,158	9,070	217	1,505	10.5	11.74	89,570
December	84,096	4,430	878	2,068	14.5	16.67	127,100
Calendar year 1949	332,756	14,100	68	912	6.38	86.53	660,000
January	75,169	8,260	796	2,425	17.0	19.55	149,100
February	81,173	9,780	750	2,899	20.3	21.11	161,000
March	77,110	5,710	1,040	2,487	17.4	20.05	152,900
April	38,981	2,610	668	1,299	9.06	10.14	77,320
May	16,941	894	306	546	3.82	4.41	33,600
June	7,407	284	185	247	1.73	1.93	14,690
July	4,274	170	105	138	.965	1.11	8,480
August	3,076	179	78	99.2	.694	.80	6,100
September	2,425	241	64	80.8	.565	.63	4,810
Water year 1949-50	425,123	9,780	64	1,165	8.15	110.56	843,100

Peak discharge (base, 9,500 sec.-ft.)--Nov. 27 (6 a.m.) 12,300 sec.-ft.; Feb. 24 (8 a.m.) 11,600 sec.-ft.

Note.--Shifting-control method used Dec. 4-21, Jan. 2-5, 9, 11-19, Jan. 27 to Feb. 7, Feb. 21, 22, Mar. 10-16, June 22 to Sept. 30.

Siletz River at Siletz, Oreg.

Location.--Water-stage recorder, lat. 44°43', long. 123°53', in NW¼SW¼ sec. 11, T. 10 S., R. 10 W., 1½ miles east of Siletz. Datum of gage is 102.32 feet above mean sea level, datum of 1929.

Drainage area.--202 square miles.

Records available.--November 1905 to May 1912, January 1924 to September 1950.

Average discharge.--30 years (1906-11, 1925-50), 1,589 second-feet.

Extremes.--Maximum discharge during year, 16,400 second-feet Nov. 27 (gage height, 16.77 feet); minimum, 79 second-feet Sept. 23, 24 (gage height, 2.27 feet).

1905-12, 1924-50: Maximum discharge, 37,000 second-feet Feb. 17, 1949 (gage height, 25.17 feet), from rating curve extended above 15,000 second-feet by logarithmic plotting; minimum observed, 51 second-feet Dec. 6, 7, 1929.

Maximum discharge known, 40,800 second-feet Nov. 20, 1921 (gage height, 31.6 feet, site and datum then in use), from rating curve extended above 19,000 second-feet.

Remarks.--Records excellent. No diversion above station.

Revisions (water years).--W 814: 1935. W 754: 1922 (maximum gage height).

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 26

Nov. 27 to Sept. 30

2.4	111	5.0	1,200	2.2	72	3.5	440	10.0	5,800
2.7	171	6.0	1,870	2.3	82	4.0	670	12.0	8,400
3.0	246	7.0	2,650	2.4	96	4.5	940	14.0	11,500
3.3	340	8.0	3,550	2.5	114	5.5	1,570	15.5	14,000
3.7	500	9.5	5,020	2.7	162	6.5	2,350		
4.3	795	10.8	6,600	2.9	220	8.0	3,700		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	125	504	2,670	3,680	1,500	2,820	2,950	982	372	190	116	98
2	124	447	3,310	2,930	1,310	3,070	2,820	1,110	368	182	110	98
3	122	383	2,800	2,340	1,230	6,140	2,490	1,050	356	173	105	96
4	149	350	2,350	2,090	1,550	7,000	2,160	1,170	342	168	101	93
5	350	336	2,330	1,850	1,850	7,600	1,950	1,450	332	168	98	90
6	443	319	2,030	5,590	2,870	5,840	1,780	1,370	328	162	96	90
7	464	305	1,760	6,720	3,030	4,260	1,580	1,240	332	154	96	89
8	344	322	1,530	4,390	5,650	5,320	1,460	1,120	332	154	93	89
9	845	910	1,440	3,360	4,980	2,930	1,510	1,010	311	168	92	89
10	1,210	1,450	1,310	4,940	3,980	2,560	1,220	946	304	162	90	88
11	1,190	3,770	1,160	4,210	3,670	2,220	1,130	892	304	146	89	88
12	966	6,570	1,340	3,200	3,660	1,970	1,360	880	304	144	89	86
13	751	3,510	2,110	2,780	6,690	1,750	1,360	862	297	141	89	86
14	605	2,310	1,840	2,400	7,660	1,590	1,280	810	286	139	92	86
15	500	1,680	1,700	2,090	7,710	1,440	2,400	765	269	134	98	85
16	435	1,310	1,770	1,790	7,690	2,930	2,690	715	258	132	112	83
17	383	1,090	2,700	1,540	5,640	9,750	2,620	715	258	129	96	83
18	344	932	3,340	1,450	4,240	6,800	2,130	705	252	127	92	83
19	326	822	2,840	5,370	3,470	5,930	1,800	625	230	139	88	83
20	302	730	2,320	11,400	2,850	4,460	1,610	585	227	144	86	82
21	287	665	2,130	13,100	2,410	3,650	1,430	566	220	132	85	81
22	272	746	2,720	13,700	2,170	3,470	1,510	538	220	125	89	80
23	255	1,950	6,620	10,100	5,090	3,130	1,230	530	304	121	230	79
24	249	5,640	6,950	6,440	12,300	3,480	1,070	498	297	121	396	86
25	241	4,670	6,020	4,410	12,900	3,240	970	460	258	118	190	190
26	238	5,250	5,730	3,700	7,630	3,340	928	472	230	114	149	380
27	260	12,200	5,230	3,340	4,960	3,980	1,000	464	220	110	132	269
28	1,070	6,390	5,290	2,790	3,580	3,800	1,000	456	211	144	116	182
29	984	4,260	4,950	2,350	-	3,180	880	440	202	173	112	149
30	715	3,290	4,510	2,020	-	2,620	832	408	196	136	107	136
31	590	-	4,370	1,690	-	2,260	-	396	-	121	101	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acre-feet
October	15,139	1,210	122	488	2.42	2.79	30,030
November	73,111	12,200	305	2,437	12.1	13.46	145,000
December	97,170	6,950	1,160	3,135	15.5	17.89	192,700
Calendar year 1949	525,231	27,200	100	1,439	7.12	96.70	1,042,000
January	137,750	13,700	1,450	4,444	22.0	25.36	273,200
February	132,270	12,900	1,230	4,724	23.4	24.35	262,400
March	120,540	9,750	1,440	3,888	19.2	22.19	239,100
April	48,950	2,950	832	1,632	8.08	9.01	97,090
May	24,250	1,450	396	782	3.87	4.46	48,100
June	6,420	372	196	281	1.39	1.55	16,700
July	4,471	190	110	144	.713	.82	8,970
August	3,635	396	85	117	.579	.67	7,210
September	3,396	380	79	113	.559	.63	6,740
Water year 1949-50	669,102	13,700	79	1,633	9.07	123.18	1,327,000

Peak discharge (base, 12,000 sec.-ft.).--Nov. 27 (7 a.m.) 16,400 sec.-ft.; Jan. 22 (9 p.m.) 15,100 sec.-ft.; Feb. 25 (4 a.m.) 14,900 sec.-ft.

Alsea River near Tidewater, Oreg.

Location.--Water-stage recorder, lat. 44°23', long. 123°50', in NW¼ sec. 6, T. 14 S., R. 9 W., three-quarters of a mile downstream from Grass Creek, 2.3 miles upstream from Scott Creek, and 3.8 miles southeast of Tidewater. Datum of gage is 48.16 feet above mean sea level, datum of 1929.

Drainage area.--334 square miles.

Records available.--October 1939 to September 1950.

Average discharge.--11 years, 1,397 second-feet.

Extremes.--Maximum discharge during year, 16,300 second-feet Jan. '22 (gage height, 16.22 feet); minimum, 65 second-feet Sept. '24 (gage height, 1.49 feet).
1939-50: Maximum discharge, 27,800 second-feet Jan. 7, 1948 (gage height, 22.43 feet), from rating curve extended above 12,000 second-feet by logarithmic plotting; minimum, 62 second-feet Sept. 1, 1940 (gage height, 1.43 feet).
Maximum stage known, 29.5 feet, from floodmark shown by old resident, on or about Feb. 3, 1890.

Remarks.--Records good. No regulation; a few small diversions above station for irrigation.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.5	67	2.8	500	7.5	3,860
1.7	108	3.5	855	9.0	5,440
2.0	187	4.5	1,430	12.0	9,400
2.4	330	6.0	2,500	16.0	15,900

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86	132	1,780	3,960	2,240	3,390	2,610	872	386	209	122	82
2	84	122	1,920	3,080	1,960	3,090	2,480	1,010	370	200	118	80
3	84	118	1,710	2,420	1,790	4,060	2,280	8900	362	193	110	78
4	93	115	1,470	2,220	2,120	3,690	2,060	954	350	190	108	76
5	187	113	1,880	1,950	2,680	4,170	1,900	1,120	342	184	108	75
6	236	110	2,120	4,340	4,430	4,360	1,770	1,160	342	184	108	73
7	243	110	1,770	10,000	5,680	3,560	1,660	1,080	362	178	106	73
8	184	127	1,470	5,800	9,870	3,080	1,590	992	370	178	104	71
9	222	442	1,320	4,330	8,540	2,870	1,470	926	338	178	101	69
10	310	888	1,300	10,300	6,180	2,800	1,360	860	334	178	99	69
11	272	1,990	1,140	7,500	5,850	2,620	1,290	822	326	175	97	71
12	236	2,450	1,080	4,800	5,450	2,330	1,360	784	326	170	97	73
13	181	1,050	1,120	4,080	7,140	2,110	1,380	745	322	164	97	75
14	150	695	1,060	4,010	8,550	1,950	1,310	715	306	158	95	75
15	135	522	1,040	3,110	8,180	1,770	1,410	690	302	155	93	75
16	127	432	1,340	2,750	7,990	2,120	1,480	665	294	153	90	75
17	122	374	2,180	2,380	6,340	7,930	1,480	655	294	153	88	75
18	118	330	3,290	2,120	4,940	6,860	1,340	645	283	150	86	76
19	113	298	2,890	3,060	4,130	5,800	1,260	610	275	148	84	76
20	110	275	2,180	6,430	3,520	4,560	1,180	585	264	150	82	76
21	108	264	1,810	12,000	3,060	3,850	1,100	565	260	145	80	76
22	110	268	1,740	15,400	2,710	4,210	1,050	540	253	140	84	73
23	113	1,090	2,790	13,200	3,610	3,890	1,010	522	264	135	110	69
24	113	2,210	4,840	9,180	8,230	4,570	943	500	263	132	203	75
25	110	1,790	3,850	5,980	12,900	4,580	904	486	275	127	175	135
26	110	1,800	4,090	5,450	8,020	4,130	855	473	253	127	127	354
27	110	7,520	3,340	6,780	5,580	4,290	877	455	243	125	108	246
28	142	4,780	2,870	5,140	4,240	4,210	860	446	236	132	99	150
29	206	2,620	2,870	3,940	-	3,560	800	432	226	150	95	120
30	170	2,180	3,060	3,240	-	3,020	762	424	216	140	90	106
31	142	-	4,460	2,600	-	2,580	-	402	-	132	86	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-feet
October	4,727	310	84	152	0.455	0.53	9,380
November	35,215	7,520	110	1,174	3.51	3.92	69,850
December	69,580	4,640	1,040	2,245	6.72	7.75	138,000
Calendar year 1949	464,923	21,200	82	1,274	3.81	51.78	922,100
January	171,530	15,400	1,950	5,533	16.6	19.10	340,200
February	155,930	12,900	1,790	5,569	16.7	17.36	309,300
March	116,010	7,930	1,770	3,742	11.2	12.92	230,100
April	41,821	2,610	762	1,394	4.17	4.66	82,950
May	22,035	1,160	402	711	2.13	2.45	43,710
June	9,053	386	216	302	.904	1.01	17,960
July	4,933	209	125	159	.476	.55	9,780
August	3,250	203	80	105	.314	.36	6,450
September	2,897	354	69	96.6	.289	.32	5,750
Water year 1949-50	636,981	15,400	69	1,745	5.22	70.93	1,263,000

Peak discharge (base, 13,000 sec.-ft.)--Jan. 10 (1 p.m.) 13,500 sec.-ft.; Jan. 22 (12 m.) 16,300 sec.-ft.; Feb. 25 (5:30 a.m.) 14,700 sec.-ft.

a No gage-height record; discharge computed on basis of records for Siletz River at Siletz.

Lake Creek at Triangle Lake, Oreg.

Location.--Water-stage recorder, lat. 44°10', long. 123°34' in SW¹ sec. 20, T. 16 S., R. 7 W., 500 feet downstream from outlet of Triangle Lake. Datum of gage is 672.75 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Drainage area.--50 square miles.

Records available.--August 1931 to September 1950.

Average discharge.--19 years, 204 second-feet.

Extremes.--Maximum discharge during year, 2,280 second-feet Jan. 23 (gage height, 6.18 feet); minimum, 8.4 second-feet Sept. 14, 15 (gage height, 0.53 foot).

1931-50: Maximum discharge, 4,180 second-feet Feb. 18, 1949, from rating curve extended above 2,400 second-feet by logarithmic plotting; minimum gage height, 8.68 feet Feb. 18, 1949 (backwater from debris); minimum discharge, 2.7 second-feet Aug. 1, 1944; minimum daily, 5.5 second-feet Sept. 30 to Oct. 3, 1939.

Remarks.--Records good except those for periods of backwater from debris, which are fair. No diversion above station. Flow regulated by natural storage in Triangle Lake.

Rating table, water year 1949-50, except periods of backwater from debris
(gage height, in feet, and discharge, in second-feet)

0.5	7.7	1.1	41	3.0	485
.6	10	1.3	64	3.5	700
.7	14	1.5	91	4.0	950
.8	18	1.7	124	5.0	1,530
.9	24	2.0	185	6.0	2,210
1.0	32	2.5	316		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	14	349	455	362	725	378	116	49	31	15	12
2	13	14	299	430	313	596	356	128	44	30	15	12
3	12	13	265	356	263	610	337	132	41	28	14	12
4	12	13	234	307	244	660	313	130	39	27	14	11
5	13	12	232	265	255	664	290	134	40	25	13	11
6	15	12	247	306	331	664	274	134	40	24	13	10
7	16	12	244	624	459	614	265	132	43	23	13	10
8	19	13	216	766	648	553	247	126	45	23	13	9.7
9	21	18	195	642	875	509	229	119	45	22	12	9.2
10	22	38	183	691	870	497	212	114	45	22	12	9.2
11	23	81	165	775	810	474	195	107	45	21	12	9.0
12	23	157	151	655	795	426	197	102	44	21	12	8.7
13	23	181	143	537	835	385	199	97	44	21	12	8.7
14	23	135	139	489	1,050	349	197	94	43	20	11	8.4
15	23	102	137	489	1,250	322	192	91	43	20	11	8.4
16	21	80	153	455	1,340	331	187	88	42	20	11	8.7
17	19	68	214	362	1,310	628	185	85	41	19	11	8.7
18	17	58	378	302	1,100	1,090	178	84	40	18	11	8.7
19	16	50	452	290	900	1,060	167	84	39	18	11	8.7
20	16	45	385	395	740	885	157	81	38	17	11	8.7
21	15	41	296	865	628	725	153	78	37	17	10	8.7
22	14	39	250	1,850	545	678	147	76	36	17	10	8.7
23	14	60	265	2,150	549	673	143	73	36	16	11	9.0
24	13	181	402	1,660	960	673	135	70	36	16	13	9.2
25	13	242	524	1,190	2,050	655	128	68	36	16	16	10
26	13	204	525	935	1,790	624	121	67	36	16	16	12
27	13	414	478	915	1,280	614	119	64	35	15	16	14
28	14	650	412	805	965	606	117	80	34	15	16	15
29	15	598	378	642	-	553	114	80	34	15	15	15
30	15	444	375	463	-	481	109	69	32	15	14	15
31	15	-	412	395	-	419	-	58	32	15	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	514	23	12	16.6	0.332	0.58	1,020
November	3,987	650	12	133	2.66	2.97	7,910
December	9,098	525	137	293	5.86	6.77	18,050
Calendar year 1949	64,965.7	3,930	9.7	178	3.56	48.35	128,900
January	21,461	2,150	265	692	13.8	15.96	42,570
February	23,515	2,050	244	840	16.8	17.49	46,640
March	18,743	1,090	322	605	12.1	13.94	37,180
April	6,041	378	109	201	4.02	4.49	11,980
May	2,961	134	58	95.5	1.91	2.20	5,870
June	1,202	49	32	40.1	.802	.89	2,380
July	623	31	15	20.1	.402	.46	1,240
August	397	16	10	12.8	.256	.30	780
September	309.4	15	8.4	10.3	.206	.23	614
Water year 1949-50	88,851.4	2,150	8.4	243	4.86	66.08	176,200

Peak discharge (base, 1,200 sec.-ft.)--Jan. 23 (1 a.m.) 2,280 sec.-ft.; Feb. 16 (11 p.m.) 1,370 sec.-ft.; Feb. 25 (3 to 4 p.m.) 2,250 sec.-ft.

Note.--Backwater from debris Nov. 28 to Jan. 8, Jan. 23 to May 30.

UMPQUA RIVER BASIN

South Umpqua River at Tiller, Oreg.

Location.--Water-stage recorder, lat. 42°56', long. 122°57', in NE $\frac{1}{4}$ sec. 33, T. 30 S., R. 2 W., 0.3 mile upstream from Elk Creek, 0.4 mile downstream from Salt Creek, and 0.4 mile east of Tiller. Datum of gage is 991.8 feet above mean sea level, datum of 1929 (from river-profile survey).

Drainage area.--454 square miles.

Records available.--November 1910 to November 1911, October 1939 to September 1950.

Average discharge.--11 years, 932 second-feet.

Extremes.--Maximum discharge during year, 11,800 second-feet Jan. 23 (gage height, 11.92 feet, referred to outside gage); minimum, 42 second-feet Oct. 3, 4.

1910-11, 1939-50: Maximum discharge, 29,900 second-feet Dec. 31, 1942 (gage height, 19.56 feet, referred to outside gage), from rating curve extended above 12,000 second-feet on basis of slope-area determination at gage height 22.35 feet; minimum observed, 20 second-feet Sept. 3, 4, 1911.

Remarks.--Records excellent. Small diversions above station for irrigation; no regulation.

Cooperation.--Water-stage recorder inspected by employee of U. S. Forest Service.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.8	33	1.3	120	2.5	560	6.5	3,780
0.9	44	1.5	173	3.2	940	8.0	5,482
1.0	59	1.7	235	4.0	1,490	10.0	8,380
1.1	77	2.0	340	5.0	2,340	11.0	10,100

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	64	610	510	850	2,230	2,700	1,290	1,270	380	102	53
2	46	61	496	460	765	2,290	3,060	1,350	1,210	348	91	52
3	43	59	429	380	754	2,950	2,510	1,280	1,080	333	95	50
4	44	59	348	376	809	3,110	2,070	1,200	1,030	308	87	50
5	148	58	452	336	1,170	3,170	2,000	1,400	988	291	85	50
6	225	56	620	312	2,380	3,090	2,340	1,380	886	270	85	50
7	326	56	465	328	2,020	2,470	2,050	1,190	809	249	83	50
8	173	61	412	344	1,620	2,080	1,800	1,060	680	238	81	50
9	162	138	368	344	1,620	1,880	1,560	1,030	625	229	79	50
10	766	203	344	525	1,880	1,860	1,370	1,100	605	219	77	50
11	376	165	302	570	2,090	1,670	1,300	1,400	770	206	77	50
12	305	197	270	452	1,830	1,450	1,520	1,780	1,600	191	73	50
13	203	145	252	424	1,970	1,300	2,140	2,150	1,180	179	72	48
14	151	122	270	416	3,350	1,210	1,940	2,160	934	170	70	47
15	122	113	348	588	4,740	1,140	1,690	1,950	826	162	70	47
16	108	104	496	352	6,410	1,590	1,570	1,770	832	156	68	48
17	97	97	690	380	4,410	7,240	1,690	1,710	1,180	153	64	61
18	91	89	970	8,400	3,210	5,660	1,800	1,480	904	148	63	61
19	83	81	738	6,080	3,030	8,620	1,960	1,270	782	142	63	58
20	79	77	492	5,290	2,650	4,720	2,450	1,240	732	140	61	58
21	77	73	400	6,710	2,150	3,440	2,350	1,370	685	132	59	52
22	75	72	368	7,030	1,840	4,110	2,070	1,560	625	128	58	48
23	73	106	408	9,610	2,280	3,350	1,700	1,600	560	125	58	47
24	72	322	1,080	5,020	4,510	2,830	1,420	1,470	540	122	63	46
25	68	176	832	3,080	5,250	2,330	1,300	1,390	478	120	73	48
26	66	145	832	2,200	4,210	2,150	1,190	1,420	434	118	68	73
27	66	1,130	710	1,850	3,310	2,420	1,210	1,480	412	115	63	128
28	64	1,539	650	1,600	2,600	2,180	1,160	1,300	396	113	59	83
29	68	798	655	1,300	-	1,870	1,060	1,150	398	118	64	58
30	70	760	665	1,150	-	1,780	1,010	1,190	392	113	56	59
31	66	-	565	952	-	1,990	-	1,240	-	108	54	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	4,361	766	43	141	0.311	0.36	8,650
November	7,117	1,530	56	237	0.522	0.58	14,120
December	16,537	1,080	252	533	1.17	1.35	32,800
Calendar year 1949	290,514	6,930	38	796	1.75	23.80	576,200
January	67,167	9,610	312	2,167	4.77	5.50	133,200
February	73,708	6,410	754	2,632	5.80	6.04	146,200
March	88,180	8,620	1,140	2,845	6.27	7.22	174,900
April	53,990	3,080	1,010	1,800	3.96	4.42	107,100
May	44,360	2,160	1,030	1,431	3.15	3.63	87,990
June	23,841	1,600	392	795	1.75	1.95	47,290
July	5,822	390	106	188	0.414	0.48	11,550
August	2,215	102	54	71.5	0.157	0.18	4,390
September	1,679	128	46	56.0	0.123	0.14	3,330
Water year 1949-50	388,977	9,610	43	1,066	2.35	31.85	771,500

Peak discharge (base, 7,000 sec.-ft.).--Jan. 18 (10 a.m.) 11,700 sec.-ft.; Jan. 23 (9 a.m.) 11,800 sec.-ft.; Feb. 16 (10:30 a.m.) 7,440 sec.-ft.; Mar. 19 (5:30 a.m.) 10,800 sec.-ft.

South Umpqua River near Brockway, Oreg.

Location.--Water-stage recorder, lat. 43°08', long. 123°24', in SW $\frac{1}{4}$ sec. 15, T. 28 S., R. 6 W., at Winston Bridge on Pacific Highway, 2 $\frac{1}{2}$ miles northeast of Brockway and 4 miles downstream from Lookingglass Creek. Datum of gage is 461.84 feet above mean sea level, datum of 1929 (Oregon State Highway bench mark).

Drainage area.--1,640 square miles.

Records available.--December 1905 to June 1912, October 1923 to September 1926, January 1942 to September 1950.

Average discharge.--16 years (1906-11, 1923-26, 1942-50), 2,500 second-feet.

Extremes.--Maximum discharge observed during year, 38,800 second-feet Jan. 23 (gage height, 20.61 feet); minimum, 80 second-feet Sept. 14.

1905-12, 1923-26, 1942-50: Maximum discharge, 78,400 second-feet Jan. 7, 1948 (gage height, 29.0 feet, from floodmark, present site and datum), from rating curve extended above 50,000 second-feet on basis of slope-area determination at gage height 32.4 feet; minimum observed, 36 second-feet Aug. 12, 13, 1926.

Flood of Feb. 21, 1927, reached a stage of about 31.2 feet (revised), present site and datum (discharge, 101,000 second-feet, revised). Flood in February 1890 reached a stage 1.9 feet higher, according to John Lander, who lived nearby at the time of both floods (discharge, about 130,000 second-feet, revised).

Revisions.--The figures of maximum discharge for some water years have been revised as shown in the following table. They supersede those shown in the water-supply papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (second-feet)
1064.....	1946	Dec. 29, 1945	28.2	72,200
1124.....	1948	Jan. 7, 1948	29.0	78,400

Remarks.--Records excellent. Many small diversions above station for irrigation; no regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	107	176	1,220	1,940	3,590	4,870	5,020	1,860	1,600	570	160	91
2	110	174	961	1,840	3,120	4,520	5,820	2,290	1,610	535	154	93
3	108	170	891	1,560	2,810	4,830	5,190	2,390	1,490	485	146	91
4	105	168	788	1,360	3,260	5,720	4,360	2,250	1,360	443	142	86
5	112	168	1,090	1,310	6,180	5,700	3,930	2,280	1,300	420	140	83
6	172	166	2,560	1,220	12,300	7,230	4,110	2,550	1,230	398	138	84
7	535	166	1,650	1,740	11,200	6,020	3,980	2,350	1,210	360	140	84
8	608	162	1,200	3,340	8,000	5,020	3,650	2,110	1,130	360	138	86
9	402	195	1,000	3,310	7,810	4,650	3,280	1,930	975	336	136	84
10	628	608	1,010	9,450	7,790	4,740	2,910	1,890	919	320	138	84
11	1,100	752	975	8,620	8,590	4,750	2,670	2,020	961	320	134	84
12	664	570	870	4,650	7,430	4,140	2,600	2,430	2,230	508	129	86
13	525	578	758	4,650	6,650	3,710	3,420	2,850	2,520	293	125	84
14	398	416	698	6,760	7,650	3,440	3,770	3,040	1,810	276	123	81
15	316	340	722	4,090	10,900	3,190	3,360	2,870	1,460	259	117	83
16	272	304	891	3,140	12,300	3,110	3,070	2,590	1,290	250	119	86
17	244	279	1,540	2,960	12,000	13,300	2,980	2,460	1,270	241	117	89
18	226	259	4,260	12,700	8,360	18,500	3,120	2,290	1,630	235	114	91
19	211	241	4,470	26,100	7,060	19,800	3,120	1,990	1,440	232	108	101
20	200	235	2,610	20,600	6,400	14,500	3,520	1,810	1,230	226	103	112
21	190	226	1,790	23,600	5,360	9,900	3,760	1,810	1,150	217	103	103
22	188	211	1,460	26,800	4,520	11,100	3,460	1,980	1,040	202	94	100
23	188	223	1,400	32,200	4,240	10,400	3,070	2,120	954	198	93	93
24	188	244	2,630	23,600	6,930	9,640	2,610	2,030	884	192	101	94
25	180	466	3,420	12,800	10,500	8,360	2,330	1,910	856	182	108	96
26	182	364	2,740	8,410	9,140	7,120	2,150	1,860	758	174	117	98
27	180	294	2,440	7,410	7,450	6,800	2,020	1,900	686	168	125	108
28	180	2,640	2,010	9,660	5,920	6,530	2,070	1,860	630	168	117	150
29	176	1,940	1,840	8,760	-	5,700	1,910	1,650	603	166	107	176
30	176	1,260	2,210	5,480	-	5,060	1,800	1,530	581	168	100	144
31	180	-	2,080	4,360	-	4,750	-	1,560	-	170	98	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	9,049	1,100	103	292	0.178	0.21	17,950
November	14,040	2,640	162	468	.285	.32	27,850
December	54,184	4,470	698	1,748	1.07	1.25	107,500
Calendar year 1949	697,753	31,400	75	1,912	1.17	15.63	1,384,000
January	281,440	32,200	1,220	9,079	5.54	6.38	558,200
February	207,460	12,300	2,810	7,400	4.52	4.70	411,500
March	226,700	19,800	3,110	7,313	4.46	5.14	449,700
April	99,080	5,820	1,800	3,302	2.01	2.25	196,500
May	66,460	3,040	1,530	2,144	1.31	1.51	131,800
June	37,707	2,520	581	1,257	.766	.86	74,790
July	8,895	570	166	287	.175	.20	17,640
August	3,784	160	93	122	.074	.09	7,510
September	2,925	176	81	97.5	.059	.07	5,800
Water year 1949-50	1,011,704	32,200	81	2,772	1.69	22.96	2,007,000

Peak discharge (base, 15,000 sec.-ft.).--Jan. 18 (9 p.m.) 31,900 sec.-ft.; Jan. 23 (6 p.m.) 38,800 sec.-ft.; Mar. 17 (9 p.m.) 24,300 sec.-ft.

UMPQUA RIVER BASIN

Umpqua River near Elkton, Oreg.

Location.--Staff gage, lat. 43°35', long. 123°33', in sec. 8, T. 23 S., R. 7 W., 4 miles south of Elkton. Datum of gage is 91.33 feet above mean sea level, datum of 1929.

Drainage area.--3,680 square miles.

Records available.--October 1905 to September 1950 (incomplete prior to November 1908).

Average discharge.--45 years, 7,092 second-feet.

Extremes.--Maximum discharge observed during year, 78,000 second-feet Jan. 22 (gage height, 23.36 feet); minimum observed, 1,130 second-feet Oct. 3 (gage height, 1.38 feet).

1905-50: Maximum discharge, 186,000 second-feet Dec. 31, 1942 (gage height, 41.1 feet), from rating curve extended above 67,000 second-feet on basis of slope-area determination at gage height 44.2 feet; minimum observed, 640 second-feet July 18, 1926 (gage height, 0.71 foot).

Maximum stage known, 45.5 feet sometime in 1861.

Revisions.--The figures of maximum discharge for some water years have been revised as shown in the following table. They supersede those published in the water-supply papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (second-feet)
654.....	1926-27	Feb. 21	40.0	185,000
864.....	1937-38	Feb. 7	31.0	119,000
984.....	1942-43	Dec. 31	41.1	186,000
1064.....	1945-46	Dec. 29	40.1	179,000

† Site and datum then in use or 41.0 feet, present site and datum.

Remarks.--Records good except those for periods of doubtful gage-height record, which are fair. Gage read twice daily. Some diversions for irrigation from streams in South Umpqua River Basin, but low flow probably only slightly affected. Power plant at Winchester and manipulation of gates and racks of fish hatchery at Diamond Lake ordinarily do not affect discharge at this station.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

1.3	1,050	3.0	3,020	6.0	8,390	11.0	23,400	19.0	58,800
1.8	1,560	4.0	4,540	7.0	10,780	13.0	30,700	24.0	81,000
2.3	2,120	5.0	5,320	9.0	16,500	16.0	43,100		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,150	1,500	5,920	6,320	9,160	14,900	12,300	5,920	6,520	3,270	1,600	1,240
2	1,140	1,280	5,550	6,120	8,280	12,300	d14,500	6,220	6,420	3,150	1,580	1,230
3	1,130	1,270	5,780	5,640	7,320	11,800	d14,000	7,530	6,320	3,030	1,560	1,230
4	1,150	1,250	4,140	4,940	9,620	13,400	d12,500	8,170	6,220	2,980	1,540	1,220
5	1,170	1,250	3,820	4,540	14,600	15,900	d11,500	8,280	6,020	2,940	1,520	1,210
6	1,670	1,230	6,020	4,460	21,200	16,500	d12,000	7,950	5,920	2,900	1,490	1,210
7	2,860	1,600	4,860	5,180	27,000	17,200	d11,000	7,740	5,640	2,820	1,480	1,180
8	2,340	1,210	4,460	10,400	29,900	17,800	d10,000	7,320	5,100	2,720	1,450	1,190
9	2,220	1,310	4,300	12,900	22,300	d14,500	49,000	7,020	4,780	2,550	1,430	1,170
10	3,100	1,490	4,060	17,400	19,200	d12,000	48,500	6,820	4,780	2,400	1,430	1,170
11	3,220	2,050	3,980	29,200	18,800	d12,300	48,000	d6,600	6,220	2,300	1,410	1,170
12	2,580	2,730	3,590	14,000	18,500	12,300	47,500	d7,500	8,500	2,240	1,400	1,170
13	2,120	2,450	3,290	7,420	18,500	10,200	49,000	d8,400	8,500	2,140	1,390	1,170
14	1,910	2,110	3,250	12,600	18,800	9,380	d10,000	d9,300	7,420	2,080	1,370	1,150
15	1,710	1,780	3,160	13,200	19,500	8,830	9,270	d10,000	7,020	2,020	1,360	1,150
16	1,570	1,620	3,530	8,830	26,600	8,610	9,050	d9,200	6,320	1,990	1,340	1,150
17	1,490	1,530	5,730	9,620	19,800	26,600	8,720	8,720	d6,600	1,960	1,320	1,150
18	1,440	1,470	10,200	21,600	17,500	52,900	8,830	8,830	d7,100	1,920	1,310	1,170
19	1,420	1,420	14,000	63,700	16,800	49,500	9,620	7,840	d5,800	1,890	1,290	1,170
20	1,410	1,380	8,830	61,800	d16,000	46,200	10,200	7,020	d5,200	1,870	1,280	1,150
21	1,390	1,340	6,620	56,600	d15,200	44,400	10,700	6,520	d4,900	1,860	1,270	1,150
22	1,390	1,230	5,280	77,500	d14,500	39,800	9,960	6,920	4,700	1,850	1,260	1,180
23	1,370	1,640	5,460	74,000	d15,000	29,800	9,160	6,820	4,620	1,840	1,260	1,220
24	1,350	2,600	6,320	49,300	19,200	22,600	8,390	6,920	4,460	1,820	1,290	1,260
25	1,340	2,920	9,270	28,100	31,900	18,800	7,530	6,920	4,300	1,790	1,310	1,310
26	1,280	2,860	8,500	19,800	29,200	16,800	6,920	7,020	3,980	1,750	1,290	1,330
27	1,250	6,920	7,950	18,500	22,600	15,900	6,520	7,120	3,820	1,710	1,290	1,350
28	1,230	16,200	7,120	18,100	17,200	15,600	6,520	6,920	3,590	1,690	1,290	1,370
29	1,250	8,590	6,720	17,500	-	14,900	6,620	6,920	3,520	1,660	1,270	1,350
30	1,290	6,120	6,520	14,300	-	13,700	6,720	6,720	3,430	1,650	1,260	1,350
31	1,340	-	6,420	11,500	-	12,900	-	6,620	-	1,630	1,250	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	51,080	3,220	1,130	1,648	0.448	0.52	101,300
November	81,610	16,200	1,200	2,720	0.739	0.82	161,900
December	183,630	14,000	3,160	5,924	1.61	1.86	364,200
Calendar year 1949	2,177,480	72,500	1,110	5,966	1.62	22.01	4,319,000
January	705,080	77,500	4,460	22,740	6.18	7.13	1,398,000
February	525,180	31,900	7,320	18,760	5.10	5.31	1,042,000
March	626,120	52,900	8,610	20,200	5.49	6.33	1,242,000
April	284,530	14,500	6,520	9,484	2.58	2.88	564,400
May	231,250	10,000	5,920	7,460	2.03	2.34	458,700
June	167,720	8,500	3,430	5,591	1.52	1.69	332,700
July	68,400	3,270	1,630	2,206	.599	.69	135,700
August	42,590	1,600	1,250	1,374	.373	.43	84,480
September	36,520	1,370	1,150	1,218	.331	.37	72,480
Water year 1949-50	3,003,720	77,500	1,130	8,229	2.24	30.37	5,958,000

Peak discharge (base, 52,000 sec.-ft.).--Jan. 19 (8 a.m.) 67,100 sec.-ft.; Jan. 22 (5 p.m.) 78,000 sec.-ft.; Mar. 18 (about 6 a.m.) 58,500 sec.-ft.

d Doubtful gage-height record; discharge computed on basis of records for South Umpqua River near Brockway and North Umpqua River above Copeland Creek.

Cow Creek near Azalea, Oreg.

Location.--Water-stage recorder, lat. 42°50', long. 123°11', in sec. 4, T. 32 S., R. 4 W., 4 miles northeast of Azalea.

Drainage area.--76 square miles.

Records available.--April 1926 to September 1950.

Average discharge.--20 years (1929-31, 1932-50), 92.3 second-feet.

Extremes.--Maximum discharge during year, 1,470 second-feet Jan. 23 (gage height, 6.12 feet); minimum, 6.4 second-feet Aug. 21.

1926-50: Maximum discharge, 4,550 second-feet Jan. 6, 1948 (gage height, 11.50 feet); minimum observed, 4 second-feet Sept. 9-19, 1929, Aug. 26-28, 1931, Aug. 21 to Sept. 6, 1934.

Remarks.--Records good except those for period of backwater from leaves and debris, which are fair. Small diversions above station for irrigation.

Revisions (water years).--W 984: 1933-36. W 1154: 1946(M), 1948(M).

Rating table, water year 1949-50, except period of backwater from leaves and debris (gage height, in feet, and discharge, in second-feet)

1.7	6.0	2.1	39	2.7	152	4.0	520
1.8	10	2.2	55	3.0	222	4.5	720
1.9	17	2.3	72	3.3	295	5.0	935
2.0	26	2.5	109	3.6	385	5.5	1,160

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	12	18	34	107	184	215	100	36	25	13	9.6
2	11	12	19	27	109	184	212	103	35	24	12	9.6
3	11	12	21	25	111	193	198	98	32	23	12	9.6
4	11	12	19	29	161	215	182	92	31	22	12	9.2
5	14	13	31	27	248	236	180	96	31	22	12	9.6
6	22	13	31	25	536	234	186	94	32	22	12	10
7	35	13	23	29	295	191	168	90	39	21	12	9.6
8	18	14	20	38	234	166	157	86	36	20	12	9.6
9	18	39	20	35	236	152	150	86	34	19	12	9.6
10	42	42	22	92	253	150	137	90	38	19	12	9.2
11	21	24	20	76	244	139	132	96	58	19	12	9.2
12	16	22	17	49	205	126	148	100	161	19	12	9.2
13	14	18	17	57	210	120	177	101	83	17	12	9.2
14	12	16	18	72	265	115	159	96	62	16	12	9.2
15	12	16	21	52	331	113	145	90	53	16	11	9.6
16	11	14	25	45	568	111	141	85	55	16	11	9.6
17	11	14	39	49	400	687	148	79	62	16	11	10
18	11	14	57	567	290	499	154	74	50	15	10	10
19	11	12	47	478	268	876	157	69	44	15	10	10
20	11	12	31	432	236	436	177	65	41	15	10	10
21	12	12	27	840	200	367	168	64	39	15	8.2	10
22	12	12	26	908	177	510	161	62	38	14	9.2	9.6
23	12	12	30	1,130	177	376	139	60	36	15	9.6	9.6
24	12	12	62	516	236	358	122	55	36	14	10	9.6
25	12	12	47	278	301	288	113	52	35	14	12	10
26	12	12	39	203	295	258	107	50	32	14	11	13
27	11	15	38	196	246	256	105	49	31	14	10	17
28	11	27	32	200	205	229	100	45	29	14	10	14
29	12	22	35	152	-	203	94	44	27	14	9.6	13
30	12	19	44	132	-	191	90	42	26	14	9.6	12
31	12	-	35	105	-	193	-	38	-	13	9.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-foot
October	453	42	11	14.6	0.192	0.22	699
November	499	42	12	16.6	.218	.24	990
December	931	62	17	30.0	.395	.46	1,850
Calendar year 1949	24,503.1	1,820	8.7	67.1	.883	12.00	48,620
January	6,898	1,130	25	223	2.93	3.38	13,680
February	7,144	568	107	255	3.36	3.50	14,170
March	8,156	687	111	263	3.46	3.99	16,180
April	4,522	215	90	151	1.99	2.21	8,970
May	2,351	103	38	75.8	.997	1.15	4,660
June	1,342	161	26	44.7	.588	.66	2,660
July	536	25	13	17.3	.228	.26	1,060
August	340.8	13	8.2	11.0	.145	.17	676
September	309.4	17	9.2	10.3	.136	.15	614
Water year 1949-50	33,482.2	1,130	8.2	91.7	1.21	16.39	66,410

Peak discharge (base, 800 sec.-ft.).--Jan. 23 (10 a.m.) 1,470 sec.-ft.; Mar. 17 (12 m.) 1,310 sec.-ft.

Note.--Backwater from leaves and debris Oct. 1 to Jan. 17.

North Umpqua River below Lake Creek, Oreg.

Location.--Water-stage recorder, lat. 43°19', long. 122°11', in NW¼ sec. 13, T. 26 S., R. 5 E., 600 feet downstream from Lake Creek and 30 miles southwest of Crescent. Altitude of gage is 4,090 feet (from river-profile map).

Drainage area.--175 square miles.

Records available.--October 1927 to September 1950.

Average discharge.--22 years (1927-45, 1946-50), 377 second-feet.

Extremes.--Maximum discharge during year, 922 second-feet June 2, 3, 11; maximum gage height, 2.05 feet May 31 (backwater from log); minimum discharge, 332 second-feet Dec. 11 (gage height, 0.95 foot).
1927-50: Maximum discharge, 1,190 second-feet June 9, 1933 (gage height, 2.34 feet), from rating curve extended above 700 second-feet; minimum, 206 second-feet Dec. 9, 1931.

Remarks.--Records excellent except those for period of backwater from log, which are good. No diversion above station. Flow slightly regulated by Diamond Lake.

Rating table, water year 1949-50, except period of backwater from log
(gage height, in feet, and discharge, in second-feet)

1.0	351	1.5	565
1.1	390	1.8	755
1.3	470	2.0	895

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	367	382	402	386	394	394	414	474	843	626	442	410
2	367	378	398	378	382	398	414	470	870	615	442	410
3	367	378	394	351	390	414	410	466	878	610	442	410
4	370	378	394	382	422	410	410	458	878	605	442	410
5	390	378	394	390	418	410	410	454	870	585	458	406
6	378	374	390	390	402	406	414	450	852	555	438	406
7	386	370	390	386	398	402	410	450	810	550	438	402
8	426	378	386	386	394	402	410	450	758	540	442	402
9	430	382	386	390	386	402	402	450	716	530	442	402
10	438	382	386	390	390	406	398	446	702	520	442	402
11	434	386	363	390	386	402	398	454	810	510	438	402
12	426	392	386	390	382	398	410	454	827	502	434	402
13	418	378	382	386	382	394	410	492	780	502	430	402
14	414	378	378	378	386	390	402	530	758	492	430	402
15	406	370	378	390	386	386	406	565	750	488	426	402
16	402	367	378	394	382	406	410	595	742	484	426	402
17	402	367	386	406	382	426	422	615	722	484	422	402
18	398	363	390	422	378	422	430	615	728	479	422	462
19	398	363	386	418	378	418	442	615	722	479	422	462
20	398	363	370	414	374	414	454	620	735	470	422	458
21	394	363	390	418	374	414	470	642	742	466	422	454
22	394	363	386	422	374	418	474	670	722	462	422	450
23	390	402	386	422	382	414	474	718	702	462	422	446
24	390	386	386	418	414	410	474	722	683	462	422	442
25	390	382	386	418	418	410	474	750	648	462	422	442
26	386	386	382	418	410	410	470	765	637	458	418	458
27	386	446	382	418	402	410	470	795	626	458	418	442
28	390	446	382	418	394	406	466	795	620	454	418	430
29	386	414	382	410	-	398	462	788	626	450	414	386
30	382	414	386	414	-	394	466	802	626	446	414	374
31	382	-	382	374	-	394	-	818	-	446	414	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	12,285	438	367	396	2.26	2.61	24,370
November	11,499	446	363	383	2.19	2.44	22,810
December	11,947	402	363	385	2.20	2.54	23,700
Calendar year 1949	162,203	931	343	444	2.54	34.45	321,700
January	12,367	422	351	399	2.28	2.63	24,530
February	10,960	422	374	391	2.23	2.33	21,740
March	12,578	426	366	406	2.32	2.67	24,950
April	12,976	474	398	433	2.47	2.76	25,740
May	18,386	818	446	593	3.39	3.91	36,470
June	22,383	878	620	746	4.26	4.76	44,400
July	15,652	626	446	505	2.89	3.33	31,050
August	13,286	442	414	429	2.45	2.82	26,350
September	12,580	462	374	419	2.39	2.67	24,950
Water year 1949-50	166,899	878	351	457	2.61	35.47	331,100

Peak discharge (base, 480 sec.-ft.).--11 p.m. June 2 to 2 a.m. June 3, 922 sec.-ft.; June 11 (3 to 4 p.m.) 922 sec.-ft.

Note.--Backwater from log Dec. 26 to June 1.

North Umpqua River above Clearwater River, Oreg.

Location.--Water-stage recorder, lat. 43°17', long. 122°24', in NE¼ sec. 25, T. 26 S., R. 3 E., 2 miles upstream from Clearwater River. Datum of gage is 2,457.51 feet above mean sea level (levels by California Oregon Power Co.).

Drainage area.--258 square miles.

Records available.--September 1948 to September 1950.

Extremes.--Maximum discharge during year, 1,610 second-feet June 2 (gage height, 3.79 feet); minimum daily, 470 second-feet Nov. 22, Jan. 3.
1948-50: Maximum discharge, 2,380 second-feet May 2, 1949 (gage height, 4.36 feet), from rating curve extended above 1,400 second-feet by logarithmic plotting; minimum daily, 470 second-feet Nov. 22, 1949, Jan. 3, 1950.

Remarks.--Records good except those for periods of no gage-height record, which are poor. No diversion above station. Flow slightly regulated by Diamond Lake.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 17 Jan. 18 to Sept. 30

2.2	440	2.3	480
2.6	760	2.6	695
3.0	1,110	3.0	995
		3.5	1,380
		4.0	1,780

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	488	504	a690	a520	628	905	995	988	1,580	1,050	658	571
2	480	504	a660	a510	613	912	1,130	972	1,550	1,020	650	571
3	480	496	624	a470	620	1,140	1,010	935	1,540	1,000	642	571
4	496	496	600	a495	650	1,180	950	905	1,520	988	642	571
5	560	496	608	a500	658	1,160	942	905	1,510	958	635	571
6	536	488	592	a490	658	1,080	965	875	1,440	912	635	564
7	520	480	584	a495	642	995	928	852	1,360	890	635	564
8	568	504	576	a495	635	935	898	852	1,240	875	635	564
9	600	520	576	520	620	890	860	845	1,180	852	635	564
10	632	512	560	504	620	845	838	860	1,160	830	635	557
11	632	528	520	504	613	815	830	950	1,360	792	628	557
12	592	a525	560	496	606	785	860	1,080	1,500	778	620	550
13	568	a520	544	504	628	740	935	1,280	1,390	770	620	550
14	552	a520	544	488	702	718	898	1,360	1,320	762	613	550
15	536	a520	536	504	800	702	882	1,350	1,290	755	613	543
16	536	a510	544	520	808	770	898	1,340	1,300	755	606	543
17	536	a500	536	576	808	1,220	942	1,380	1,270	749	606	543
18	536	a490	a540	905	785	1,140	988	1,320	1,250	740	606	606
19	528	a480	a540	905	778	1,120	1,040	1,280	1,240	732	599	620
20	520	a480	a510	852	770	1,020	1,190	1,280	1,260	725	599	613
21	520	a480	a535	935	740	965	1,220	1,360	1,250	718	599	606
22	520	a470	a520	1,120	718	1,020	1,200	1,440	1,210	710	599	599
23	520	777	a535	1,070	770	965	1,120	1,490	1,180	702	599	599
24	512	a660	a560	905	1,270	920	1,080	1,480	1,130	695	606	592
25	512	a540	a550	830	1,400	875	1,020	1,480	1,080	695	599	599
26	512	a560	a540	808	1,200	852	995	1,520	1,040	688	592	628
27	512	1,020	a540	785	1,070	830	995	1,560	1,020	680	585	599
28	512	896	a540	732	965	808	972	1,510	1,030	680	578	578
29	512	a700	a540	680	-	792	950	1,480	1,040	672	578	515
30	512	a730	a530	680	-	792	942	1,520	1,050	665	578	501
31	504	-	a520	613	-	808	-	1,550	-	665	571	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	16,544	632	480	534	2.07	2.38	32,810
November	16,906	1,020	470	564	2.19	2.44	33,530
December	17,354	690	510	560	2.17	2.50	34,420
Calendar year 1949	275,030	2,250	470	748	2.90	39.36	541,600
January	20,411	1,120	470	658	2.55	2.94	40,480
February	21,775	1,400	606	778	3.02	3.14	43,190
March	28,699	1,220	702	926	3.59	4.14	56,920
April	29,453	1,220	830	982	3.81	4.25	58,420
May	37,999	1,560	845	1,228	4.75	5.48	75,370
June	38,310	1,590	1,020	1,277	4.95	5.52	75,990
July	24,502	1,050	665	790	3.06	3.53	48,600
August	18,996	658	571	613	2.38	2.74	37,680
September	17,159	628	501	572	2.22	2.47	34,030
Water year 1949-50	288,108	1,590	470	789	3.06	41.53	571,400

Peak discharge (base, 1,400 sec.-ft.).--Feb. 24 (6 to 8 p.m.) 1,450 sec.-ft.; June 2 (2 to 3 a.m.) 1,610 sec.-ft.; June 11 (7 to 8 p.m.) 1,560 sec.-ft.

a No gage-height record; discharge computed on basis of records for North Umpqua River below Lake Creek and Clearwater River at mouth.

UMPQUA RIVER BASIN

North Umpqua River above Copeland Creek, Oreg.

Location.--Water-stage recorder, lat. 43°18', long. 122°32', in NE¹/₄ sec. 23, T. 26 S., R. 2 E., half a mile upstream from Copeland Creek and 40 miles east of Roseburg, Douglas County. Altitude of gage is 1,580 feet (from river-profile map).

Drainage area.--471 square miles.

Records available.--September 1949 to September 1950.

Extremes.--Maximum discharge during period, 4,670 second-feet Feb. 25 (gage height, 6.82 feet), from rating curve extended above 3,200 second-feet on basis of slope-area determination at gage height 11.3 feet; minimum discharge not determined, occurred Jan. 8 (gage height, 1.97 feet); minimum daily, 768 second-feet Oct. 2, 3.

Remarks.--Records good. No diversion above station. Regulation by power plant upstream; slightly regulated by Diamond Lake.

Cooperation.--Water-stage recorder inspected by employees of California Oregon Power Co.

Rating table, Sept. 11, 1949, to Sept. 30, 1950 (gage height, in feet, and discharge, in second-feet)

2.7	720	4.5	2,110
3.0	900	5.0	2,570
3.5	1,250	5.5	3,080
4.0	1,660	6.2	3,990

Discharge, in second-feet, 1949-50

1949

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Sept. 11	864	Sept. 16	852	Sept. 21	792	Sept. 26	780
12	8440	17	828	22	792	27	780
13	816	18	810	23	786	28	804
14	810	19	804	24	786	29	798
15	816	20	798	25	786	30	786

a No gage-height record; discharge interpolated.

1949-50

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	774	798	1,220	894	1,180	2,180	2,500	2,260	3,690	2,000	1,090	912
2	768	798	1,160	858	1,140	2,170	2,870	2,240	3,590	2,000	1,070	918
3	768	792	1,080	804	1,140	2,790	2,570	2,130	3,430	1,930	1,060	900
4	780	798	1,030	846	1,190	2,930	2,330	2,050	3,430	1,860	1,060	900
5	948	792	1,060	852	1,280	2,890	2,320	2,050	3,370	1,800	1,050	906
6	894	786	988	834	1,460	2,670	2,430	1,990	3,160	1,690	1,040	906
7	864	792	981	852	1,380	2,350	2,320	1,900	2,810	1,630	1,040	912
8	882	810	960	846	1,310	2,160	2,170	1,840	2,540	1,580	1,040	912
9	936	858	964	858	1,310	2,010	2,040	1,840	2,410	1,540	1,040	900
10	1,030	840	936	840	1,310	1,850	1,940	1,930	2,350	1,490	1,020	906
11	1,020	858	870	852	1,270	1,740	1,910	2,270	2,770	1,430	1,020	858
12	960	846	894	858	1,250	1,580	2,080	2,740	3,470	1,400	1,010	918
13	906	822	888	840	1,310	1,550	2,370	3,390	3,080	1,390	995	888
14	876	810	900	834	1,690	1,500	2,230	3,750	2,840	1,580	988	888
15	864	810	894	852	2,180	1,450	2,130	3,390	2,720	1,350	981	888
16	852	810	912	870	2,400	1,700	2,110	3,320	2,750	1,320	974	900
17	846	798	930	918	2,240	3,530	2,240	3,320	2,800	1,310	967	912
18	846	792	942	2,700	1,960	3,190	2,380	3,070	2,660	1,290	960	930
19	834	786	906	2,730	1,910	3,430	2,550	2,870	2,630	1,260	960	988
20	834	786	846	2,510	1,810	2,760	3,050	2,830	2,670	1,240	954	967
21	828	780	912	3,050	1,680	2,480	3,160	3,080	2,640	1,230	954	967
22	828	780	876	3,540	1,580	2,850	2,960	3,390	2,500	1,200	954	930
23	822	1,240	900	3,150	1,770	2,550	2,700	3,510	2,350	1,190	954	948
24	822	1,090	974	2,390	3,230	2,330	2,520	3,390	2,240	1,180	967	912
25	816	918	924	1,960	3,840	2,150	2,380	3,360	2,110	1,160	954	981
26	816	930	924	1,750	3,210	2,050	2,290	3,480	2,020	1,150	948	1,040
27	816	2,210	912	1,630	2,770	1,980	2,270	3,650	1,990	1,140	906	981
28	822	1,980	906	1,500	2,400	1,830	2,200	3,410	2,000	1,130	948	954
29	822	1,410	918	1,390	-	1,750	2,130	3,220	2,060	1,120	900	964
30	816	1,450	906	1,350	-	1,760	2,100	3,380	2,070	1,110	924	798
31	810	-	882	1,190	-	1,980	-	3,520	-	1,090	924	-

Monthly discharge, in second-feet, 1949-50

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
September 11-30, 1949.....	16,128	864	780	806	1.71	1.27	31,990
October 1949.....	26,500	1,030	768	855	1.82	2.09	52,560
November.....	28,970	2,210	780	966	2.05	2.29	57,460
December.....	29,379	1,220	846	948	2.01	2.32	58,270
Calendar year.....	-	-	-	-	-	-	-
January 1950.....	45,548	3,540	804	1,463	3.11	3.58	89,950
February.....	51,200	3,840	1,140	1,829	3.88	4.04	101,600
March.....	70,040	3,530	1,450	2,259	4.80	5.53	158,900
April.....	71,250	3,160	1,910	2,375	5.04	5.63	141,300
May.....	88,570	3,750	1,840	2,857	6.07	6.99	175,700
June.....	81,130	3,690	1,990	2,704	5.74	6.41	160,900
July.....	43,590	2,000	1,090	1,406	2.99	3.44	86,480
August.....	30,652	1,090	900	989	2.10	2.42	60,800
September.....	27,684	1,040	798	923	1.96	2.19	54,910
Water year 1949-50.....	594,313	3,840	768	1,628	3.46	46.93	1,179,000

Lake Creek at Diamond Lake, near Fort Klamath, Oreg.

Location.--Water-stage recorder, lat. 43°11', long. 122°10', in SW¹/₄ sec. 30, T. 27 S., R. 6 E., 260 feet downstream from outlet of Diamond Lake and 35 miles north of Fort Klamath. Altitude of gage is 5,180 feet (from river-profile map).

Drainage area.--57 square miles.

Records available.--May 1922 to September 1925 (incomplete), October 1926 to September 1950.

Average discharge.--23 years (1926-29, 1930-50), 50.0 second-feet.

Extremes.--Maximum discharge during year, 144 second-feet Jan. 27; maximum gage height, 1.93 feet Jan. 18 (ice jam); minimum discharge, 1 second-foot Sept. 28; minimum daily, 3 second-feet Sept. 30.
1922-25, 1926-50: Maximum discharge observed, 336 second-feet Jan. 1, 1943 (gage height, 2.8 feet), from rating curve extended above 120 second-feet; no flow Aug. 25-27, 1931.

Remarks.--Records good except those for December to February, which are fair. Flow regulated by gates and fish racks at lake outlet, and at times by collection of moss on racks. No diversion above station.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	57	66	66	137	96	94	76	65	92	37	29
2	18	56	65	66	136	96	92	79	74	90	37	29
3	18	56	65	65	134	96	90	80	79	86	36	28
4	18	54	64	65	129	95	89	80	90	84	36	28
5	19	53	61	64	127	95	86	80	94	61	35	28
6	21	52	61	62	122	96	86	80	95	54	34	27
7	44	51	59	62	120	94	86	80	97	54	34	27
8	75	53	57	67	119	94	86	79	97	54	34	27
9	75	59	56	73	117	94	85	76	94	48	35	27
10	75	61	57	88	115	96	82	71	94	43	35	27
11	76	64	56	90	114	96	82	61	97	43	34	27
12	75	64	54	98	112	96	80	42	103	43	34	27
13	75	61	54	112	112	94	80	37	101	43	34	27
14	75	60	53	126	111	90	80	32	96	43	34	27
15	72	60	53	124	109	90	79	33	101	43	34	27
16	71	59	54	124	107	92	78	34	82	43	33	27
17	68	58	59	127	105	98	76	35	94	43	33	50
18	67	56	68	132	104	101	76	37	105	43	33	99
19	65	53	68	127	103	104	76	38	105	41	32	97
20	64	53	68	127	101	103	75	40	105	41	32	95
21	64	52	66	129	98	103	73	38	105	41	32	94
22	62	52	65	131	96	104	72	34	105	41	30	88
23	62	59	66	136	96	104	72	35	103	41	30	86
24	61	61	68	137	101	104	72	45	101	41	30	84
25	60	62	68	137	104	101	72	61	95	41	29	82
26	59	64	68	137	103	103	72	61	101	40	29	81
27	59	68	67	139	101	103	73	66	94	39	29	79
28	58	72	66	141	98	101	73	70	84	38	29	45
29	58	72	66	139	-	101	73	70	88	37	29	11
30	59	72	67	139	-	96	73	70	88	37	29	3
31	58	-	66	137	-	95	-	66	-	37	29	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-foot
October	1,751	76	18	56.5	0.991	1.14	3,470
November	1,774	72	51	59.1	1.04	1.16	3,520
December	1,931	68	53	62.3	1.09	1.26	3,850
Calendar year 1949	20,934	118	5	57.4	1.01	13.66	41,520
January	3,367	141	62	109	1.91	2.20	6,680
February	3,131	137	96	112	1.96	2.04	6,210
March	3,031	104	90	97.8	1.72	1.98	6,010
April	2,383	94	72	79.4	1.59	1.55	4,730
May	1,786	80	32	57.6	1.01	1.17	3,540
June	2,843	105	65	94.8	1.66	1.85	5,840
July	1,525	92	37	49.2	.863	.99	3,020
August	1,011	37	29	32.6	.572	.66	2,010
September	1,433	99	3	47.8	.839	.93	2,840
Water year 1949-50	25,966	141	3	71.1	1.25	16.93	51,500

Clearwater River above Trap Creek, Oreg.

Location.--Water-stage recorder, lat. 43°15', long. 122°17', in SE $\frac{1}{4}$ sec. 1, T. 27 S., R. 4 E., 450 feet upstream from Trap Creek and 40 miles east of Glide. Altitude of gage is 3,760 feet (from river-profile map).

Drainage area.--41.6 square miles.

Records available.--October 1927 to September 1950.

Average discharge.--21 years (1928-45, 1946-50), 149 second-feet.

Extremes.--Maximum discharge during year, 333 second-feet June 1 (gage height, 1.78 feet); minimum, 135 second-feet Jan. 3.
1927-50: Maximum discharge, 451 second-feet Jan. 1, 1943, from rating curve extended above 290 second-feet; maximum gage height, 2.40 feet Jan. 7, 1948 (backwater from log); minimum discharge, 91 second-feet Nov. 4-6, 27, Dec. 12, 29, 1931, Jan. 3, 1932.

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

Revisions.--W 1124: Drainage area.

Cooperation.--Water-stage recorder inspected by employees of California Oregon Power Co.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Backwater from log Mar. 17 to May 17)

0.0	133
1.1	167
1.4	233
1.8	339

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	144	151	138	a145	154	158	196	322	233	162	153
2	144	144	151	138	a145	154	160	181	322	228	162	153
3	144	144	146	136	a145	156	158	187	317	228	162	153
4	147	144	144	138	a145	158	158	185	311	226	162	151
5	156	144	144	138	144	160	162	183	311	216	162	151
6	149	144	143	138	144	156	163	181	298	209	162	151
7	147	144	143	138	143	156	163	177	276	205	160	151
8	146	146	141	138	143	156	162	175	261	202	160	151
9	151	147	139	138	143	156	162	175	253	200	160	151
10	151	146	139	138	141	154	160	179	248	196	160	151
11	153	146	138	138	141	154	160	185	284	187	160	151
12	151	146	141	138	141	154	163	198	295	187	160	151
13	147	144	139	138	143	154	165	223	276	187	158	149
14	146	144	139	136	144	153	162	240	274	187	158	149
15	146	144	138	138	146	153	163	248	268	185	158	149
16	146	144	139	138	146	154	165	248	271	183	156	149
17	146	144	139	141	144	165	169	253	274	181	156	151
18	146	144	139	151	144	162	171	253	265	179	156	151
19	146	144	139	153	144	158	177	248	261	177	156	149
20	146	144	138	153	144	158	187	250	268	175	154	147
21	146	144	139	158	144	158	198	263	266	173	156	147
22	146	144	138	167	143	163	200	276	253	173	154	147
23	146	156	138	162	147	160	200	289	243	171	153	147
24	146	149	138	a160	156	158	198	289	253	169	153	147
25	146	144	138	a155	162	158	196	289	226	167	153	149
26	146	146	138	a155	158	156	194	298	223	165	153	153
27	146	185	138	a155	156	154	194	306	223	165	153	149
28	146	175	138	a150	156	153	191	300	228	165	153	149
29	146	156	138	a150	-	151	191	292	236	163	153	149
30	146	158	138	a150	-	153	191	303	238	163	153	149
31	144	-	138	a145	-	153	-	311	-	163	154	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-foot
October	4,556	156	144	147	3.53	4.07	9,040
November	4,448	185	144	148	3.56	3.98	8,820
December	4,349	151	138	140	3.37	3.89	8,630
Calendar year 1949	62,151	374	185	170	4.09	55.56	123,300
January	4,507	167	136	145	3.49	4.03	8,940
February	4,097	162	141	146	3.51	3.66	8,130
March	4,842	165	151	156	3.75	4.33	9,600
April	5,241	200	158	175	4.21	4.69	10,400
May	7,391	311	175	238	5.72	6.61	14,680
June	8,022	322	223	267	6.42	7.17	15,910
July	5,808	233	163	187	4.50	5.19	11,520
August	4,872	162	153	157	3.77	4.36	9,660
September	4,498	153	147	150	3.61	4.02	8,920
Water year 1949-50	62,631	322	136	172	4.13	56.00	124,200

Peak discharge (base, 220 sec.-ft.)--Nov. 27 (8 p.m.) 233 sec.-ft.; June 1 (11 p.m.) 333 sec.-ft.
a No gage-height record; discharge computed on basis of records for station at mouth.

Clearwater River at mouth, Oreg.

Location.--Water-stage recorder, lat. 43°15'50", long. 122°25'00", in SE¹/₄ sec. 35, T. 26 S., R. 3 E., a quarter of a mile upstream from mouth and 3 miles northeast of Big Camas ranger station. Datum of gage is 2,437.5 feet above mean sea level (levels by California Oregon Power Co.).

Drainage area.--75 square miles.

Records available.--October 1947 to September 1950.

Extremes.--Maximum discharge during year, 650 second-feet May 26; maximum gage height, 3.97 feet Feb. 15 (backwater from temporary dam); minimum discharge, 224 second-feet Jan. 3, 1947-50: Maximum discharge, 1,340 second-feet Jan. 7, 1948 (gage height, 4.96 feet); minimum, that of Jan. 3, 1950.

Remarks.--Records good. No diversion or regulation above station except natural regulation by large springs with steady flow.

Cooperation.--Water-stage recorder inspected by employee of California Oregon Power Co.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 22; backwater from temporary dam Feb. 11-15)

Oct. 1 to May 27				May 28 to Sept. 30			
2.4	217	3.0	355	2.4	230	3.2	450
2.6	253	3.4	500	2.6	275	3.4	520
2.8	298	3.8	580	2.8	325	3.7	635
				3.0	385		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	232	232	245	231	272	369	404	472	623	376	270	248
2	232	232	242	229	270	355	446	468	623	370	270	248
3	232	232	238	226	270	376	425	446	603	364	268	248
4	234	232	238	227	272	397	411	436	595	358	268	248
5	251	232	238	227	272	411	414	428	583	349	268	248
6	244	232	236	227	279	397	425	414	555	343	265	246
7	242	232	238	227	274	376	418	404	520	334	265	246
8	238	238	236	227	274	366	408	397	485	331	262	246
9	244	242	236	229	270	355	390	383	460	325	262	246
10	251	238	234	231	272	340	380	383	450	318	262	246
11	249	240	231	232	270	328	376	418	510	312	260	246
12	242	238	234	240	270	317	394	480	563	308	260	246
13	240	236	232	244	280	314	428	572	520	308	260	246
14	236	234	232	244	300	312	414	608	502	305	258	244
15	236	232	232	244	312	303	408	598	492	302	258	244
16	234	232	234	244	346	309	411	590	485	300	258	244
17	234	232	234	245	337	386	425	598	482	295	258	246
18	234	232	234	309	328	411	446	562	464	292	255	246
19	234	232	232	325	331	450	468	532	460	292	255	246
20	234	231	231	337	320	422	532	528	460	290	255	244
21	234	231	232	380	309	414	576	562	457	286	255	244
22	232	231	231	439	298	446	576	603	440	285	255	a245
23	232	245	232	418	303	418	540	626	422	282	255	a245
24	231	242	234	355	366	400	512	616	400	280	255	a245
25	231	234	232	325	436	386	492	612	385	280	255	a245
26	231	236	231	312	450	376	476	616	379	280	252	a255
27	232	281	231	306	422	362	472	640	376	278	252	a250
28	232	288	229	293	397	346	460	615	376	278	252	h244
29	232	251	231	281	-	340	450	595	379	275	250	a245
30	232	257	231	281	-	340	450	603	362	272	250	a245
31	232	-	231	272	-	346	-	607	-	272	250	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	7,324	251	231	236	3.15	3.63	14,530
November	7,177	238	231	239	3.19	3.56	14,240
December	7,252	245	229	234	3.12	3.60	14,380
Calendar year 1949	113,524	975	229	311	4.15	56.30	225,200
January	8,607	439	226	278	3.71	4.27	17,070
February	8,800	450	270	314	4.19	4.36	17,450
March	11,468	450	303	370	4.93	5.69	22,750
April	13,427	576	376	448	5.97	6.66	26,630
May	16,412	640	383	529	7.05	8.14	32,550
June	14,431	623	376	481	6.41	7.16	28,820
July	9,542	376	272	308	4.11	4.73	18,930
August	8,018	270	250	259	3.45	3.98	15,900
September	7,385	255	244	246	3.28	3.66	14,650
Water year 1949-50	119,843	640	226	328	4.37	59.44	237,700

Peak discharge (base, 600 sec.-ft.),--May 26 (12 p.m.) 650 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for station above Trap Creek.

c Backwater from temporary diversion dam; discharge computed on basis of records for station above Trap Creek.

h Computed from staff-gage reading.

UMPQUA RIVER BASIN

Fish Creek at Big Camas ranger station, Oreg.

Location (revised).--Water-stage recorder, lat. 43°14', long. 122°26', in SE $\frac{1}{4}$ sec. 10, T. 27 S., R. 3 E., half a mile upstream from Camas Creek and three-quarters of a mile east of Big Camas ranger station. Datum of gage is 2,872.24 feet above mean sea level, datum of 1929 (levels by California Oregon Power Co.).

Drainage area.--67 square miles.

Records available.--October 1947 to September 1950.

Extremes.--Maximum discharge during year, 911 second-feet Jan. 22; maximum gage height, 5.85 feet Jan. 18 (ice jam); minimum discharge, 39 second-feet Nov. 3-8.
1947-50: Maximum discharge, 4,270 second-feet Jan. 7, 1948 (gage height, 7.62 feet), from rating curve extended above 900 second-feet on basis of contracted-opening determination at gage height 7.24 feet; minimum, that of Nov. 3-8, 1949.

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

Cooperation.--Water-stage recorder inspected by employees of California Oregon Power Co.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 22)

2.4	39	3.2	205
2.5	53	3.4	275
2.6	69	3.6	370
2.8	105	4.0	585
3.0	151	4.5	890

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	40	177	66	b140	390	360	375	814	325	109	69
2	43	40	161	b62	b145	375	470	355	778	302	109	67
3	42	39	132	b55	b145	541	420	316	724	288	107	67
4	49	39	120	b65	b150	568	380	288	724	271	105	67
5	97	39	120	b65	161	558	375	275	706	252	103	66
6	72	39	107	b60	174	514	395	260	624	237	103	64
7	64	39	*101	b60	161	436	380	245	514	221	101	64
8	56	50	96	b60	*156	385	335	234	444	208	99	64
9	67	64	92	b60	149	335	306	234	410	205	97	64
10	90	55	88	b60	146	298	280	260	410	194	96	63
11	84	63	83	b62	141	260	267	350	558	183	96	63
12	72	59	83	b65	134	234	306	530	652	177	94	61
13	61	52	79	b65	141	218	385	760	546	172	92	61
14	55	50	78	b65	194	202	355	814	514	167	92	59
15	53	50	76	b70	293	194	330	754	508	159	90	59
16	50	53	76	b80	355	231	320	724	558	156	88	61
17	49	50	79	b100	330	712	365	712	646	151	86	63
18	47	47	84	b664	288	646	410	624	530	146	83	61
19	46	46	b76	607	267	700	453	568	536	144	83	63
20	46	45	b66	524	248	552	602	580	546	139	81	58
21	46	43	76	694	227	492	658	652	524	134	79	56
22	46	43	67	848	215	616	607	754	458	134	79	53
23	46	187	72	658	231	514	530	760	420	132	79	52
24	45	120	72	480	568	451	475	718	375	127	81	52
25	43	84	69	360	772	375	456	700	335	125	79	59
26	43	90	66	293	640	330	400	748	320	123	76	84
27	43	484	66	256	541	293	390	784	320	120	74	64
28	46	390	64	215	458	264	360	700	340	120	74	56
29	47	215	67	194	-	245	340	658	355	120	72	55
30	43	260	66	188	-	237	335	718	355	116	72	53
31	42	-	64	b155	-	245	-	772	-	112	71	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acres-foot
October	1,678	97	42	54.1	0.807	0.93	3,330
November	2,875	484	39	95.8	1.43	1.60	5,700
December	2,723	177	64	87.8	1.31	1.51	5,400
Calendar year 1949	74,895	1,950	39	205	3.06	41.58	148,600
January	7,256	848	55	234	3.49	4.03	14,390
February	7,570	772	134	270	4.03	4.20	15,010
March	12,393	712	194	400	5.97	6.88	24,580
April	12,025	658	267	401	5.99	6.67	23,850
May	17,222	814	234	556	8.30	9.56	34,160
June	15,544	814	320	518	7.73	8.63	30,830
July	5,460	325	112	176	2.63	3.03	10,830
August	2,750	109	71	88.7	1.32	1.53	5,450
September	1,848	84	52	61.6	.919	1.03	3,670
Water year 1949-50	89,344	848	39	245	3.66	49.60	177,200

Peak discharge (base, 900 sec.-ft.).--Jan. 22 (8 a.m.) 911 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Elk Creek near Yoncalla, Oreg.

Location.--Water-stage recorder, lat. 43°37', long. 123°13', in SE $\frac{1}{4}$ sec. 31, T. 22 S., R. 4 W., three-quarters of a mile downstream from Adams Creek and 3 $\frac{1}{2}$ miles east of Yoncalla.

Records available.--July to September 1950 (discontinued).

Extremes.--Maximum discharge during period, 7.1 second-feet July 6, 10; maximum gage height, 1.66 feet Sept. 26; minimum discharge, 2.0 second-feet Aug. 13.

Remarks.--Records good except those for period of shifting-control, which are fair.

Discharge, in second-feet, July to September 1950											
Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	-	3.3	2.8	11	6.5	2.9	2.3	21	3.9	2.6	2.6
2	-	3.1	2.8	12	5.6	2.3	2.3	22	3.7	3.1	2.6
3	-	3.3	2.8	13	4.8	2.2	2.4	23	4.1	4.1	2.7
4	-	2.9	2.6	14	4.6	2.4	2.6	24	4.1	4.8	2.7
5	-	2.9	2.6	15	4.6	2.9	2.4	25	4.1	4.3	4.5
6	7.1	3.3	2.6	16	4.3	3.1	2.5	26	3.9	5.0	5.2
7	6.8	3.5	2.5	17	4.3	3.1	2.4	27	3.7	5.0	4.9
8	6.5	3.1	2.4	18	4.3	2.4	2.6	28	3.9	3.9	4.5
9	6.5	3.1	2.4	19	4.3	2.4	2.7	29	3.7	2.8	4.5
10	7.1	3.3	2.3	20	3.9	2.6	2.6	30	3.7	3.0	4.9
								31	3.5	3.2	-
Month			Second-foot-days	Maximum		Minimum		Mean		Runoff in acre-feet	
July 6-31.....			123.5	7.1		3.5		4.75		245	
August.....			99.8	5.0		2.2		3.22		198	
September.....			89.7	5.2		2.3		2.99		178	
The period.....			-	-		-		-		621	

Note.--Shifting-control method used Aug. 13 to Sept.

Elk Creek at Drain, Oreg.

Location.--Wire-weight gage, lat. 43°40', long. 123°19', in NW $\frac{1}{4}$ sec. 17, T. 22 S., R. 5 W., at bridge on U. S. Highway 99 in town of Drain, 300 feet downstream from Pass Creek. Datum of gage is 269.56 feet above mean sea level, datum of 1929, supplementary adjustment of 1947.

Records available.--July to September 1950 (discontinued).

Extremes.--Maximum daily discharge during period, 18 second-feet July 10; minimum daily, 1.3 second-feet Sept. 9.

Remarks.--Records poor. Gage read once daily. Some small diversion above station by mill.

Discharge, in second-feet, July to September 1950											
Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	-	d5.5	3.2	11	13	d5.0	2.4	21	d7.0	d3.5	4.4
2	-	5.3	3.2	12	13	d4.5	2.1	22	d7.0	d4.0	4.4
3	-	d7.0	3.6	13	13	d4.0	2.4	23	d7.5	d4.5	4.4
4	-	4.8	d3.2	14	13	d3.5	2.4	24	d7.5	d4.5	5.3
5	15	5.8	2.1	15	d9.0	d4.0	2.8	25	d7.5	4.8	5.3
6	a14	5.8	2.1	16	d8.0	d4.5	2.4	26	d7.0	5.8	7.0
7	13	5.3	2.1	17	d8.0	d4.5	2.4	27	d7.0	4.8	15
8	13	d4.5	2.1	18	d8.0	d4.0	2.8	28	d7.0	4.8	15
9	13	d5.0	1.3	19	d8.0	d3.5	3.2	29	d7.0	4.0	15
10	d18	d5.0	2.1	20	d7.5	d3.5	4.4	30	d7.0	3.6	9.0
								31	d6.0	4.0	-
Month			Second-foot-days	Maximum		Minimum		Mean		Runoff in acre-feet	
July 5-31.....			264.0	18		6.0		9.78		524	
August.....			143.3	7.0		3.5		4.62		284	
September.....			137.1	15		1.3		4.57		272	
The period.....			-	-		-		-		1,080	

a No gage-height record; discharge computed on basis of records for station near Yoncalla.
 a Doubtful gage-height record; discharge computed as explained in footnote a.

Daniels Creek near Eastside, Oreg.

Location.--Water-stage recorder, lat. 43°21', long. 124°05', near center sec. 2, T. 26 S., R. 12 W., at county highway bridge 0.1 mile downstream from Morgan Creek and 5½ miles southeast of Eastside. Datum of gage is 6.32 feet above mean sea level, datum of 1929.

Drainage area.--14.5 square miles.

Records available.--July to September 1950.

Extremes.--Maximum discharge during period, 25 second-feet Sept. 25 (gage height, 3.47 feet); minimum, 1.6 second-feet Sept. 22.

Remarks.--Records good. Diversion for irrigation of about 30 acres above station. No regulation.

Rating table, July 1 to Sept. 30, 1950 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used Sept. 8-24)

2.1	1.6	3.0	13
2.3	3.6	3.2	17
2.6	6.6	3.3	20
2.8	9.5		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										a6.0	4.1	3.0
2										a6.0	4.4	3.0
3										a6.0	4.1	3.0
4										a6.0	3.8	2.9
5										a5.9	3.8	2.6
6										a5.9	3.8	2.6
7										a5.8	3.7	2.8
8										a5.8	3.6	2.5
9										a5.8	3.4	2.4
10										5.8	3.3	2.2
11										5.7	3.4	2.2
12										5.6	3.4	2.5
13										5.4	3.3	2.7
14										5.4	3.5	2.5
15										5.3	3.4	2.4
16										5.1	3.4	2.2
17										5.0	3.3	2.3
18										4.9	3.2	2.4
19										5.0	3.0	2.3
20										4.9	2.9	2.0
21										4.8	2.9	1.9
22										4.8	3.1	1.7
23										4.6	3.8	1.9
24										4.6	9.0	2.9
25										4.5	5.0	14
26										4.4	4.2	18
27										4.5	3.8	8.6
28										5.3	3.6	5.4
29										4.9	3.4	4.6
30										4.4	3.3	4.1
31										4.2	3.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October							
November							
December							
Calendar year							
January	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-
July	162.3	6.0	4.2	5.24	0.361	0.42	322
August	116.0	9.0	2.9	3.74	.258	.30	230
September	113.6	18	1.7	3.79	.261	.29	225
The period	-	-	-	-	-	-	777

a No gage-height record; discharge computed on basis of records for South Fork Coquille River at Powers.

South Fork Coquille River at Powers, Oreg. .

Location.--Water-stage recorder, lat. 42°54', long. 124°04', in SE $\frac{1}{4}$ sec. 12, T. 31 S., R. 12 W., half a mile northeast of bridge at Powers and three-quarters of a mile upstream from Woodward Creek. Datum of gage is 197.42 feet above mean sea level, datum of 1929, supplemental adjustment of 1947.

Drainage area.--169 square miles.

Records available.--October 1928 to September 1950. September 1916 to September 1926 at site $\frac{1}{2}$ miles upstream.

Average discharge.--31 years (1916-26, 1929-50), 722 second-feet.

Extremes.--Maximum discharge during year, 11,000 second-feet Jan. 21 (gage height, 11.49 feet); minimum, 17 second-feet Sept. 22, 23.

1916-26, 1928-50: Maximum discharge, 30,500 second-feet (revised) Dec. 28, 1945 (gage height, 20.57 feet), from rating curve extended above 14,000 second-feet on basis of contracted-opening computation at gage height 18.14 feet; minimum, 12 second-feet Sept. 22-25, 27-30, 1939.

Revision.--The maximum discharge for the water year 1946 has been revised to 30,500 second-feet Dec. 28, 1945 (gage height, 20.57 feet), superseding figure published in Water-Supply Paper 1064.

Remarks.--Records good except those for period of no gage-height record, which are fair. Small diversion for irrigation. No regulation.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Backwater from debris July 4-10)

0.9	15	1.8	278	3.0	705	6.0	3,240
1.1	34	2.0	242	3.5	1,020	7.0	4,420
1.3	64	2.2	315	4.0	1,390	9.0	7,100
1.6	125	2.5	445	5.0	2,240	11.0	10,200

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	31	530	1,240	864	1,210	1,080	510	150	78	37	21
2	20	30	590	1,000	729	1,130	1,100	819	142	73	35	20
3	20	30	545	789	711	1,760	988	765	132	71	34	20
4	21	28	535	747	1,570	1,670	844	666	125	69	33	20
5	64	27	2,850	672	2,090	2,660	844	711	118	68	32	21
6	118	26	1,810	700	3,760	2,850	890	711	125	66	32	21
7	219	26	1,110	1,610	2,570	1,960	870	666	142	62	32	20
8	120	32	813	1,420	2,900	1,510	771	617	126	61	32	20
9	96	364	711	1,410	3,140	1,320	688	590	120	62	31	20
10	323	530	759	3,830	2,470	1,320	612	590	150	64	31	20
11	167	612	650	2,090	2,150	1,230	560	617	178	62	31	20
12	116	495	530	1,340	1,770	1,070	832	622	256	59	28	19
13	90	281	470	2,200	a1,700	942	1,140	580	187	54	27	19
14	75	194	436	1,850	a2,200	851	1,000	530	158	53	26	20
15	66	153	427	1,100	a3,700	777	877	480	142	51	25	20
16	59	128	634	851	a3,500	1,110	807	436	138	50	24	18
17	53	109	1,650	1,210	a2,800	7,730	765	400	128	48	24	18
18	51	96	3,060	7,180	a2,200	4,460	729	355	123	48	23	19
19	48	86	1,820	5,680	1,590	3,970	747	315	123	47	23	19
20	45	80	1,130	4,950	1,370	2,470	813	292	109	47	22	20
21	42	77	877	9,590	1,160	2,190	723	288	120	45	21	19
22	38	71	819	8,040	1,010	3,320	644	292	118	45	21	19
23	37	338	890	8,500	1,070	2,520	555	277	109	42	22	18
24	35	422	1,770	4,290	2,460	2,450	470	252	111	42	26	19
25	34	274	1,430	2,490	3,320	1,990	422	239	104	41	28	24
26	34	266	1,280	1,920	2,530	1,670	386	226	96	40	25	33
27	33	3,850	1,060	3,550	1,930	1,700	368	212	90	40	23	42
28	32	1,950	877	2,860	1,490	1,480	362	197	86	40	23	33
29	33	948	1,160	1,820	-	1,250	351	178	84	41	22	27
30	33	723	1,360	1,390	-	1,250	339	170	82	40	21	25
31	32	-	1,330	1,040	-	1,000	-	158	-	38	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	2,175	323	20	70.2	0.415	0.48	4,310
November	12,277	3,850	26	409	2.42	2.70	24,350
December	33,913	3,060	427	1,094	6.47	7.46	67,270
Calendar year 1949	202,473	9,130	19	555	3.28	44.55	401,600
January	87,359	9,590	672	2,818	16.7	19.22	173,300
February	58,754	3,760	711	2,098	12.4	12.93	116,500
March	62,620	7,730	777	2,020	12.0	13.78	124,200
April	21,597	1,140	339	720	4.26	4.75	42,840
May	13,761	819	158	444	2.63	3.03	27,290
June	3,867	256	82	129	.763	.85	7,670
July	1,647	78	36	53.1	.314	.36	3,270
August	855	37	21	26.9	.159	.18	1,660
September	654	42	18	21.8	.129	.14	1,300
Water year 1949-50	299,459	9,590	18	820	4.85	65.88	594,000

Peak discharge (base, 8,000 sec.-ft.).--Jan. 21 (2 p.m.) 11,000 sec.-ft.; Mar. 17 (8 a.m.) 10,400 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for South Umpqua River near Brookway.

Rogue River above Bybee Creek, Oreg.

Location.--Water-stage recorder, lat. 42°56', long. 122°26', in NE $\frac{1}{4}$ sec. 26, T. 30 S., R. 3 E., 700 feet upstream from Bybee Creek and 2 miles northeast of Union Creek. Altitude of gage, 3,465 feet (from river-profile map).

Drainage area.--155 square miles.

Records available.--January 1930 to September 1950.

Average discharge.--20 years, 479 second-feet.

Extremes.--Maximum discharge during year, 1,710 second-feet June 1 (gage height, 4.26 feet); minimum daily, 200 second-feet Jan. 14, from rating curve extended below 300 second-feet by logarithmic plotting.
1930-50: Maximum discharge, 4,430 second-feet Nov. 29, 1942, Dec. 28, 1945 (gage height, 7.84 feet), from rating curve extended above 1,600 second-feet; minimum daily, 180 second-feet Jan. 7, 1937 (estimated).

Remarks.--Records good except those for periods of ice effect, which are fair. No diversion or regulation above station.

Cooperation.--Water-stage recorder inspected by employees of California Oregon Power Co.

Revisions (water years).--W 984: 1933(M). W 1044: Drainage area.

Rating table, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

0.9	192	1.3	290	3.0	990
1.0	215	1.5	350	3.6	1,310
1.1	240	1.9	490	4.1	1,610
1.2	265	2.4	705		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	296	302	443	511	b350	608	633	804	1,590	736	387	347
2	296	296	436	305	b350	608	750	754	1,560	705	587	344
3	293	296	394	b350	b350	856	687	700	1,480	692	584	344
4	308	296	377	b320	b380	850	664	1,470	656	684	344	
5	429	296	384	b340	b400	808	664	646	1,430	628	384	344
6	365	296	362	b320	b430	754	705	610	1,320	602	380	341
7	341	296	359	302	418	892	674	597	1,130	584	377	341
8	323	326	353	308	394	651	638	610	1,020	562	377	341
9	377	344	356	299	387	610	606	620	975	550	377	341
10	450	320	347	260	390	579	588	678	970	534	377	341
11	415	326	311	282	377	542	588	822	1,090	514	374	341
12	365	326	380	311	371	514	606	1,050	1,240	502	371	338
13	335	314	335	b250	377	502	682	1,290	1,080	494	371	338
14	323	314	335	b200	432	486	638	1,410	1,050	486	368	338
15	317	314	326	b310	526	470	624	1,330	1,040	478	365	338
16	314	323	341	b370	514	522	642	1,290	1,050	466	362	344
17	308	320	341	b370	494	1,000	705	1,310	1,080	462	365	344
18	308	317	305	822	478	850	777	1,180	1,020	454	362	344
19	305	314	335	1,010	470	764	822	1,110	1,020	446	359	347
20	305	311	b310	840	462	678	975	1,150	1,040	443	356	341
21	305	308	b330	905	*446	642	1,030	1,300	1,020	436	356	338
22	308	308	320	955	436	768	1,020	1,450	950	429	356	335
23	305	502	326	845	446	700	935	1,490	890	426	359	335
24	302	429	326	687	646	656	865	1,440	831	418	368	332
25	302	371	320	584	905	610	840	1,420	782	415	362	365
26	302	394	317	534	786	584	813	1,480	754	408	356	426
27	305	807	314	486	710	558	840	1,560	746	404	356	362
28	317	718	311	b440	651	526	808	1,440	754	408	353	347
29	311	506	317	b410	-	514	772	1,380	759	401	353	344
30	305	534	*320	b390	-	518	764	1,500	759	394	350	344
31	302	-	311	b360	-	526	-	1,530	-	390	347	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	10,137	450	293	327	2.11	2.43	20,110
November	11,124	807	296	371	2.39	2.67	22,060
December	10,642	443	305	343	2.21	2.55	21,110
Calendar year 1949	181,541	2,190	255	497	3.21	43.55	360,100
January	14,386	1,010	200	464	2.99	3.45	28,530
February	13,376	905	350	478	3.08	3.21	26,530
March	19,822	1,000	470	643	4.15	4.78	39,510
April	22,351	1,030	588	745	4.81	5.36	44,330
May	34,595	1,560	597	1,116	7.20	8.30	68,620
June	31,900	1,590	746	1,063	6.86	7.65	63,270
July	15,513	736	390	500	3.23	3.72	30,770
August	11,583	387	347	367	2.37	2.73	22,580
September	10,369	426	332	346	2.23	2.49	20,570
Water year 1949-50	205,698	1,590	200	564	3.64	49.34	408,000

Peak discharge (base, 1,600 sec.-ft.)--June 1 (11:30 p.m.), 1,710 sec.-ft.

a Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Rogue River above Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°47', long. 122°30', in NE $\frac{1}{4}$ sec. 19, T. 32 S., R. 3 E., $\frac{1}{2}$ miles upstream from intake of diversion of California Oregon Power Co., 2 miles northwest of Prospect, and 3 miles upstream from Mill Creek. Altitude of gage, 2,620 feet (from river-profile map).

Drainage area.--332 square miles.

Records available.--July 1907 to February 1912 (incomplete), October 1923 to September 1950.

Average discharge.--28 years (1910-11, 1923-50), 735 second-feet.

Extremes.--Maximum discharge during year, 2,660 second-feet May 14 (gage height, 3.99 feet); minimum, 242 second-feet Jan. 14.
1907-12, 1923-50: Maximum discharge, 11,900 second-feet Dec. 28, 1945 (gage height, 8.4 feet, from floodmark), from rating curve extended above 4,900 second-feet; minimum observed, 200 second-feet Nov. 20, 1931 (gage height, 1.07 feet).

Remarks.--Records good except those for period of ice effect, which are fair. No diversion or regulation above station.

Cooperation.--Water-stage recorder gage furnished by California Oregon Power Co.

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from tree Jan. 18-26, Feb. 16-18, Feb. 24 to
(Mar. 11, Mar. 17-28, Mar. 31 to July 4)

1.3	290	2.5	1,040
1.5	360	3.1	1,620
1.8	540	3.8	2,510
2.1	720		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	390	395	619	425	b570	1,110	1,140	1,410	2,400	1,000	546	463
2	390	390	584	410	b530	1,110	1,400	1,310	2,330	959	534	463
3	385	390	540	345	b540	1,550	1,280	1,200	2,190	942	529	458
4	390	385	518	463	625	1,690	1,190	1,110	2,130	918	529	463
5	568	385	540	485	668	1,630	1,200	1,080	2,090	886	529	463
6	496	380	507	458	707	1,490	1,310	1,040	1,910	846	524	458
7	465	380	496	425	674	1,280	1,250	986	1,620	814	518	463
8	446	420	496	420	643	1,180	1,160	977	1,420	776	518	463
9	463	468	490	415	637	1,080	1,080	995	1,340	755	518	463
10	668	446	474	385	637	1,020	1,040	1,060	1,310	741	518	458
11	546	452	395	400	613	934	1,030	1,300	1,480	714	518	458
12	512	458	485	436	590	870	1,070	1,700	1,790	694	512	452
13	468	436	468	405	595	830	1,240	2,240	1,550	688	507	458
14	441	430	452	290	674	790	1,180	2,510	1,470	688	502	452
15	430	436	452	474	894	762	1,110	2,340	1,450	662	502	452
16	425	446	468	518	968	822	1,140	2,220	1,440	649	496	458
17	415	436	463	518	968	1,930	1,240	2,240	1,470	637	496	458
18	415	430	420	1,170	918	1,780	1,420	1,970	1,380	625	490	458
19	410	425	446	1,560	894	1,970	1,510	1,790	1,370	613	485	468
20	410	415	425	1,310	*870	1,510	1,870	1,640	1,390	607	480	458
21	410	410	468	1,470	822	1,350	2,000	2,090	1,360	595	480	452
22	410	405	446	1,920	785	1,590	1,910	2,340	1,260	590	480	452
23	405	540	441	1,950	830	1,400	1,700	2,450	1,210	578	480	446
24	410	601	441	1,430	1,160	1,240	1,510	2,310	1,160	578	490	446
25	405	490	420	1,100	1,770	1,130	1,440	2,220	1,080	573	490	468
26	400	502	430	959	1,550	1,070	1,390	2,290	1,020	568	485	540
27	405	940	425	886	1,330	1,000	1,420	2,410	1,000	562	480	502
28	405	1,080	420	798	1,200	926	1,360	2,190	1,000	562	480	463
29	410	707	425	734	-	894	1,290	2,020	1,010	562	474	452
30	405	707	*430	674	-	894	1,270	2,020	1,020	551	468	452
31	400	-	425	584	-	934	-	2,330	-	551	468	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	13,618	668	385	439	1.33	1.53	27,010
November	14,785	1,080	380	493	1.48	1.66	29,330
December	14,509	619	395	468	1.41	1.63	28,780
Calendar year 1949	288,358	4,370	360	790	2.38	32.32	571,900
January	23,817	1,950	290	768	2.31	2.67	47,240
February	23,660	1,770	530	845	2.55	2.65	46,930
March	37,766	1,970	762	1,218	3.67	4.23	74,910
April	40,150	2,000	1,030	1,358	4.03	4.50	79,640
May	56,188	2,510	1,000	1,813	5.46	6.29	111,400
June	44,650	2,400	551	1,488	4.48	5.00	88,560
July	21,464	1,000	468	692	2.08	2.40	42,570
August	15,528	546	468	501	1.51	1.74	30,800
September	13,860	540	446	462	1.39	1.55	27,490
Water year 1949-50	319,993	2,510	290	877	2.64	35.85	634,700

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Rogue River below South Fork Rogue River, near Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°42', long. 122°36', in NW $\frac{1}{4}$ sec. 16, T. 33 S., R. 2 E., at bridge 6 miles southwest of Prospect. Altitude of gage, 1,708 feet (from river-profile map).

Drainage area.--643 square miles.

Records available.--April 1929 to September 1950.

Average discharge.--21 years, 1,627 second-feet.

Extremes.--Maximum discharge during year, 5,000 second-feet Mar. 19 (gage height, 4.65 feet); minimum, 595 second-feet Nov. 3, 4, 7 (gage height, 0.31 foot); minimum daily, 800 second-feet Jan. 14.

1929-50: Maximum discharge, 19,800 second-feet Dec. 28, 1945 (gage height, 12.2 feet), from rating curve extended above 4,200 second-feet on basis of slope-area determination at gage height 8.6 feet; minimum since intake was lowered Apr. 18, 1934, 493 second-feet Sept. 1, 1934 (prior to Aug. 18, 1934, minimum discharge not determined).

Remarks.--Records good except those for period of no gage-height record, which are fair. Small diversions above station for irrigation. Considerable diurnal fluctuation caused by power plant 4 miles above station.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used July 8 to Sept. 30)

0.6	755	1.5	1,440
.7	820	2.0	1,870
.9	955	3.0	2,920
1.1	1,110	4.3	4,520

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	955	941	1,330	1,000	1,320	2,510	2,600	2,940	4,320	2,180	1,370	1,180
2	962	920	1,250	980	1,280	2,480	3,060	2,820	4,260	2,110	1,360	1,170
3	941	920	1,170	860	1,350	3,050	2,920	2,820	4,000	2,060	1,350	1,160
4	970	913	1,170	1,070	1,440	3,340	2,740	2,490	3,900	2,000	1,340	1,160
5	1,290	920	1,190	1,100	1,520	3,350	2,790	2,450	3,860	1,950	1,340	1,140
6	1,130	913	1,130	1,040	1,640	3,170	3,040	2,350	3,660	1,860	1,340	1,140
7	1,130	920	1,090	990	1,580	2,810	2,930	2,250	3,260	1,820	1,340	1,170
8	1,030	1,000	1,090	980	1,510	2,620	2,740	2,210	2,920	1,780	1,330	1,160
9	1,100	1,140	1,080	960	1,490	2,480	2,570	2,210	2,790	1,740	1,320	1,180
10	1,520	1,070	1,080	920	1,530	2,360	2,450	2,280	2,720	1,710	1,310	1,160
11	1,250	1,090	970	950	1,520	2,180	2,390	2,590	2,980	1,670	1,290	1,170
12	1,170	1,060	1,030	1,000	1,460	2,050	2,470	3,100	3,530	1,650	1,270	1,170
13	1,090	1,020	1,050	960	1,490	1,980	2,780	3,780	3,140	1,630	1,250	1,160
14	1,040	1,010	1,030	800	1,590	1,900	2,640	4,320	2,960	1,600	1,260	1,150
15	1,020	1,010	1,020	1,060	1,900	1,840	2,520	4,210	2,930	1,590	1,250	1,140
16	1,020	1,010	1,050	1,160	2,180	1,900	2,580	4,010	2,980	1,580	1,250	1,170
17	1,010	992	1,060	1,200	2,190	3,700	2,690	4,060	2,980	1,550	1,250	1,150
18	985	978	1,070	3,100	2,070	3,620	2,980	3,740	2,820	1,540	1,250	1,160
19	970	970	1,030	3,400	2,010	4,470	3,110	3,480	2,790	1,490	1,240	1,180
20	970	948	978	2,900	1,960	3,650	3,570	3,500	2,850	1,490	1,220	1,140
21	978	955	1,050	3,200	1,900	3,260	3,770	3,800	2,850	1,480	1,230	1,170
22	978	948	1,030	4,000	1,850	3,640	3,720	4,200	2,700	1,460	1,200	1,130
23	970	1,030	1,020	4,200	1,940	3,300	3,440	4,380	2,570	1,450	1,200	1,130
24	955	1,250	1,050	3,100	2,550	3,080	3,160	4,200	2,440	1,440	1,230	1,110
25	941	1,060	1,020	2,500	3,460	2,800	3,040	4,080	2,290	1,420	1,240	1,150
26	955	1,050	1,020	2,100	3,240	2,680	2,960	4,130	2,210	1,420	1,210	1,250
27	955	1,480	1,010	1,920	2,930	2,570	3,030	4,310	2,180	1,400	1,210	1,210
28	970	2,080	992	1,780	2,690	2,370	2,920	4,040	2,190	1,410	1,200	1,150
29	970	1,460	1,000	1,630	-	2,260	2,770	3,760	2,200	1,410	1,210	1,130
30	948	1,450	1,010	1,530	-	2,230	2,700	4,030	2,210	1,390	1,200	1,110
31	934	-	1,020	1,350	-	2,270	-	4,260	-	1,380	1,180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Acre-feet
October	32,107	1,520	934	1,036	1.61	1.86	65,680
November	32,508	2,080	913	1,084	1.69	1.88	64,480
December	33,090	1,330	970	1,067	1.66	1.91	65,630
Calendar year 1949	634,805	7,700	892	1,739	2.70	36.70	1,259,000
January	53,740	4,200	800	1,734	2.70	3.11	106,600
February	53,590	3,460	1,280	1,914	2.98	3.10	106,300
March	85,820	4,470	1,840	2,772	4.31	4.97	170,400
April	87,080	3,770	2,390	2,903	4.51	5.04	172,700
May	106,580	4,360	2,210	3,438	5.35	6.16	211,400
June	89,470	4,320	2,180	2,982	4.64	5.17	177,500
July	50,640	2,180	1,380	1,634	2.54	2.93	100,400
August	39,240	1,370	1,180	1,266	1.97	2.27	77,850
September	34,760	1,250	1,110	1,159	1.80	2.01	66,950
Water year 1949-50	698,725	4,470	800	1,914	2.98	40.41	1,386,000

Note.--No gage-height record Jan. 1 to Feb. 2; discharge computed on basis of summation of records for upstream stations.

Rogue River at Dodge Bridge, near Eagle Point, Oreg.

Location.--Water-stage recorder, lat. 42°32', long. 122°50', in SE $\frac{1}{4}$ sec. 17, T. 35 S., R. 1 W., at Dodge Bridge, 0.6 mile downstream from Reese Creek and 4 $\frac{1}{2}$ miles northwest of Eagle Point. Datum of gage is 1,273.66 feet above mean sea level, datum of 1929.

Drainage area.--1,210 square miles.

Records available.--October 1938 to September 1950.

Average discharge.--12 years, 2,357 second-feet.

Extremes.--Maximum discharge during year, 13,500 second-feet Mar. 19 (gage height, 6.21 feet); minimum, 855 second-feet Oct. 3; minimum daily, 1,090 second-feet Oct. 1-4, Nov. 5.

1938-50: Maximum discharge, 41,900 second-feet Dec. 28, 1945 (gage height, 11.52 feet), from rating curve extended above 30,000 second-feet; minimum, 611 second-feet Aug. 6, 14, 29, Sept. 9, 1940 (gage height, 0.99 foot); minimum daily, 830 second-feet Sept. 1, 1940.

Remarks.--Records excellent. Many small diversions above station for irrigation; most of flow of Big Butte Creek is diverted near Butte Falls. Some diurnal fluctuation caused by power plant about 30 miles upstream.

Revisions (water years).--W 1094: 1942(M), 1943, 1945(M), 1946.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 15				May 16 to Sept. 30			
1.3	1,030	3.0	3,880	1.3	1,060	2.5	2,950
1.6	1,410	4.0	6,310	1.6	1,440	3.0	3,960
2.0	2,010	5.0	9,450	2.0	2,040	3.5	5,110
2.5	2,910	6.0	12,800				

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,090	1,140	1,610	1,290	2,100	4,090	4,150	3,880	4,800	2,440	1,390	1,190
2	1,090	1,130	1,490	1,250	1,930	4,030	4,660	3,680	4,800	2,350	1,380	1,190
3	1,090	1,110	1,420	1,150	2,030	4,550	4,430	3,480	4,550	2,280	1,360	1,180
4	1,090	1,100	1,370	1,160	2,110	5,230	4,110	3,290	4,450	2,210	1,350	1,190
5	1,410	1,090	1,440	1,240	2,870	5,230	4,090	3,230	4,260	2,140	1,360	1,190
6	1,400	1,110	1,410	1,240	3,940	5,150	4,510	3,160	4,200	2,060	1,360	1,190
7	1,370	1,110	1,370	1,230	3,270	4,450	4,340	2,970	3,810	1,990	1,350	1,190
8	1,270	1,190	1,320	1,240	2,890	4,050	4,260	2,910	3,480	1,940	1,340	1,180
9	1,280	1,580	1,310	1,230	2,890	3,780	3,840	2,870	3,280	1,880	1,320	1,190
10	1,930	1,510	1,310	1,290	3,520	3,740	3,520	2,930	3,200	1,850	1,340	1,180
11	1,520	1,410	1,240	1,250	3,460	3,520	3,440	3,270	3,540	1,800	1,320	1,190
12	1,440	1,360	1,240	1,250	3,060	3,200	3,480	3,760	4,400	1,780	1,310	1,180
13	1,290	1,310	1,280	1,340	2,970	3,040	4,070	4,470	3,810	1,730	1,300	1,170
14	1,240	1,250	1,250	1,250	3,330	2,970	3,940	5,030	3,500	1,680	1,280	1,160
15	1,220	1,240	1,250	1,220	4,150	2,820	3,660	4,960	3,440	1,640	1,280	1,170
16	1,190	1,220	1,340	1,320	5,800	2,890	3,640	4,870	3,400	1,660	1,270	1,190
17	1,190	1,220	1,490	1,480	5,060	8,200	3,740	4,970	3,460	1,600	1,270	1,190
18	1,190	1,200	1,640	7,560	4,300	8,040	4,050	4,560	3,300	1,610	1,270	1,180
19	1,160	1,180	1,480	7,660	4,090	11,600	4,200	4,220	3,220	1,580	1,240	1,190
20	1,160	1,160	1,350	6,840	3,880	8,070	4,660	4,160	3,260	1,550	1,240	1,180
21	1,160	1,150	1,330	9,100	3,500	6,310	4,910	4,420	3,280	1,520	1,260	1,160
22	1,150	1,150	1,320	9,390	3,250	7,000	4,840	4,820	3,100	1,500	1,270	1,170
23	1,150	1,150	1,290	11,500	3,350	6,080	4,470	5,010	2,950	1,480	1,240	1,170
24	1,160	1,480	1,470	7,280	4,400	5,880	4,090	4,870	2,820	1,480	1,280	1,160
25	1,140	1,240	1,400	4,750	6,050	5,060	3,860	4,700	2,660	1,470	1,300	1,180
26	1,140	1,220	1,370	3,840	5,740	4,780	3,720	4,700	2,530	1,470	1,230	1,350
27	1,150	1,470	1,330	3,620	5,010	4,640	3,760	4,890	2,480	1,450	1,230	1,350
28	1,160	2,580	1,310	3,210	4,450	4,220	3,700	4,650	2,440	1,440	1,230	1,260
29	1,180	1,840	1,310	2,700	-	3,860	3,460	4,330	2,440	1,440	1,190	1,210
30	1,150	1,680	1,330	2,540	-	3,700	3,350	4,490	2,460	1,430	1,210	1,210
31	1,150	-	1,310	2,100	-	3,740	-	4,750	-	1,410	1,210	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	38,310	1,930	1,090	1,236	75,990
November.....	39,580	2,580	1,090	1,319	78,510
December.....	42,360	1,840	1,240	1,366	84,020
Calendar year 1949	827,670	9,100	1,050	2,268	1,642,000
January.....	103,320	11,500	1,150	3,333	204,900
February.....	103,400	6,050	1,930	3,693	205,100
March.....	153,920	11,600	2,820	4,965	305,500
April.....	120,950	4,910	3,350	4,032	239,900
May.....	128,100	5,030	2,870	4,132	254,100
June.....	103,320	4,800	2,440	3,444	204,900
July.....	53,810	2,440	1,410	1,736	106,700
August.....	39,980	1,390	1,190	1,290	79,500
September.....	35,840	1,350	1,160	1,195	71,090
Water year 1949-50	962,890	11,600	1,090	2,638	1,910,000
Peak discharge (base, 9,000 sec.-ft.).--Jan. 18 (7 p.m.) 10,800 sec.-ft.; Jan. 23 (9 a.m.) 12,800 sec.-ft.; Mar. 19 (9:30 a.m.) 13,500 sec.-ft.					

ROGUE RIVER BASIN

Rogue River at Raygold, near Central Point, Oreg.

Location.--Water-stage recorder, lat. 42°26', long. 122°59', in sec. 18, T. 36 S., R. 2 W., at Raygold, just downstream from dam and powerhouse of California Oregon Power Co., half a mile downstream from Bear Creek, and 6 miles northwest of Central Point. Datum of gage is 1,121.78 feet above mean sea level, datum of 1929.

Drainage area.--2,020 square miles.

Records available.--August 1905 to September 1950.

Average discharge.--45 years, 2,749 second-feet.

Extremes.--Maximum discharge during year, 21,100 second-feet Mar. 19 (gage height, 9.34 feet); minimum, 622 second-feet Jan. 10 (gage height, 0.07 foot); minimum daily, 1,190 second-feet Nov. 6.

1905-50: Maximum discharge, 91,500 second-feet Feb. 21, 1927 (gage height, 24.8 feet, from floodmark), from rating curve extended above 36,000 second-feet; minimum not determined; minimum daily, 616 second-feet Sept. 6, 1931.

Remarks.--Records excellent except those for period of doubtful gage-height record, which are fair. Many diversions above station for irrigation. Diurnal fluctuation caused by power plant just above station.

Cooperation.--Water-stage recorder inspected by employees of California Oregon Power Co.

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

0.8	1,150	3.0	4,000
1.0	1,330	4.0	5,900
1.5	1,850	5.0	8,060
2.0	2,460	6.0	10,500
2.5	3,170	8.0	16,500

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,220	1,260	1,840	1,460	d2,600	4,730	4,790	4,150	5,050	2,470	1,420	1,230
2	1,210	1,250	1,660	1,450	d2,500	4,620	5,490	4,330	5,070	2,400	1,400	1,230
3	1,200	1,250	1,630	1,320	d2,500	5,000	5,310	4,170	4,790	2,340	1,400	1,230
4	1,210	1,230	1,550	1,280	d2,700	6,000	4,900	3,930	4,620	2,280	1,390	1,230
5	1,460	1,220	1,610	1,390	3,900	5,960	4,770	3,830	4,550	2,200	1,410	1,200
6	1,620	1,190	1,650	1,400	5,330	6,150	5,550	3,800	4,370	2,130	1,430	1,270
7	1,640	1,250	1,550	1,430	4,300	5,230	5,330	3,590	4,050	2,060	1,400	1,240
8	1,490	1,270	1,530	1,430	3,860	4,710	5,410	3,410	3,750	1,980	1,380	1,250
9	1,430	1,770	1,480	1,460	3,730	4,390	4,730	3,280	3,470	1,940	1,380	1,250
10	2,160	1,900	1,510	1,630	4,460	4,260	4,310	3,230	3,350	1,890	1,370	1,250
11	1,830	1,630	1,440	1,740	4,660	4,170	4,120	3,440	3,520	1,840	1,410	1,240
12	1,670	1,560	1,350	1,580	4,020	3,800	4,120	3,970	4,860	1,820	1,360	1,240
13	1,510	1,480	1,420	1,810	3,860	3,540	5,090	4,730	4,400	1,770	1,360	1,230
14	1,420	1,430	1,400	2,450	4,030	3,490	5,410	5,490	3,860	1,740	1,340	1,220
15	1,370	1,410	1,430	1,600	4,680	3,310	4,670	5,630	3,730	1,720	1,330	1,230
16	1,350	1,390	1,480	1,660	6,780	3,220	4,490	5,350	3,730	1,710	1,320	1,240
17	1,350	1,370	1,680	1,880	6,490	8,400	4,530	5,370	3,800	1,650	1,310	1,280
18	1,330	1,350	1,860	12,700	5,270	9,180	4,900	5,030	3,630	1,630	1,300	1,280
19	1,320	1,310	1,820	11,700	4,880	16,200	5,050	4,620	3,490	1,600	1,290	1,310
20	1,310	1,300	1,580	10,600	4,660	10,500	5,630	4,490	3,430	1,560	1,280	1,290
21	1,280	1,300	1,530	12,600	4,170	7,760	6,070	4,710	3,410	1,560	1,280	1,280
22	1,270	1,280	1,540	11,700	3,900	8,870	6,000	5,150	3,500	1,540	1,300	1,280
23	1,280	1,280	1,510	15,000	3,800	7,650	5,550	5,390	3,110	1,520	1,290	1,250
24	1,310	1,590	1,670	9,820	4,800	7,430	5,010	5,270	3,000	1,510	1,310	1,240
25	1,270	1,450	1,640	6,220	6,680	6,380	4,670	5,050	2,870	1,510	1,350	1,250
26	1,280	1,370	1,600	4,770	6,680	6,050	4,510	5,030	2,700	1,480	1,280	1,340
27	1,280	1,530	1,570	4,770	5,960	5,860	4,510	5,210	2,560	1,470	1,270	1,470
28	1,280	2,620	1,530	4,670	5,170	5,210	4,490	5,070	2,520	1,460	1,250	1,340
29	1,310	2,090	1,510	3,740	-	4,670	4,190	4,730	2,490	1,480	1,240	1,310
30	1,300	1,840	1,540	35,300	-	4,420	3,980	4,790	2,490	1,460	1,240	1,300
31	1,300	-	1,480	d2,700	-	4,420	-	4,980	-	1,440	1,240	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	43,260	2,160	1,200	1,395	85,800
November.....	44,170	2,620	1,190	1,472	87,610
December.....	48,590	1,860	1,350	1,567	96,580
Calendar year 1949	961,030	11,800	1,130	2,633	1,906,000
January.....	141,020	15,000	1,280	4,549	279,700
February.....	126,570	6,780	2,500	4,520	251,000
March.....	185,580	16,200	3,220	5,986	368,100
April.....	147,580	6,070	3,980	4,919	292,700
May.....	141,220	5,350	3,230	4,555	280,100
June.....	109,950	5,070	2,490	3,665	218,100
July.....	55,160	2,470	1,440	1,779	109,400
August.....	41,330	1,430	1,240	1,333	81,980
September.....	37,980	1,470	1,200	1,266	75,330
water year 1949-50	1,122,410	16,200	1,190	3,075	2,226,000

Peak discharge (base, 11,000 sec.-ft.)--Jan. 18 (8 p.m.) 17,800 sec.-ft.; Jan. 23 (12:30 p.m.) 16,800 sec.-ft.; Mar. 19 (1 p.m.) 21,100 sec.-ft.

d Doubtful gage-height record; discharge computed on basis of weather records, records for station at Dodge Bridge, near Eagle Point, and unpublished records for gage operated by Pacific Portland Cement Co.

Rogue River at Grants Pass, Oreg.

Location.--Water-stage recorder, lat. 42°26', long. 123°19', in NW¹/₄ sec. 20, T. 36 S., R. 5 W., at filter plant 0.6 mile east of Pacific Highway bridge at Grants Pass. Datum of gage is 888.28 feet above mean sea level, datum of 1929.

Drainage area.--2,420 square miles.

Records available.--January 1939 to September 1950.

Average discharge.--11 years, 2,987 second-feet.

Extremes.--Maximum discharge during year, 22,200 second-feet Mar. 19 (gage height, 11.00 feet); minimum, 940 second-feet Aug. 21 (gage height, 0.58 foot); minimum daily, 990 second-feet Aug. 21, Sept. 12-14.

1939-50: Maximum discharge, 70,000 second-feet Dec. 29, 1945 (gage height, 23.16 feet), from rating curve extended above 23,000 second-feet; minimum, 560 second-feet Aug. 8, 1940 (gage height, 0.30 foot); minimum daily, 637 second-feet Aug. 8, 1940.

Maximum stages known, about 39 feet in 1861-62, about 32 feet in February 1890, and about 28 feet Feb. 22, 1927, from floodmarks.

Remarks.--Records good except those for periods of no gage-height record, 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 Reservoirs.

Cooperation.--Water-stage recorder inspected by employees of Grants Pass Water Department.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 19

Mar. 20 to Sept. 30

0.8	1,060	5.0	7,770	0.6	960	3.0	4,500
1.0	1,290	7.0	12,200	1.0	1,390	4.0	6,250
1.5	1,950	8.5	15,800	1.5	2,040	6.0	10,300
2.0	2,650	10.0	19,500	2.0	2,800	7.4	13,500
3.0	4,190						

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,130	1,300	2,010	1,640	2,970	5,300	5,690	4,350	5,100	2,400	1,190	1,040
2	1,100	1,280	1,780	1,580	2,800	5,090	6,270	4,700	5,100	2,320	1,160	1,040
3	1,090	1,280	1,750	1,480	2,800	5,360	6,250	4,580	4,890	2,260	1,120	1,030
4	1,130	1,250	1,600	1,360	2,300	6,320	5,710	4,240	4,650	2,150	1,120	1,030
5	1,740	1,240	1,680	1,510	4,380	6,320	5,550	4,160	4,870	2,070	1,160	1,030
6	1,870	1,240	1,800	1,500	6,670	6,590	6,110	4,090	4,420	1,940	1,170	1,020
7	1,890	1,240	1,670	1,550	5,640	5,720	5,940	3,940	4,130	1,890	1,170	1,010
8	1,630	1,280	1,620	1,570	4,670	5,190	6,070	3,680	5,790	1,820	1,150	1,030
9	1,500	1,840	1,570	1,600	4,510	4,820	5,460	3,550	3,450	1,750	1,150	1,030
10	2,060	2,310	2,590	1,920	5,240	4,700	4,990	3,410	3,360	1,730	1,130	1,030
11	2,270	1,800	2,540	2,190	5,910	4,580	4,720	3,580	3,510	1,680	1,160	1,020
12	1,870	1,700	2,480	1,840	4,940	4,130	4,670	3,400	4,990	1,530	1,150	990
13	1,630	1,630	2,530	1,980	4,630	3,870	5,440	3,400	4,640	1,590	1,130	990
14	1,400	1,540	1,480	3,140	4,840	3,820	6,070	5,400	4,060	1,550	1,120	990
15	1,450	1,500	1,490	1,980	5,960	3,610	5,320	3,670	3,870	1,530	1,090	1,010
16	1,420	1,480	1,530	1,920	8,380	5,520	5,060	5,390	3,800	1,510	1,070	1,040
17	1,510	1,460	1,710	2,080	9,050	10,300	5,100	5,370	3,920	1,470	1,060	1,100
18	1,390	1,440	2,020	12,400	8,430	11,400	5,350	5,200	3,750	1,430	1,060	1,120
19	1,390	1,420	2,150	13,400	5,910	18,700	5,550	4,770	3,560	1,350	1,050	1,140
20	1,550	1,400	1,780	11,900	5,570	13,400	6,020	4,550	3,460	1,360	1,040	1,150
21	1,370	1,360	1,580	14,600	4,970	9,820	6,420	4,700	3,460	1,360	990	1,090
22	1,390	1,340	1,630	14,300	4,530	10,700	6,400	5,100	3,360	1,340	1,030	1,090
23	1,390	1,330	1,580	17,600	4,330	9,690	6,050	5,350	3,140	1,300	1,030	1,070
24	1,340	1,540	1,700	12,200	5,350	9,670	5,490	5,300	3,020	1,290	1,060	1,080
25	1,340	1,570	1,610	7,470	7,140	8,240	5,010	5,150	2,880	1,300	1,090	1,120
26	1,340	1,440	1,700	5,650	7,370	7,620	4,740	5,040	2,640	1,260	1,070	1,190
27	1,340	1,510	1,680	5,600	6,540	7,240	4,600	5,180	2,530	1,240	1,050	1,380
28	1,330	2,500	1,630	5,940	5,740	6,630	4,760	5,150	2,460	1,220	1,040	1,300
29	1,350	2,450	1,600	4,530	-	5,930	4,420	4,790	2,440	1,240	1,030	1,250
30	1,340	1,960	1,670	3,920	-	5,530	4,160	4,770	2,420	1,250	1,030	1,220
31	1,310	-	1,860	3,240	-	5,460	-	4,820	-	1,200	1,030	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	45,460	2,270	1,090	1,466	90,170
November	46,650	2,500	1,240	1,554	92,490
December	52,020	2,150	1,480	1,678	103,200
Calendar year 1949	987,439	15,700	942	2,705	1,959,000
January	163,600	17,600	1,360	5,277	324,500
February	149,350	8,380	2,800	5,334	296,200
March	219,270	18,700	3,520	7,073	434,900
April	163,300	6,420	4,160	5,443	323,900
May	144,680	5,670	5,410	4,667	287,000
June	111,370	5,100	2,420	3,712	220,900
July	49,450	2,400	1,200	1,595	98,080
August	33,900	1,190	990	1,094	67,240
September	32,630	1,380	990	1,088	64,720
Water year 1949-50	1,211,660	18,700	990	3,320	2,403,000

Peak discharge (base, 11,000 sec.-ft.).--Jan. 18 (10 p.m.) 18,700 sec.-ft.; Jan. 23 (2 p.m.) 19,600 sec.-ft.; Mar. 19 (3:30 p.m.) 22,200 sec.-ft.

No gage-height record; discharge computed on basis of records for station at Raygold, near Central Point.

h Computed from staff-gage reading.

Reservoirs in Rogue River Basin, Oreg.

Fish Lake Reservoir.--Staff gage, lat. 42°23', long. 122°21', in SW¼ sec. 3, T. 37 S., R. 4 E., at Reservoir outlet, 14 miles east of Lake Creek post office. Datum of gage is at mean sea level (irrigation district datum). Drainage area, 17 square miles. Records available, December 1915 to September 1950. Maximum contents observed during year, 7,530 acre-feet June 29, 30 (elevation, 4,826.0 feet); minimum observed, 954 acre-feet Sept. 25 (elevation, 4,806.1 feet). Maximum contents observed during period 1915-50, 8,020 acre-feet June 1, 1943 (elevation, 4,827.19 feet); no usable contents at times. Reservoir is formed by rock-faced earth dam, completed in fall of 1915; storage began in November 1915. Capacity, 7,530 acre-feet between elevations 4,799 feet (outlet tunnel) and 4,826 feet (spillway channel, incomplete). Water is diverted during summer from Fourmile Lake in Klamath River Basin through Cascade Canal into Fish Lake. Gage read once daily except during February and March by employee of Medford Irrigation District.

Emigrant Gap Reservoir.--Staff gage, lat. 42°10', long. 122°36', 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. Datum of gage is at mean sea level (levels by Talent Irrigation District). Records available, December 1924 to September 1950. Maximum contents observed during year, 8,390 acre-feet Mar. 21, May 5 (elevation, 2,173.7 feet); minimum observed, 162 acre-feet Sept. 12 (elevation, 2,091.0 feet). Maximum contents during period 1924-50, 8,850 acre-feet Jan. 7, 1948 (elevation, 2,175.6 feet); no usable contents at times. Reservoir is formed by concrete arch dam, completed in 1924 by Talent Irrigation District; storage began in December 1924. Capacity, 8,340 acre-feet between elevations 2,070 feet (16-inch sluice pipe) and 2,173.5 feet (crest of spillway). Dead storage negligible. Water is used for irrigation of lands near Talent. Gage read one to six times monthly with no reading during November or April by employees of Talent Irrigation District.

Revisions (water years).--W 834: 1936. W 1064: 1945.

Monthly elevation and contents, water year October 1949 to September 1950

Date	Fish Lake Reservoir			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.....	4,808.30	1,510	-	-	a440	-
Oct. 31.....	4,812.60	2,750	+1,240	-	a640	+200
Nov. 30.....	4,815.05	3,530	+780	-	a790	+150
Dec. 31.....	4,816.60	4,040	+510	-	a900	+110
Calendar year 1949.....	-	-	-850	-	-	-3,670
Jan. 31.....	4,818.25	4,610	+570	-	a4,070	+3,170
Feb. 28.....	-	a4,690	+80	-	a5,080	+2,010
Mar. 31.....	4,819.10	4,900	+210	-	a5,390	+2,510
Apr. 30.....	4,820.30	5,330	+430	-	a5,390	0
May 31.....	4,823.65	6,590	+1,260	-	a7,090	-1,300
June 30.....	4,826.0	7,530	+940	2,167.3	6,970	-120
July 31.....	4,817.5	4,340	-3,190	2,136.1	2,450	-4,520
Aug. 31.....	4,808.9	1,680	-2,660	-	a570	-1,880
Sept. 30.....	4,807.0	1,180	-500	-	a210	-360
Water year 1949-50.....	-	-	-330	-	-	-230

a Interpolated.

Note.--Time of reading gages not known.

South Fork Rogue River near Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°42', long. 122°23', in NE $\frac{1}{4}$ sec. 18, T. 33 S., R. 4 E., 500 feet downstream from diversion dam and intake of South Fork power canal, an eighth of a mile downstream from Innaha Creek, and 6 miles southeast of Prospect.

Drainage area.--79 square miles.

Records available.--April 1924 to September 1931, October 1949 to September 1950 (include flow of South Fork power canal completed in March 1932).

Extremes.--Maximum combined discharge of river and canal during year, 640 second-feet May 22 (river gage height, 3.73 feet); maximum river gage height, 4.55 feet Jan. 18, momentary backwater from ice jam; minimum combined daily discharge, 63 second-feet Jan. 11.

1924-31, 1950: Maximum discharge, 1,700 second-feet (revised) Dec. 19, 1929, from rating curve extended above 350 second-feet by logarithmic plotting; maximum gage height, 4.99 feet Nov. 28, 1927, site and datum then in use; minimum discharge, about 35 second-feet in September 1931, during period of no gage-height record.

Revision.--The maximum discharge for the water year 1930 has been revised to 1,700 second-feet Dec. 19, 1929 (gage height, 4.58 feet, site and datum then in use, super-seeding figure published in Water-Supply Paper 709.

Remarks.--Records good. Low flow in river controlled since March 1932 by head gates of diversion dam of power canal which diverts water around station; practically no storage above diversion dam. Records include flow of South Fork power canal (see p.

Cooperation.--Water-stage recorder inspected by employees of California Oregon Power Co.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	79	70	113	72	135	199	252	401	569	224	124	94
2	78	71	105	69	130	197	299	376	558	214	124	92
3	77	70	97	64	131	212	287	344	532	207	124	93
4	79	69	94	74	132	232	292	328	519	203	124	92
5	122	68	95	71	126	243	292	314	500	195	124	92
6	98	70	87	70	130	240	312	299	463	190	122	91
7	94	68	86	69	122	232	301	283	410	183	120	91
8	84	76	84	70	118	229	288	272	380	177	118	91
9	92	84	81	70	118	220	274	269	355	174	116	91
10	160	78	81	72	118	214	284	278	336	170	116	91
11	114	80	72	63	114	204	259	299	370	164	115	90
12	108	83	79	89	112	195	285	362	483	162	113	89
13	94	75	79	71	114	191	298	434	409	157	111	89
14	89	75	75	67	119	183	283	542	368	155	110	87
15	85	74	75	71	131	177	278	570	361	151	109	87
16	83	73	77	79	141	178	289	549	341	152	107	91
17	80	73	79	82	143	268	308	557	348	148	109	91
18	80	71	79	379	141	270	350	517	353	145	106	89
19	79	71	74	375	138	384	383	488	326	144	104	89
20	77	70	75	286	139	338	443	486	334	143	104	87
21	78	70	78	277	134	322	467	537	327	142	102	85
22	78	71	75	306	134	396	467	576	309	140	101	87
23	77	71	74	370	138	346	447	595	287	139	100	84
24	75	73	75	293	177	318	425	573	273	137	103	88
25	75	73	75	237	208	290	415	552	259	136	100	87
26	74	72	75	208	204	273	406	563	247	134	99	96
27	74	90	74	188	203	256	427	565	241	133	97	93
28	73	187	71	172	203	240	411	532	236	132	97	87
29	72	124	74	158	-	233	389	511	235	132	95	87
30	72	131	71	153	-	230	379	543	230	132	95	85
31	71	-	69	134	-	230	-	568	-	128	95	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	2,671	160	71	86.2	1.09	1.26	5,300
November	2,451	187	68	81.0	1.03	1.14	4,820
December	2,498	113	69	80.6	1.02	1.18	4,950
Calendar year 1949	-	-	-	-	-	-	-
January	4,737	379	63	153	1.94	2.23	9,400
February	3,953	208	112	141	1.78	1.86	7,860
March	7,740	396	177	250	3.16	3.84	15,350
April	10,239	467	252	341	4.32	4.82	20,310
May	14,092	596	269	455	5.76	6.63	27,950
June	10,939	569	230	365	4.62	5.15	21,700
July	4,943	224	128	159	2.01	2.33	9,800
August	3,384	124	95	109	1.58	1.59	6,710
September	2,685	96	84	89.5	1.13	1.26	5,350
Water year 1949-50	70,312	596	63	193	2.44	33.09	139,500

ROGUE RIVER BASIN

South Fork power canal near Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°43', long. 122°24', in E½ sec. 12, T. 33 S., R. 3 E., 1 mile downstream from head gate at diversion dam and 5 miles southeast of Prospect; electrical-output meter in power plant in W½ sec. 1, T. 33 S., R. 3 E. Datum of gage is about 3,357 feet above mean sea level (levels by California Oregon Power Co.).

Records available.--April 1932 to September 1950.

Average discharge.--18 years, 107 second-feet.

Extremes.--Maximum daily discharge during year, 157 second-feet Apr. 20, June 22, 23, 25, 27, 29, July 6; minimum daily, 62 second-feet Jan. 11.

1923-50: Maximum daily discharge, 170 second-feet June 18, 1933, Feb. 22, 1936, May 14, 1938, Apr. 4, 5, June 16, 1939; no flow at times.

Remarks.--Records good. Daily discharge computed on basis of electrical output of power plant below station, the relation between electrical output and discharge being based on discharge measurements. This canal, completed in March 1932, diverts water from South Fork Rogue River 200 feet below mouth of Imnaha Creek for use at power plant located in W½ sec. 1, T. 33 S., R. 3 E., from which water may be wasted into Middle Fork Rogue River or mingled with flow of other diversions in Main power canal.

Cooperation.--Water-stage recorder graph and record of electrical output furnished by California Oregon Power Co.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	78	69	112	71	134	154	156	153	150	156	122	93
2	77	70	104	68	130	154	156	154	151	156	122	91
3	76	69	96	63	130	154	155	154	151	156	122	92
4	78	68	93	73	131	154	155	154	152	156	122	91
5	120	67	94	70	126	155	155	154	150	156	122	91
6	97	69	86	69	130	154	156	154	150	157	120	90
7	93	67	85	68	122	154	155	154	150	156	118	90
8	85	75	83	69	118	154	156	154	150	155	116	90
9	89	85	80	69	118	154	156	154	150	156	114	90
10	146	77	80	71	118	154	156	154	150	155	114	90
11	113	79	71	62	114	154	156	154	150	152	114	89
12	106	82	78	68	112	154	155	144	151	154	112	87
13	93	74	78	70	114	154	155	154	151	151	110	88
14	88	74	74	66	119	153	154	154	150	150	109	86
15	84	73	74	70	131	152	154	151	151	146	108	86
16	82	72	76	78	140	151	155	150	151	148	106	90
17	79	72	78	81	142	154	154	150	153	145	108	90
18	79	70	78	123	140	155	155	150	153	142	105	88
19	78	70	73	149	137	156	155	150	152	142	103	88
20	76	69	74	150	138	156	157	150	154	141	103	86
21	77	69	77	150	134	156	154	142	153	140	101	84
22	77	70	74	150	133	156	154	153	157	138	100	86
23	76	70	73	150	137	156	155	153	157	137	99	85
24	74	72	74	148	149	156	154	154	156	135	102	87
25	74	72	74	149	149	156	155	153	157	134	99	86
26	73	71	74	149	148	156	154	152	156	132	98	95
27	73	88	73	148	149	156	153	150	157	131	96	92
28	72	152	70	150	141	156	153	151	156	130	96	86
29	71	122	73	150	-	156	154	151	157	130	94	89
30	71	130	70	148	-	156	154	151	156	130	94	84
31	70	-	68	131	-	156	-	149	-	127	94	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	2,623	146	70	84.6	5,200
November.....	2,365	152	67	78.8	4,680
December.....	2,467	112	68	79.6	4,890
Calendar year 1949.....	41,631	156	67	114	82,570
January.....	3,231	150	62	104	6,410
February.....	3,684	149	112	132	7,310
March.....	4,796	156	151	155	9,510
April.....	4,646	157	153	155	9,220
May.....	4,705	154	142	152	9,530
June.....	4,562	157	151	152	9,050
July.....	4,494	157	127	145	8,910
August.....	3,343	122	94	108	6,630
September.....	2,655	95	83	88.5	5,270
Water year 1949-50.....	43,571	157	62	119	86,420

Middle Fork Rogue River near Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°44', long. 122°24', in NE¹/₄ sec. 1, T. 33 S., R. 3 E., 850 feet downstream from diversion dam and intake of Middle Fork power canal and 4¹/₂ miles southeast of Prospect. Datum of gage is 2,619 feet above mean sea level (levels by California Oregon Power Co.). Prior to Nov. 10, 1949, at site 150 feet downstream at datum 1.70 feet lower.

Drainage area.--57 square miles.

Records available.--May 1925 to September 1950 (include flow of Middle Fork power canal).

Average discharge.--25 year, 175 second-feet.

Extremes.--Maximum combined discharge of river and canal during year, 480 second-feet June 1, 2 (river gage height, 2.82 feet); minimum daily, 110 second-feet Jan. 3. 1925-50: Maximum discharge, 2,760 second-feet Nov. 29, 1942, from rating curve extended above 1,100 second-feet; maximum gage height, 5.2 feet Nov. 29, 1942, Dec. 28, 1945, site and datum then in use; minimum discharge, 72 second-feet Aug. 24 to Sept. 5, 1931.

Remarks.--Records good. Low flow in river controlled since Nov. 19, 1931, by head gates at diversion dam of power canal which diverts water around station; practically no storage above diversion dam. Records include flow of Middle Fork power canal (see following page).

Cooperation.--Water-stage recorder inspected by employees of California Oregon Power Co.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	a119	156	115	162	269	261	265	419	240	158	136
2	123	a119	153	114	159	263	310	245	424	232	157	136
3	123	a118	142	110	159	302	296	224	393	224	157	135
4	132	118	136	114	158	318	284	212	397	219	157	135
5	159	117	138	114	153	339	294	a205	387	214	157	135
6	138	117	131	114	155	314	304	a190	348	208	156	134
7	132	118	129	114	151	291	289	a185	276	204	155	133
8	127	128	125	114	149	276	269	a180	244	196	157	134
9	159	a132	127	114	152	261	250	a180	240	192	159	134
10	182	e124	124	b118	156	242	235	a190	244	191	155	133
11	149	e129	119	120	153	218	225	208	274	184	154	132
12	137	e124	124	120	151	197	239	245	318	183	154	130
13	130	e122	123	b118	156	194	263	298	274	182	154	130
14	126	e120	123	118	164	180	250	394	271	179	152	130
15	d126	120	122	117	165	174	240	412	293	178	150	131
16	d125	121	124	120	189	179	249	394	300	177	150	132
17	d124	120	127	141	195	264	269	400	302	176	150	130
18	d122	118	128	371	185	269	298	360	285	176	148	130
19	d121	118	124	291	185	352	323	339	294	176	148	130
20	d121	118	123	276	185	314	377	351	316	175	147	129
21	d120	118	121	321	181	308	405	389	315	173	146	128
22	d119	118	121	379	*168	342	393	425	285	171	146	128
23	d119	123	121	414	164	308	354	437	261	170	146	127
24	d119	124	121	341	275	288	317	425	235	189	146	127
25	d119	120	121	272	313	268	302	391	218	167	145	134
26	d119	123	121	233	313	253	293	381	216	166	143	146
27	d119	197	120	208	297	239	299	401	216	164	141	134
28	d119	220	120	171	281	215	279	365	222	163	140	130
29	d119	165	*120	155	-	206	265	355	232	161	138	129
30	d119	181	117	153	-	201	251	388	244	160	137	130
31	a119	-	116	166	-	213	-	414	-	158	136	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	3,990	182	119	129	2.26	2.60	7,910
November	3,906	220	117	130	2.28	2.55	7,750
December	3,917	156	116	126	2.21	2.56	7,770
Calendar year 1949	71,841	669	116	197	3.46	46.69	142,500
January	5,746	414	110	185	3.25	3.75	11,400
February	5,294	313	149	189	3.32	3.45	10,500
March	8,037	342	174	259	4.54	5.24	15,940
April	8,685	405	225	289	5.07	5.67	17,220
May	9,848	437	180	318	5.58	6.43	19,530
June	8,732	424	216	291	5.11	5.70	17,320
July	5,728	240	158	185	3.25	3.74	11,360
August	4,639	159	136	150	2.63	3.03	9,200
September	3,962	146	127	132	2.32	2.59	7,860
Water year 1949-50	72,482	437	110	199	3.49	47.31	143,800

* Winter discharge measurement made on this day.

a No river gage-height record; discharge computed on basis of combined flow of South Fork Rogue River and South Fork power canal.

b Stage-discharge relation affected by ice.

c Doubtful river gage-height record because of faulty inlet action; discharge computed as in foot-note "a".

e Stage-discharge relation of river indefinite; discharge computed on basis of 1 discharge measurement and engineers notes.

ROGUE RIVER BASIN

Middle Fork power canal near Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°44', long. 122°24', in NE $\frac{1}{4}$ sec. 1, T. 33 S., R. 3 E., 1,000 feet downstream from head gate at diversion dam and 4 $\frac{1}{2}$ miles southeast of Prospect. Datum of gage is about 2,632 feet above mean sea level (levels by California Oregon Power Co.).

Records available.--November 1931 to September 1950.

Average discharge.--19 years, 105 second-feet.

Extremes.--Maximum daily discharge during year, 131 second-feet Oct. 11, May 26, 27; minimum daily, 1 second-foot on several days in January and February.

1931-50: Maximum daily discharge, 191 second-feet Feb. 2, 1935; no flow at times.

Remarks.--Records excellent except those below 3 second-feet, which are poor. This canal, completed in November 1931, diverts water from Middle Fork Rogue River into Main power canal to supplement flow of Rogue River above Prospect diversion dam.

Cooperation.--Water-stage recorder graph furnished by California Oregon Power Co.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	122			114	95	4	45	49	128	118	124	124
2	121	118	122	114	95	8	45	48	128	118	124	124
3	121	117	122	110	95	12	31	48	128	118	124	124
4	123	117	122	114	94	16	24	48	127	118	124	124
5	126	116	121	114	88	15	24	48	127	118	124	124
6	129	116	121	114	86	18	24	48	127	118	124	124
7	128	117	121	114	86	21	24	48	128	118	124	124
8	124	124	119	114	95	21	24	48	128	119	124	124
9	118	126	118	114	105	21	24	48	128	119	124	124
10	115	124	118	118	105	21	23	49	128	120	124	124
11	131	126	116	120	104	21	23	48	129	119	123	124
12	130	124	118	120	104	21	23	48	130	123	123	124
13	127	122	118	118	105	26	23	48	106	124	123	124
14	124	120	118	117	105	38	34	48	119	124	122	124
15	124	120	118	115	40	58	47	48	86	124	123	124
16	124	121	118	114	1	67	47	48	103	124	123	124
17	123	120	118	113	11	67	48	48	114	124	124	124
18	121	118	118	53	13	67	48	48	113	124	123	124
19	120	118	119	6	13	67	48	49	114	124	122	124
20	120	117	120	1	5	34	48	49	114	124	122	124
21	119	117	118	3	1	18	47	49	113	124	123	124
22	118	117	118	3	12	18	47	49	113	124	124	123
23	118	122	118	1	24	18	47	55	113	124	124	123
24	118	123	118	1	10	18	47	61	113	124	124	123
25	118	119	118	7	1	18	47	101	113	124	124	124
26	118	122	118	12	1	18	48	131	113	124	124	124
27	118	125	118	15	1	18	49	131	113	124	124	124
28	118	114	118	23	1	18	49	130	116	124	124	124
29	118	116	45	23	-	34	49	129	118	124	124	124
30	118	122	44	54	-	45	49	128	118	124	124	125
31	118	-	115	97	-	45	-	129	-	124	124	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	3,770	131	115	122	7,480
November.....	3,598	126	114	120	7,130
December.....	3,535	122	44	114	7,010
Calendar year 1949.....	31,777.9	132	.5	87.1	83,020
January.....	2,256	120	1	72.8	4,470
February.....	1,496	105	1	53.4	2,970
March.....	891	67	4	28.7	1,770
April.....	1,158	49	23	38.5	2,290
May.....	2,057	131	48	86.4	4,080
June.....	3,548	130	86	118	7,040
July.....	3,782	124	118	122	7,500
August.....	3,831	124	122	124	7,600
September.....	3,718	125	123	124	7,370
Water year 1949-50.....	33,636	131	1	92.2	66,710

Red Blanket Creek near Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°47', long. 122°26', in NE $\frac{1}{4}$ sec. 23, T. 32 S., R. 3 E., 3 miles northeast of Prospect.

Drainage area.--40 square miles.

Records available.--May 1925 to September 1950. Prior to October 1928 in NE $\frac{1}{4}$ sec. 34, T. 32 S., R. 3 E.

Average discharge.--25 years, 106 second-feet.

Extremes.--Maximum discharge during year, 319 second-feet June 1 (gage height, 3.66 feet); minimum, 40 second-feet Jan. 13.

1925-50: Maximum discharge observed, 1,880 second-feet Nov. 29, 1942 (gage height, 5.1 feet, site and datum then in use, from floodmark), from rating curve extended above 350 second-feet; minimum observed, 34 second-feet Sept. 3, 4, 25, Oct. 9, 16, 1931.

Remarks.--Records good except those for period of no gage-height record, which are fair. One diversion above station for irrigation.

Cooperation.--Water-stage recorder inspected by employees of California Oregon Power Co.

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from debris July 1 to Aug. 7)

2.3	38	3.0	135
2.4	47	3.3	208
2.6	68	3.6	298
2.8	97		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	61	86	66	a100	160	166	180	292	180	87	78
2	65	60	84	65	a95	160	186	170	286	176	86	74
3	65	59	78	b60	a95	186	178	160	274	170	86	76
4	71	59	76	b65	a100	200	170	153	274	166	86	76
5	95	59	77	64	a95	206	178	151	271	158	86	74
6	81	59	73	64	*101	193	183	142	253	151	86	76
7	73	59	72	64	95	178	173	135	226	144	84	74
8	68	67	71	64	94	168	166	135	200	140	84	74
9	91	76	71	64	92	160	153	133	190	135	84	73
10	95	71	69	64	94	153	149	133	190	129	83	73
11	81	73	66	62	92	142	149	146	211	125	85	72
12	74	69	67	61	89	135	158	180	229	121	85	72
13	71	67	64	54	129	173	217	206	117	81	72	72
14	68	66	67	48	104	123	163	247	203	115	81	72
15	67	66	67	51	111	119	158	244	211	113	80	72
16	66	65	68	60	125	131	160	235	214	113	80	72
17	67	64	68	76	123	211	170	238	217	111	80	72
18	67	64	69	253	119	203	186	217	211	108	78	72
19	66	61	66	188	119	235	198	208	217	104	78	72
20	67	61	65	186	119	203	223	214	229	102	77	71
21	66	61	66	228	115	193	235	235	226	102	77	69
22	66	61	65	247	*113	211	226	256	211	101	77	68
23	66	69	66	262	125	193	211	265	200	99	77	68
24	65	71	66	196	170	180	196	259	188	95	78	68
25	65	64	66	163	198	170	188	250	180	94	77	72
26	65	66	65	146	188	163	186	265	176	94	76	76
27	65	148	65	135	178	153	188	277	176	94	76	69
28	65	149	65	119	168	144	178	265	178	94	74	69
29	65	94	66	a110	-	140	170	256	183	92	76	68
30	64	99	*65	a110	-	140	168	277	183	92	76	68
31	62	-	65	a100	-	142	-	289	-	89	74	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	2,177	95	62	70.2	1.76	2.02	4,320
November	2,168	149	59	72.3	1.81	2.02	4,300
December	2,147	86	65	89.3	1.73	2.00	4,260
Calendar year 1949	42,560	520	59	116	2.90	39.39	84,030
January	3,491	262	46	113	2.82	3.25	6,920
February	3,511	198	89	118	2.95	3.08	8,570
March	5,232	235	119	169	4.22	4.86	10,380
April	5,382	235	149	179	4.48	5.00	10,660
May	6,532	289	133	211	5.28	6.07	12,960
June	6,505	292	176	217	5.42	6.05	12,900
July	3,723	180	89	120	3.00	3.46	7,380
August	2,491	87	74	80.4	2.01	2.32	4,940
September	2,160	76	68	72.0	1.80	2.01	4,280
Water year 1949-50	45,319	292	46	124	3.10	42.14	89,890

Peak discharge (base, 300 sec.-ft.),--Jan. 23 (7 a.m.) 302 sec.-ft.; June 1 (11 p.m.) 319 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage and combined flow of South Fork Rogue River and South Fork power canal.

b Stage-discharge relation affected by ice.

Red Blanket power canal near Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°45', long. 122°27', in SE¹/₄ sec. 27, T. 32 S., R. 3 E., 600 feet downstream from head gate and diversion dam and 2 miles east of Prospect. Datum of gage is 2,612 feet above mean sea level (levels by California Oregon Power Co.).

Records available.--November 1931 to September 1950.

Average discharge.--18 years, 69.4 second-feet.

Extremes.--Maximum daily discharge during year, 103 second-feet Jan. 19-25; minimum daily, 7.5 second-feet May 17, 18.

1931-50: Maximum daily discharge, 106 second-feet July 7-13, 1932; no flow for parts of days Sept. 24, 25, 1932.

Remarks.--Records good except those for periods of ice effect, which are poor. This canal, completed in October 1931, diverts water from Red Blanket Creek into Main power canal to supplement flow of Rogue River above Prospect diversion dam.

Cooperation.--Water-stage recorder graph furnished by California Oregon Power Co.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	64	63	88	68	96	93	92	92	77	77	90	75
2	64	62	85	68	a95	93	93	92	77	76	90	74
3	64	80	81	b62	94	93	93	92	77	76	89	73
4	66	80	76	b67	94	93	93	92	77	76	89	73
5	91	80	79	67	94	93	h93	92	77	76	89	73
6	79	60	76	66	94	93	a93	92	77	76	89	72
7	80	80	73	66	93	93	h93	92	77	76	88	72
8	71	66	72	66	93	93	h92	92	77	89	86	72
9	75	77	72	66	93	93	h92	92	77	100	86	72
10	90	72	71	b66	93	93	h92	92	77	100	86	71
11	83	75	69	b64	93	93	92	92	77	97	86	70
12	78	71	70	b63	93	93	92	92	76	95	84	70
13	73	68	69	b66	94	93	h92	92	77	95	84	70
14	70	67	69	b48	93	92	92	92	77	95	84	70
15	69	66	69	b53	93	91	92	48	76	95	82	71
16	68	66	70	b62	93	91	92	7.8	76	95	82	71
17	68	66	70	69	93	91	92	7.6	76	94	81	70
18	68	65	71	100	93	92	h92	7.6	76	93	81	70
19	66	64	70	103	93	92	h92	21	76	93	81	72
20	66	64	68	103	93	92	h92	76	76	93	80	70
21	67	63	68	103	93	92	h92	93	76	93	80	70
22	66	62	67	103	*93	92	h92	92	76	93	79	69
23	66	66	67	103	93	92	h92	92	76	93	79	69
24	65	71	69	103	93	92	92	93	76	93	79	69
25	65	66	67	103	93	92	92	83	76	92	79	72
26	64	67	68	97	93	91	92	77	76	92	78	78
27	64	65	68	96	93	91	92	77	77	91	77	75
28	65	94	68	96	93	90	92	77	77	91	78	72
29	66	93	*68	96	-	90	92	77	77	91	78	71
30	64	92	68	97	-	91	92	77	77	91	76	70
31	64	-	68	97	-	92	-	77	-	91	75	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	2,169	91	64	70.0	4,300
November.....	2,071	94	60	69.0	4,110
December.....	2,214	88	67	71.4	4,390
Calendar year 1949.....	25,667.4	98	7.6	70.3	50,916
January.....	2,477	103	48	79.9	4,910
February.....	2,614	96	93	93.4	5,180
March.....	2,855	93	90	92.1	5,660
April.....	2,766	93	92	92.2	5,490
May.....	2,371.0	93	7.6	76.5	4,700
June.....	2,299	78	76	76.6	4,560
July.....	2,778	100	76	89.6	5,510
August.....	2,581	90	75	82.6	5,080
September.....	2,146	78	69	71.5	4,260
Water year 1949-50.....	29,321.0	103	7.6	80.3	58,150

* Winter discharge measurement made on this day.

a No gage-height record; discharge interpolated.

b Stage-discharge relation affected by ice.

h Computed from staff-gage reading.

Main power canal below all feeders, near Prospect, Oreg.

Location.--Water-stage recorder, lat. 42°45', long. 122°28', in SW¹ sec. 28, T. 32 S., R. 3 E., 0.8 mile downstream from outlet of Red Blanket power canal, 1 mile east of Prospect, and 1.6 miles upstream from diversion dam on Rogue River. Datum of gage is 2,599.0 feet above mean sea level, datum of 1929.

Records available.--November 1931 to September 1950.

Average discharge.--18 years (1932-50), 265 second-feet.

Extremes.--Maximum daily discharge during year, 344 second-feet July 19, 29; minimum daily, 25 second-feet May 16-18.

1931-50: Maximum daily discharge, 423 second-feet June 23-28, 1936; no flow at times.

Remarks.--Records good. This canal, completed in November 1931, carries water diverted from South and Middle Forks Rogue River and Red Blanket Creek into Rogue River above Prospect diversion dam.

Cooperation.--Water-stage recorder graph furnished by California Oregon Power Co.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	266	262	329	266	324	256	307	94	302	280	337	300
2	264	259	324	262	302	262	274	94	303	280	339	299
3	262	258	313	248	316	264	157	94	300	278	339	299
4	272	256	302	270	310	271	95	93	300	278	342	297
5	316	256	307	264	308	272	96	93	297	278	342	297
6	313	254	295	262	310	200	97	93	297	278	340	294
7	302	256	292	259	303	109	95	92	297	278	339	292
8	284	283	288	262	311	94	94	92	297	305	339	295
9	292	307	284	262	321	94	93	91	245	315	332	295
10	286	292	283	260	323	106	94	90	175	313	337	294
11	327	297	270	260	318	126	94	104	178	318	335	294
12	323	289	277	264	316	186	95	109	178	334	329	292
13	300	278	276	254	319	278	96	111	216	334	327	292
14	289	274	274	250	326	289	94	113	289	332	327	291
15	284	271	272	264	266	310	94	63	241	329	321	292
16	280	272	277	264	233	326	94	25	256	332	319	295
17	277	270	280	266	243	205	94	25	272	337	321	294
18	274	265	280	246	248	175	95	25	272	337	319	292
19	271	262	272	207	247	175	95	86	274	344	318	288
20	271	259	271	206	238	127	95	184	276	340	313	291
21	271	258	274	212	231	95	94	195	274	337	313	289
22	276	256	270	212	241	94	94	256	276	334	313	288
23	272	271	271	213	260	91	94	299	276	332	315	288
24	271	282	272	210	259	92	94	299	276	331	316	288
25	270	270	272	212	252	93	93	302	276	329	316	297
26	266	274	274	216	250	92	93	305	276	331	311	302
27	266	266	272	220	250	92	93	303	276	327	308	299
28	271	256	271	231	238	178	93	303	278	339	302	294
29	271	294	187	253	-	291	93	303	282	344	302	288
30	268	335	184	300	-	303	93	305	282	342	302	288
31	265	-	264	334	-	305	-	305	-	342	302	-
Month	Second-foot-days					Maximum	Minimum	Mean	Runoff in acre-feet			
October.....	8,720					327	262	281	17,300			
November.....	8,182					335	254	273	16,230			
December.....	8,577					329	184	277	17,010			
Calendar year 1949	88,686					366	0	243	175,900			
January.....	7,709					334	206	249	15,290			
February.....	7,863					326	231	281	15,600			
March.....	5,851					326	91	189	11,610			
April.....	3,282					307	93	109	6,510			
May.....	4,946					305	25	160	9,810			
June.....	8,037					303	175	268	15,840			
July.....	9,908					344	278	320	19,650			
August.....	10,015					342	302	323	19,860			
September.....	8,804					302	288	293	17,460			
Water year 1949-50	91,894					344	25	252	182,500			

South Fork Big Butte Creek near Butte Falls, Oreg.

Location.--Water-stage recorder, lat. 42°32', long. 122°33', in SW¹ sec. 11, T. 35 S., R. 2 E., just downstream from Ginger Creek and 1 mile east of Butte Falls.

Records available.--September 1910 to October 1911, August to October 1915, October 1917 to September 1922, March 1925 to September 1950. August 1922 to March 1925 at site at Butte Falls.

Average discharge.--34 years (1910-11, 1917-50), 157 second-feet.

Extremes.--Maximum discharge during year, 998 second-feet Mar. 19 (gage height, 2.44 feet); minimum, 54 second-feet sometime during period Oct. 8-13 (gage height, 0.50 foot).
1910-11, 1915, 1917-50: Maximum discharge, 2,470 second-feet Feb. 20, 1927 (gage height, 4.05 feet), from rating curve extended above 1,600 second-feet; minimum, 39 second-feet Oct. 14, 1931 (gage height, 0.32 foot).

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Diversions above station for irrigation, and since 1927 for Medford municipal supply. No regulation.

Rating table, water year, 1949-50 (gage height, in feet, and discharge, in second-feet)

0.5	54	1.2	243
.6	72	1.4	354
.7	93	1.7	505
.8	117	2.0	695
1.0	172	2.4	970

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	89	87	95	100	a150	329	355	260	a175	117	93	87
2	89	85	95	93	a140	320	399	269	a170	115	93	87
3	89	87	95	a90	a135	324	382	260	163	115	93	87
4	93	87	95	a95	a150	345	355	243	149	115	95	87
5	110	85	105	a90	a170	410	360	228	143	112	95	89
6	103	85	103	a95	213	416	410	224	140	112	95	89
7	95	85	98	a90	185	355	376	a210	152	112	93	89
8	a70	95	95	a90	175	345	a350	205	a160	112	91	87
9	a90	117	95	91	175	320	a330	202	a160	110	87	87
10	a150	105	93	91	205	315	310	198	a150	110	87	87
11	a120	98	89	89	216	291	296	202	a170	110	85	87
12	a100	93	91	91	209	264	300	205	213	107	85	87
13	93	93	91	91	213	256	376	220	172	105	80	87
14	93	93	93	87	235	252	360	235	140	103	89	87
15	91	93	93	91	273	232	354	243	135	103	89	87
16	89	93	100	91	376	243	324	239	133	98	89	87
17	89	91	110	103	393	469	329	239	a130	103	87	89
18	89	91	107	277	355	553	334	232	a130	100	87	89
19	89	89	105	376	329	907	334	a230	130	100	85	91
20	89	89	98	334	310	747	345	a225	133	100	85	89
21	89	89	100	393	291	636	350	a220	135	100	87	87
22	89	87	98	410	273	760	345	216	a135	98	87	87
23	89	87	105	553	282	643	a330	216	a130	98	87	87
24	89	87	107	445	350	584	305	213	a130	98	89	87
25	89	89	100	320	399	511	286	205	a130	95	87	89
26	89	87	103	260	404	487	282	198	127	95	87	91
27	89	100	100	232	399	469	282	198	125	95	87	91
28	89	112	95	205	355	416	273	a195	120	95	87	89
29	89	98	100	a185	-	376	a260	192	117	95	89	89
30	89	103	98	172	-	355	252	182	117	95	89	89
31	89	-	93	a160	-	334	-	a180	-	93	89	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	2,889	150	70	93.2	5,730
November.....	2,780	117	85	92.7	5,510
December.....	3,045	110	89	98.2	6,040
Calendar year 1949.....	58,816	541	70	161	116,700
January.....	5,890	553	87	190	11,680
February.....	7,360	404	135	263	14,600
March.....	13,264	907	232	428	26,310
April.....	9,924	410	252	331	19,680
May.....	6,764	269	180	219	13,460
June.....	4,312	213	117	144	8,550
July.....	3,216	117	93	104	6,380
August.....	2,748	95	80	88.6	5,450
September.....	2,642	91	87	88.1	5,240
Water year 1949-50.....	64,854	907	70	178	128,800

Peak discharge (base, 450 sec.-ft.).--Jan. 23 (2 p.m.) 636 sec.-ft.; Mar. 5 (9 p.m.) 475 sec.-ft.; Mar. 19 (8 a.m.) 998 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage when available and unpublished records for Big Butte Springs and Rancheria Creek near Butte Falls.

Big Butte Creek near McLeod, Oreg.

Location.--Staff gage, lat. 42°39', long. 122°41', in NW¹ sec. 3, T. 34 S., R. 1 E., at highway bridge 1 mile upstream from mouth and 1 mile south of McLeod. Datum of gage is 1,526.48 feet above mean sea level, datum of 1929, supplemental adjustment of 1947.

Drainage area.--249 square miles.

Records available.--October 1945 to September 1950.

Extremes.--Maximum discharge, 2,620 second-feet Mar. 19 (gage height, 7.00 feet); minimum observed, 72 second-feet Aug. 18, 19, Sept. 3, 1945-50: Maximum discharge, 4,680 second-feet Jan. 7, 1948 (gage height, 9.4 feet, from floodmark), from rating curve extended above 2,700 second-feet by logarithmic plotting; minimum observed, 70 second-feet Sept. 23, 1947.

Remarks.--Records good except those for period of ice effect, which are poor. Staff gage read twice daily. Slight regulation by fish hatchery 200 yards above station. Several diversions in vicinity of Butte Falls, the two largest being the city of Medford diversion and the Eagle Point Irrigation District canal.

Rating table, water year 1949-50, except period of ice effect
(gage height, in feet, and discharge, in second-feet)

1.4	67	2.8	470	5.2	1,480
1.6	103	3.2	610	5.8	1,840
1.8	146	3.6	750	6.1	2,020
2.0	198	4.0	900		
2.4	330	4.6	1,170		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	105	139	166	171	323	617	631	365	176	115	80	73
2	107	146	154	168	295	603	676	365	176	all 12	81	73
3	105	137	151	151	295	631	666	358	171	109	80	73
4	105	128	148	166	376	642	617	326	161	107	80	73
5	139	128	198	166	442	708	610	323	154	117	80	73
6	130	128	176	161	652	740	712	312	148	105	80	73
7	154	141	171	164	466	648	687	309	171	103	77	73
8	154	166	166	171	435	614	666	316	166	103	77	73
9	164	284	164	171	442	562	596	274	156	103	77	77
10	216	207	171	182	690	610	540	260	154	103	77	77
11	171	187	161	182	547	550	519	257	228	103	73	77
12	154	171	161	b175	491	494	544	254	323	105	73	77
13	144	166	158	b170	480	480	652	284	238	97	73	80
14	144	164	161	b165	516	488	603	302	195	93	77	80
15	141	161	161	b160	561	456	554	302	179	95	77	83
16	139	156	*182	187	828	474	526	302	171	95	77	83
17	134	156	234	260	764	1,240	530	302	171	95	73	83
18	139	156	267	1,380	687	1,170	533	284	158	93	72	83
19	139	154	204	972	659	2,020	533	264	154	93	73	83
20	139	151	176	876	*620	1,390	547	260	146	93	73	83
21	139	151	176	1,280	575	1,120	554	247	146	93	83	81
22	139	151	182	1,140	540	1,300	547	247	144	93	78	77
23	139	164	176	1,630	554	1,090	491	247	137	91	75	80
24	139	151	213	972	859	1,030	452	238	137	89	73	80
25	157	151	187	708	740	684	404	225	137	87	75	83
26	137	151	198	578	743	836	379	219	130	83	73	87
27	139	164	184	564	729	820	366	218	128	83	75	107
28	148	190	*179	512	673	729	365	207	121	80	77	107
29	148	188	171	421	-	670	340	198	119	83	77	101
30	146	176	161	a375	-	634	320	187	115	83	75	105
31	146	-	166	330	-	620	-	184	-	83	73	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	4,380	216	105	141	8,690
November.....	4,845	284	128	162	9,610
December.....	5,523	267	148	178	10,950
Calendar year 1949.....	97,725	1,460	80	268	193,800
January.....	14,706	1,630	151	474	29,170
February.....	15,772	828	295	563	31,280
March.....	24,890	2,020	456	803	49,570
April.....	16,180	712	320	539	32,090
May.....	8,434	365	164	272	16,730
June.....	4,910	323	115	164	9,740
July.....	2,987	117	80	96.4	5,920
August.....	2,366	83	72	76.3	4,690
September.....	2,458	107	73	81.9	4,680
Water year 1949-50.....	107,451	2,020	72	294	213,100

* Winter discharge measurement made on this day.

a No gage-height record; discharge interpolated.

b Stage-discharge relation affected by ice.

Elk Creek near Trail, Oreg.

Location.--Water-stage recorder, lat. 42°40', long. 122°45', in SE $\frac{1}{4}$ sec. 30, T. 33 S., R. 1 E., 0.7 mile upstream from mouth and 3 $\frac{1}{2}$ miles northeast of Trail. Datum of gage is 1,468.70 feet above mean sea level, datum of 1929, supplemental adjustment of 1947. Prior to June 23, 1950, staff gage at same site and datum.

Drainage area.--133 square miles.

Records available.--November 1945 to September 1950.

Extremes.--Maximum discharge during year, 2,850 second-feet Mar. 19 (gage height, 6.74 feet, from crest-stage indicator); minimum not determined.
1945-50: Maximum discharge, 9,880 second-feet Dec. 28, 1945 (gage height 13.2 feet, from floodmark, present site and datum), from rating curve extended above 6,600 second-feet by logarithmic plotting; minimum observed, 0.9 second-foot Aug. 29, 1946.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Staff gage read twice daily Oct. 4 to June 23. No regulation. Several small diversions above station for irrigation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a3.5	7.6	53	61	b155	497	621	253	117	22	5.7	a1.7
2	a4.0	8.0	29	53	145	553	585	266	111	18	5.4	a1.7
3	a4.5	7.8	28	50	b140	670	477	264	100	19	6.0	h1.7
4	4.6	7.6	24	47	155	605	392	253	90	18	5.4	a1.7
5	4.6	7.6	47	42	266	775	398	297	82	17	5.4	1.8
6	14	6.4	61	37	*688	693	462	299	78	18	5.4	2.2
7	34	6.0	46	34	513	521	430	255	82	18	5.2	2.7
8	16	7.6	40	36	353	412	412	227	75	18	5.2	3.0
9	12	39	37	37	389	374	347	222	68	16	5.2	3.5
10	89	62	40	42	513	371	297	229	64	17	5.2	3.8
11	37	56	34	47	565	335	277	264	82	16	a5.0	2.9
12	21	49	30	44	458	288	302	308	166	14	a4.5	2.7
13	17	34	28	43	451	264	406	344	122	13	a4.0	2.5
14	14	29	28	37	630	245	386	338	95	12	a4.0	2.7
15	11	24	38	b35	959	227	335	308	82	12	a4.5	2.9
16	10	21	*59	47	*1,610	237	332	269	71	12	a4.5	2.9
17	9.2	19	111	67	1,070	1,590	341	261	67	12	a4.0	2.9
18	9.2	16	155	1,470	756	1,390	368	222	61	10	a3.5	3.2
19	8.4	15	111	1,140	742	2,260	377	198	54	12	a3.0	3.5
20	7.6	14	73	1,170	684	981	448	182	52	10	a3.0	3.8
21	7.2	14	57	1,980	513	815	426	186	48	9.2	a4.0	4.0
22	7.6	12	52	1,810	430	926	383	198	46	9.2	a3.5	4.3
23	7.6	12	49	2,760	545	752	320	195	42	8.8	a3.0	3.5
24	7.6	13	68	1,040	915	747	266	179	43	8.8	a2.5	3.2
25	7.6	12	92	565	1,260	639	242	166	42	8.0	a2.5	3.5
26	8.0	12	75	380	1,070	557	227	162	36	7.2	a2.5	4.3
27	8.4	19	70	314	775	598	232	162	35	7.2	a2.5	8.4
28	7.6	59	67	245	594	533	217	145	32	6.8	a2.0	11
29	7.2	41	70	200	-	448	198	128	29	7.2	a1.7	12
30	7.2	35	86	177	-	426	188	122	27	6.8	h1.7	10
31	7.6	-	72	166	-	509	-	121	-	6.0	a1.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	414.2	89	3.5	13.4	822
November.....	685.4	62	6.0	22.2	1,320
December.....	1,810	155	24	58.4	3,590
Calendar year 1949.....	53,226.0	2,120	1.5	146	108,600
January.....	14,176	2,760	34	457	28,120
February.....	17,344	1,610	140	619	34,400
March.....	20,438	2,260	227	659	40,540
April.....	10,692	621	188	356	21,210
May.....	7,025	344	121	227	15,930
June.....	2,098	168	27	69.9	4,160
July.....	389.2	22	6.0	12.6	772
August.....	121.7	6.0	1.7	3.93	241
September.....	118.0	12	1.7	3.93	234
Water year 1949-50.....	75,287.5	2,760	1.7	206	149,300

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for Big Butte Creek near McLeod.

b Stage-discharge relation affected by ice.

h Computed from staff-gage reading.

South Fork Little Butte Creek near Lake Creek, Oreg.

Location.--Water-stage recorder, lat. 42°25', long. 122°36', in SE $\frac{1}{4}$ sec. 29, T. 36 S., R. 2 E., a quarter of a mile upstream from intake of Rogue River Valley Canal and $1\frac{1}{2}$ miles southeast of Lake Creek post office.

Drainage area.--138 square miles.

Records available.--April 1921 to September 1950. November 1910 to April 1913 at site $3\frac{1}{2}$ miles upstream; records not equivalent.

Average discharge.--29 years (1921-50), 98.2 second-feet.

Extremes.--Maximum discharge during year, 995 second-feet Mar. 19 (gage height, 3.45 feet), from rating curve extended above 550 second-feet by logarithmic plotting; minimum, 13 second-feet Aug. 27.

1921-50: Maximum discharge, 3,920 second-feet Jan. 7, 1948 (gage height, 6.48 feet), from rating curve extended above 350 second-feet by logarithmic plotting; minimum, 2 second-feet Aug. 10, 1931 (gage height, 0.97 foot).

Remarks.--Records good except those for periods of ice effect, which are poor. Diversions above station for irrigation.

Revisions (water years).--W 934: 1925(M).

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	20	24	24	b85	181	225	300	261	46	21	16
2	20	20	27	b22	b80	181	248	285	238	48	20	17
3	20	20	27	b25	b80	197	234	266	217	44	20	17
4	20	20	25	25	b90	225	234	243	201	44	20	17
5	30	20	27	23	b120	252	266	234	185	42	20	16
6	32	20	25	23	177	230	310	225	173	37	20	15
7	34	20	24	24	120	201	285	201	177	35	20	15
8	28	24	23	25	98	185	261	189	161	34	20	17
9	32	51	22	25	87	173	234	189	138	32	20	18
10	57	27	20	30	120	161	217	193	128	32	20	17
11	35	23	20	26	124	149	213	209	128	32	20	17
12	31	23	21	26	98	131	234	238	177	31	20	16
13	25	21	22	42	98	128	350	285	134	30	19	16
14	23	21	22	46	*117	120	330	335	120	30	19	16
15	22	21	22	b35	157	110	290	365	110	27	18	19
16	21	20	23	35	213	117	290	365	107	27	19	19
17	21	20	*25	66	205	238	315	365	104	25	19	20
18	21	20	30	460	169	256	345	355	96	25	18	23
19	20	20	25	448	165	604	365	325	84	27	18	21
20	20	19	25	*382	145	370	424	315	81	25	18	19
21	20	19	25	388	124	325	466	315	76	25	16	19
22	20	19	25	335	114	514	460	335	69	24	17	18
23	20	18	25	514	110	350	418	345	69	24	17	19
24	19	19	31	295	138	290	370	345	76	23	18	18
25	19	18	28	197	177	248	350	340	69	23	17	20
26	19	18	30	153	201	234	335	335	62	23	17	20
27	19	19	28	145	201	225	335	335	59	23	17	21
28	19	37	24	124	185	193	315	315	55	24	17	20
29	19	24	27	98	-	169	295	280	49	24	17	20
30	20	27	23	93	-	173	280	275	48	22	16	20
31	20	-	b22	b90	-	193	-	270	-	21	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	747	57	19	24.1	1,480
November.....	648	37	16	21.6	1,290
December.....	767	31	20	24.7	1,520
Calendar year 1949	39,513	538	17	108	78,370
January.....	4,248	514	22	137	8,430
February.....	3,798	213	80	136	7,530
March.....	7,123	604	110	230	14,130
April.....	9,294	466	213	310	18,430
May.....	8,972	365	189	289	17,800
June.....	3,652	261	45	122	7,240
July.....	927	46	21	29.9	1,840
August.....	574	21	18	18.5	1,140
September.....	546	23	15	18.2	1,080
Water year 1949-50	41,296	604	15	113	81,910

Peak discharge (base, 500 sec.-ft.).--Jan. 19 (7:30 p.m.) 743 sec.-ft.; Jan. 23 (11:30 a.m.) 715 sec.-ft.; Mar. 19 (8 a.m.) 995 sec.-ft.; Mar. 22 (1 a.m.) 610 sec.-ft.; Apr. 13 (9 p.m.) 508 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Little Butte Creek below Eagle Point, Oreg.

Location.--Staff gage, lat. 42°27'45", long. 122°48'45", in SW $\frac{1}{4}$ sec. 3, T. 36 S., R. 1 W., 300 feet upstream from State Highway 62, 1 mile southwest of Eagle Point, and $\frac{3}{4}$ miles upstream from mouth.

Drainage area.--293 square miles.

Records available.--May 1924 to September 1926 (irrigation seasons only), October 1945 to September 1950 (discontinued). July 1907 to April 1916 at site $\frac{1}{2}$ miles upstream.

Extremes.--Maximum discharge during year, 3,100 second-feet Jan. 18 (gage height, 6.15 feet, from floodmark); minimum observed, 10 second-feet Aug. 19.
1907-16, 1924-26, 1945-50: Maximum discharge, 10,000 second-feet Jan. 7, 1948 (gage height, 11.4 feet, from floodmark), by slope-area method; minimum observed, 2 second-feet June 18, 1949.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Gage read twice daily. Flow regulated by Fish Lake Reservoir. Diversions above station for irrigation. Since September 1923 water has been diverted by Cascade Canal from Fourmile Lake, in Klamath River Basin, into Fish Lake Basin.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	56	71	85	150	304	388	316	168	23	20	24
2	29	54	77	83	140	298	409	328	148	24	22	24
3	24	50	79	73	148	316	398	288	120	21	20	25
4	26	53	75	75	413	360	372	261	106	19	20	28
5	42	54	81	75	498	396	470	264	93	20	24	28
6	40	55	74	81	452	376	542	240	93	19	23	26
7	80	54	72	81	280	336	534	209	94	20	23	22
8	49	65	70	88	240	300	506	200	88	26	24	23
9	49	110	70	92	203	280	417	186	64	22	22	25
10	125	85	71	122	578	284	360	192	52	23	24	23
11	75	71	66	127	380	261	336	197	44	23	77	23
12	73	68	68	108	280	230	426	212	236	30	31	22
13	62	65	70	296	240	250	732	276	136	22	26	25
14	61	64	71	200	276	233	601	348	110	23	25	22
15	57	63	71	122	340	209	475	360	92	27	21	35
16	57	63	78	108	574	247	462	348	97	25	19	33
17	60	63	95	245	439	754	452	348	93	18	19	35
18	66	61	142	2,270	348	772	506	336	84	18	18	36
19	68	61	106	1,260	320	1,820	538	296	58	16	19	34
20	69	61	85	1,200	288	718	574	292	48	20	22	29
21	69	62	81	1,440	244	606	574	280	35	26	22	30
22	66	61	80	910	221	910	570	288	31	18	24	29
23	54	62	88	1,440	218	664	516	288	29	19	26	31
24	50	62	107	655	292	610	452	280	34	17	27	30
25	50	63	90	439	328	498	426	261	32	18	21	32
26	48	62	95	340	352	538	364	240	28	18	24	a30
27	47	66	89	592	348	506	368	240	25	15	22	28
28	48	84	81	444	316	405	356	227	23	18	20	22
29	50	74	85	276	-	340	324	192	23	25	19	25
30	53	75	88	203	-	328	304	172	22	26	22	a28
31	56	-	78	158	-	336	-	170	-	23	22	-
Month	Second-foot-days		Maximum		Minimum		Mean		Runoff in acre-feet			
October.....	1,729		125		24		55.8		3,430			
November.....	1,947		110		50		64.9		3,860			
December.....	2,554		142		66		82.4		5,070			
Calendar year 1949.....	82,164		1,790		10		170		125,300			
January.....	13,688		2,270		73		442		27,150			
February.....	8,904		578		140		318		17,660			
March.....	14,483		1,820		209		467		28,730			
April.....	13,762		732		304		459		27,300			
May.....	8,135		360		170		262		16,140			
June.....	2,306		236		22		76.9		4,570			
July.....	662		30		15		21.4		1,310			
August.....	748		77		18		24.1		1,480			
September.....	827		36		22		27.6		1,640			
Water year 1949-50.....	69,745		2,270		15		191		138,300			

a No gage-height record; discharge interpolated.

North Fork Little Butte Creek at Fish Lake, near Lake Creek, Oreg.

Location.--Water-stage recorder, lat. 42°23', long. 122°21', in S $\frac{1}{2}$ sec. 4, T. 37 S., R. 4 E., Half a mile downstream from outlet of Fish Lake and 14 miles east of Lake Creek post office.

Drainage area.--18 square miles.

Records available.--October 1914 to September 1950.

Average discharge.--35 years (1915-50), 33.5 second-feet.

Extremes.--Maximum discharge during year, 148 second-feet Aug. 18, 21; minimum, 4.5 second-feet Oct. 5, 6.

1914-50: Maximum discharge, 158 second-feet July 10, 1930; no flow at times.

Remarks.--Records fair. Flow regulated by Fish Lake Reservoir. 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.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used June 29 to Sept. 26)

0.3	3.5	0.8	21	1.3	77
.4	5.0	.9	28	1.4	96
.5	7.2	1.0	37	1.5	117
.6	11	1.1	48	1.7	162
.7	15	1.2	61		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	11	16	18	20	21	22	32	46	94	139	126
2	32	11	16	18	20	21	22	32	46	111	135	126
3	32	11	16	18	20	21	23	32	46	109	137	124
4	15	11	16	18	20	21	24	32	46	109	135	124
5	4.5	12	16	18	20	21	24	33	46	113	137	121
6	5	12	16	18	20	21	24	34	46	117	135	119
7	5	12	16	18	21	21	24	34	46	119	137	115
8	5	13	16	19	20	21	24	34	46	115	137	109
9	6	13	16	19	20	22	a24	35	46	119	139	96
10	6	13	16	19	20	22	24	35	46	121	139	94
11	6.5	13	16	19	20	22	a24	36	45	124	139	90
12	6.5	13	16	19	21	22	24	37	45	119	137	86
13	6.5	13	16	19	21	22	24	38	44	119	135	85
14	7.5	13	16	19	21	21	24	39	44	121	135	85
15	7	13	17	19	21	21	24	40	44	121	135	86
16	7	15	16	19	21	21	24	42	42	124	132	86
17	7.5	15	16	20	21	21	a25	44	44	124	135	79
18	7.5	15	16	22	21	22	a26	45	42	124	144	72
19	6	15	16	20	21	22	27	45	42	126	144	66
20	6	15	16	20	21	22	28	46	42	137	144	61
21	8	15	16	20	21	22	29	46	42	135	141	54
22	8.5	15	16	20	21	22	30	45	44	132	132	53
23	9	15	16	21	21	22	30	45	42	130	128	52
24	9	15	16	21	22	22	31	45	42	130	119	51
25	10	15	16	21	22	22	31	46	42	130	111	39
26	10	16	16	21	22	22	31	46	41	132	104	26
27	10	16	16	21	22	22	31	46	42	139	94	17
28	10	16	16	21	22	22	31	46	41	141	94	14
29	10	16	16	20	-	22	32	46	56	139	100	16
30	11	16	16	21	-	22	32	46	86	137	115	16
31	11	-	18	20	-	22	-	46	-	135	119	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	323	32	4.5	10.4	641
November.....	414	16	11	13.6	821
December.....	529	18	16	17.1	1,050
Calendar year 1949	16,695	146	4.5	45.7	33,120
January.....	606	22	18	19.5	1,200
February.....	583	22	20	20.6	1,180
March.....	670	22	21	21.6	1,330
April.....	793	32	22	26.4	1,570
May.....	1,248	46	32	40.3	2,480
June.....	1,372	66	41	45.7	2,720
July.....	3,846	141	94	124	7,630
August.....	4,007	144	94	129	7,950
September.....	2,290	126	14	76.3	4,540
Water year 1949-50	16,661	144	4.5	45.7	33,090

a No gage-height record; discharge interpolated.

North Fork Little Butte Creek near Lake Creek, Oreg.

Location.--Water-stage recorder, lat. 42°24', long. 122°32', in SW¹/₄ sec. 25, T. 36 S., R. 2 E., a quarter of a mile upstream from point of diversion of Hanley South Canal and 4½ miles east of Lake Creek post office. Datum of gage is 2,125.01 feet above mean sea level, datum of 1929.

Records available.--September 1911 to March 1913, May 1922 to September 1928 (incomplete), and October 1931 to September 1950 in reports of Geological Survey. September 1911 to March 1913 and May 1922 to September 1941 in reports of State engineer.

Average discharge.--24 years (1911-12, 1922-23, 1928-50), 68.3 second-feet.

Extremes.--Maximum discharge during year, 220 second-feet Jan. 18 (gage height, 2.51 feet); minimum, 32 second-feet Oct. 6.

1911-13, 1922-28, 1931-50: Maximum discharge, 680 second-feet Dec. 30, 1924 (gage height, 3.30 feet), from rating curve extended above 170 second-feet; minimum, 11 second-feet (computed on basis of records for station at Fish Lake, near Lake Creek) Oct. 29 to Nov. 8, 1931.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Flow regulated by Fish Lake Reservoir. Small diversions above station for irrigation; some water diverted into Fish Lake from Fourmile Lake, in Klamath River Basin, since September 1923.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 7, Jan. 19 to Feb. 15)

Oct. 1 to Jan. 18				Jan. 19 to Sept. 30			
1.8	32	2.2	108	1.8	37	2.2	102
1.9	44	2.3	140	1.9	47	2.3	132
2.0	60	2.4	175	2.0	60	2.4	167
2.1	80			2.1	78	2.5	207

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	38	44	47	b51	a85	90	88	88	117	164	146
2	54	38	49	47	51	a90	90	88	85	132	167	146
3	54	38	46	b47	51	a100	85	88	85	132	167	146
4	55	38	46	49	57	a120	85	88	85	129	164	146
5	39	38	49	49	64	a140	85	88	85	139	167	a145
6	38	38	46	49	69	a130	92	85	85	146	167	a145
7	37	38	46	49	60	a120	88	83	88	150	164	a140
8	33	40	46	50	57	a110	85	80	85	146	171	a135
9	42	44	46	50	56	a100	83	83	85	150	171	h120
10	42	40	47	52	65	a95	78	83	83	150	171	a115
11	36	39	46	50	65	a90	78	83	88	156	167	111
12	34	39	46	49	62	a85	83	85	95	156	167	108
13	34	39	46	b47	62	a80	95	88	85	153	167	100
14	33	38	47	47	*65	a75	92	92	80	156	164	102
15	33	38	47	46	73	a70	65	92	80	156	164	102
16	33	39	50	47	92	a75	85	92	80	160	160	102
17	33	39	*52	69	88	a80	88	95	80	160	156	105
18	34	39	49	172	83	a90	88	95	78	164	164	97
19	34	39	47	126	80	a100	90	92	78	156	164	92
20	36	39	46	105	78	h111	92	92	78	164	164	85
21	36	39	47	100	74	a100	92	95	78	160	164	76
22	36	39	47	90	71	a110	90	95	76	160	156	74
23	36	39	49	123	73	105	88	95	76	156	153	73
24	37	40	50	*63	78	100	88	95	76	160	146	71
25	37	40	49	69	85	95	85	92	74	164	129	64
26	37	40	50	64	88	95	88	92	74	164	123	52
27	37	46	49	62	a90	95	88	92	74	164	120	45
28	37	46	47	57	a85	88	88	90	74	167	120	37
29	37	44	49	55	-	83	88	90	80	164	120	39
30	38	46	47	54	-	83	88	90	111	160	132	38
31	38	-	47	b52	-	83	-	88	-	160	142	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,194	55	33	38.5	2,370
November.....	1,197	46	38	39.9	2,370
December.....	1,472	52	44	47.5	2,920
Calendar year 1949	30,975	175	33	84.9	61,430
January.....	2,056	172	46	66.3	4,080
February.....	1,973	92	51	70.5	3,910
March.....	2,983	140	70	96.2	5,920
April.....	2,618	95	78	87.3	5,190
May.....	2,774	95	80	89.5	5,500
June.....	2,469	111	74	82.3	4,900
July.....	4,751	167	117	153	9,420
August.....	4,815	171	120	155	9,550
September.....	2,959	146	37	98.6	5,870
Water year 1949-50	31,261	172	33	85.6	62,000

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage and records for North Fork Little Butte Creek at Fish Lake, near Lake Creek, and South Fork Little Butte Creek near Lake Creek.

b Stage-discharge relation affected by ice.

h Computed from staff-gage reading.

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 SE $\frac{1}{4}$ 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 SE $\frac{1}{4}$ sec. 29, T. 36 S., R. 2 E., and from North Fork in NE $\frac{1}{4}$ 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 SE $\frac{1}{4}$ sec. 31, T. 35 S., R. 1 E. Water used for irrigation of lands near Eagle Point.

Records for Hanley South and North Canals and Eagle Point Canal are partly estimated.

Records for these canals, published as a group, are available from April 1929 to September 1950; records of some of the canals published separately prior to 1929.

Many smaller canals divert from Little Butte Creek and its tributaries.

Diversions, in acre, feet, water year October 1949 to September 1950

Month	Hanley South Canal	Hanley North Canal	Rogue River Valley Canal below junction of intakes	Eagle Point Canal
October.....	-	-	a815	-
November.....	-	-	-	-
December.....	-	-	-	-
January.....	-	-	-	-
February.....	-	-	-	-
March.....	-	-	-	-
April.....	-	-	b1,580	-
May.....	-	-	7,280	-
June.....	-	-	7,220	-
July.....	395	646	9,230	956
August.....	393	604	8,360	962
September.....	c292	c447	5,360	c698
Water year 1949-50.....	-	-	-	-

a Oct. 1-9.

b Apr. 10-30.

c Sept. 1-23.

ROGUE RIVER BASIN

Emigrant Creek near Ashland, Oreg.

Location.--Water-stage recorder, lat. 42°10', long. 122°26', in sec. 20, T. 39 S., R. 2 E., 500 feet downstream from Emigrant Gap Reservoir Dam and 6 miles southeast of Ashland.

Records available.--January 1920 to September 1950.

Average discharge.--14 years (1924-28, 1929-30, 1933-35, 1940-47), 20.1 second-feet.

Extremes.--Maximum discharge during year, 268 second-feet Mar. 19 (gage height, 2.78 feet); no flow Nov. 7.
1920-50: Maximum discharge, 5,260 second-feet Feb. 20, 1927, by computation of flow over dam; no flow at times.

Remarks.--Records good except those for periods of no gage-height record and those below 1.0 second-foot, 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 1949-50 (gage height, in feet, and discharge, in second-feet)

0.0	0.1	0.6	6.4	1.3	43
.1	.4	.7	9.2	1.5	62
.2	1.0	.8	13	1.7	85
.3	1.8	.9	17	2.0	127
.4	2.9	1.0	22	2.3	175
.5	4.4	1.1	28	2.7	250

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					14	0.8	80	15	7.8	24	39	20
2					15	.8	88	13	8.4	24	39	8.1
3					15	.8	84	11	8.1	25	40	.8
4					18	.8	78	7.8	8.1	26	44	.7
5					29	.8	78	6.0	8.1	a50	45	.7
6					55	.8	105	5.0	12	34	40	21
7		0			64	.8	99	4.8	13	37	40	26
8					a64	.8	93	4.6	8.6	37	39	25
9					a62	.8	85	3.2	4.6	37	40	24
10					a62	.8	74	1.6	3.5	37	36	24
11	h0.6				a62	.8	68	4.2	3.4	37	37	23
12					a62	.8	66	4.8	1.4	37	39	14
13					a62	.8	77	6.2	h.5	37	39	-
14					a62	.8	78	7.0	a.3	37	39	-
15					66	.7	75	a6.0	a.3	37	37	-
16					72	.7	75	5.2	a.3	37	a35	-
17					78	.9	77	5.0	a.3	37	a30	-
18					79		71	5.2	a.3	38	a25	-
19					79	244	88	5.6	a.3	41	23	-
20					27	158	97	5.6	a.3	41	20	-
21					.8	111	99	5.6	a.5	41	22	-
22					.8	144	89	5.2	a1.0	39	22	-
23					.8	132	69	2.6	h1.8	39	22	-
24					.8	127	56	2.5	a1.6	39	21	-
25					.8	112	51	2.4	a1.5	40	20	-
26					.8	98	49	2.4	a1.5	40	20	-
27					.8	86	40	2.1	1.6	39	20	-
28					.8	74	29	2.1	5.2	39	20	-
29					-	69	23	1.7	22	39	21	-
30					-	65	18	1.6	23	39	20	-
31				8.0	-	69	-	4.4	-	40	20	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....					
November.....					
December.....					
Calendar year					
January.....					
February.....					
March.....	1,053.4	79	0.8	37.6	2,090
April.....	1,573.5	244	.7	50.8	3,120
May.....	2,172	105	18	72.4	4,310
June.....	159.4	15	1.6	5.14	318
July.....	149.1	23	.3	4.97	296
August.....	1,124	41	24	36.3	2,230
September 1-12.....	952	44	20	30.7	1,890
September 13-12.....	187.3	26	.7	15.6	372
The period.....	-	-	-	-	14,620

a No gage-height record; discharge computed on basis of recorded range in stage records for station below Walker Creek.

b Computed from staff-gage reading.

Emigrant Creek below Walker Creek, near Ashland, Oreg.

Location.--Water-stage recorder, lat. 42°12', long. 122°39', in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 12, T. 39 S., R. 1 E., 200 feet downstream from Walker Creek and 2 miles east of Ashland. Datum of gage is 1,866.3 feet above mean sea level (surveys by Bureau of Reclamation).

Drainage area.--109 square miles

Records available.--October 1945 to September 1950 in reports of Geological Survey. October 1943 to September 1945 in files of State engineer.

Extremes.--Maximum discharge during year, 405 second-foot Mar. 19 (gage height, 3.87 feet); minimum, 0.3 second-foot Oct. 1.

1943-50: Maximum discharge, 3,750 second-feet Jan. 7, 1948 (gage height, 8.87 feet), from rating curve extended above 2,100 second-feet by logarithmic plotting; minimum, 0.1 second-foot Sept. 27-30, Oct. 18-20, 1947.

Remarks.--Records good. Flow partly regulated by Emigrant Gap Reservoir. Diversions above station for irrigation.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Backwater from leaves and debris Oct. 4 to Jan. 17
Shifting-control method used Feb. 20-24,
Feb. 28 to Mar. 2, Mar. 6-16, 18)

Oct. 1 to Feb. 6

Feb. 7 to Sept. 30

1.25	0.2	1.7	15	2.2	55	1.1	0.2	1.7	10	2.4	70
1.3	0.5	1.8	21	2.4	83	1.2	.9	1.8	14	2.6	104
1.4	2.0	1.9	28	2.6	120	1.3	1.9	1.9	19	2.9	164
1.5	5.3	2.0	36	2.9	190	1.4	3.3	2.0	26	3.2	224
1.6	10	2.1	45			1.5	5.0	2.1	35	3.5	299
						1.6	7.2	2.2	45	3.7	354

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.5	*1.2	1.8	b23	52	128	36	11	20	38	18
2	.8	.5	1.4	1.8	b22	53	136	36	11	20	37	10
3	.8	.6	1.7	b1.7	b21	67	124	32	9.7	20	36	2.5
4	.6	.6	1.2	1.8	51	67	116	30	9.4	20	41	2.0
5	.6	.6	1.1	1.0	95	69	118	34	9.4	21	42	1.9
6	1.0	.6	1.2	1.2	152	56	156	33	12	30	38	18
7	1.1	.5	1.1	1.4	93	42	144	29	16	34	38	21
8	.8	.4	1.1	1.4	85	39	132	28	13	36	38	20
9	1.1	1.6	1.1	1.4	80	37	124	28	8.9	36	38	20
10	1.7	1.1	1.1	2.3	86	34	108	22	7.5	36	35	19
11	1.4	.6	.8	1.8	83	31	99	24	7.5	36	35	18
12	1.1	.5	.8	1.7	76	24	99	24	11	36	37	14
13	1.0	.5	1.0	1.6	78	24	118	25	7.0	35	36	2.5
14	1.0	.4	1.1	1.0	104	22	120	25	5.9	35	37	1.5
15	.8	.4	1.2	1.2	*120	22	106	23	5.0	35	34	1.3
16	.6	.4	1.2	1.7	150	25	104	22	5.0	35	31	1.4
17	.5	.4	1.4	3.3	116	69	110	21	5.2	35	28	1.3
18	.6	.4	1.6	75	102	103	114	20	4.5	36	25	1.0
19	.6	.4	2.7	*122	90	345	118	20	4.2	41	20	.8
20	.6	.4	2.0	149	53	218	132	19	3.8	41	16	.8
21	.6	.4	2.0	176	35	160	134	18	3.8	40	18	.8
22	.6	.4	2.0	127	33	210	122	18	3.5	38	18	.7
23	.6	.4	2.3	127	35	178	99	16	3.5	38	18	.7
24	.6	.4	2.0	72	56	168	83	14	5.7	39	18	.7
25	.6	.4	1.8	50	73	148	72	13	4.7	39	18	.7
26	.6	.4	2.0	41	75	138	66	12	4.2	39	17	.7
27	.5	.4	2.3	38	67	124	61	11	4.0	38	17	.7
28	.6	.8	1.8	34	53	106	50	10	4.8	38	16	.7
29	.5	1.0	20	29	-	97	41	8.9	19	38	16	.7
30	.5	1.2	1.6	b27	-	97	34	8.3	20	37	16	.7
31	.5	-	b1.7	b25	-	108	-	8.3	-	37	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	23.5	1.7	0.5	0.76	47
November.....	17.2	1.6	.4	.57	34
December.....	47.5	2.7	.8	1.53	94
Calendar year 1949	13,976.4	288	.4	38.3	27,720
January.....	1,120.1	176	1.0	36.1	2,220
February.....	2,085	152	21	74.5	4,140
March.....	2,933	345	22	94.6	5,820
April.....	3,168	156	34	106	6,280
May.....	666.5	36	8.3	21.5	1,320
June.....	240.2	26	3.5	9.01	476
July.....	1,059	41	20	34.2	2,100
August.....	868	42	16	28.0	1,720
September.....	180.1	21	.7	6.00	357
Water year 1949-50	12,408.1	345	.4	34.0	24,610

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Bear Creek at Medford, Oreg.

Location.--Water-stage recorder, lat. 42°19', long. 122°52', in NW¹/₄ sec. 30, T. 37 S., R. 1 W., just upstream from Main Street Bridge in Medford. Datum of gage is 1,343.47 feet above mean sea level, datum of 1929.

Drainage area.--279 square miles.

Records available.--March 1915 to September 1950 (incomplete prior to April 1927).

Average discharge.--29 years (1920-26, 1927-50), 79.8 second-feet.

Extremes.--Maximum discharge during year, 966 second-feet Jan. 19 (gage height, 2.59 feet); minimum, 6.4 second-feet Sept. 13, 1915-50: Maximum discharge, 10,200 second-feet Feb. 20, 1927 (gage height, 10.57 feet, site then in use), from rating curve extended above 1,600 second-feet; practically no flow at times.

Remarks.--Records good except those for period of ice effect, which are poor. Diversions above station for irrigation. Flow partly regulated since December 1924 by Emigrant Gap Reservoir.

Revisions (water years).--W 1044: 1944.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	21	25	24	b65	112	207	94	22	18	13	8.8
2	22	20	26	24	b60	110	220	102	25	19	10	8.8
3	22	17	28	22	b65	117	214	102	21	18	9.4	8.8
4	25	16	26	*21	125	123	196	90	20	18	10	10
5	30	16	26	21	167	120	193	83	21	20	14	10
6	33	14	25	20	277	114	238	88	28	17	17	10
7	41	14	24	21	193	102	238	81	33	17	17	10
8	34	17	22	24	167	92	234	77	33	12	16	10
9	37	39	22	24	160	85	217	64	31	12	13	10
10	59	36	22	39	179	81	193	51	37	12	11	8.8
11	37	29	22	42	186	79	173	44	51	14	13	8.2
12	31	25	21	30	164	72	176	39	114	13	13	7.6
13	28	25	21	93	157	72	203	36	85	17	14	7.0
14	26	25	22	83	176	72	214	44	68	12	11	8.2
15	24	28	25	42	*214	72	196	53	70	16	12	8.8
16	24	26	21	39	261	74	190	51	74	16	13	11
17	22	26	22	55	245	142	190	42	79	10	10	11
18	22	25	29	456	214	160	196	34	72	10	12	10
19	25	25	30	541	207	619	196	29	55	11	14	10
20	25	25	28	508	176	420	220	29	34	13	14	17
21	25	25	26	475	107	293	228	34	37	12	13	17
22	25	24	25	352	100	366	214	39	34	12	9.4	10
23	26	24	25	375	94	313	200	33	31	13	13	9.4
24	26	24	28	253	104	293	190	31	44	14	12	10
25	25	24	26	170	134	265	173	30	48	16	9.4	9.4
26	24	24	26	137	139	245	157	29	37	14	9.4	11
27	22	24	26	145	137	228	154	25	33	14	12	11
28	24	25	26	154	120	207	148	29	21	14	10	14
29	25	25	26	110	-	190	117	26	18	17	9.4	13
30	24	25	26	b85	-	183	92	25	17	12	8.2	13
31	21	-	22	b70	-	190	-	24	-	13	8.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	854	59	20	27.5	1,690
November.....	713	39	14	23.8	1,410
December.....	769	30	21	24.8	1,530
Calendar year 1949.....	26,495.0	720	11	72.6	52,550
January.....	4,455	541	20	144	8,840
February.....	4,393	277	60	157	8,710
March.....	5,611	619	72	181	11,130
April.....	5,777	238	92	193	11,460
May.....	1,558	102	24	50.3	3,090
June.....	1,293	114	17	43.1	2,560
July.....	445	20	10	14.4	883
August.....	371.0	17	8.2	12.0	736
September.....	311.8	17	7.0	10.4	618
Water year 1949-50.....	26,550.8	619	7.0	72.7	52,660

Peak discharge (base, 400 sec.-ft.).--Jan. 19 (10 p.m.) 966 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

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 SE $\frac{1}{4}$ 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.

East Lateral of Talent Irrigation District, from Emigrant Gap Reservoir in SE $\frac{1}{4}$ 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 SW $\frac{1}{4}$ sec. 33, T. 38 S., R. 1 E. Water used to irrigate lands near Talent.

Phoenix Canal, from Bear Creek in NW $\frac{1}{4}$ 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 1950; records for some of the canals published separately prior to 1929.

Many smaller canals also divert from Bear Creek and its tributaries.

Diversions, in acre-feet, water year October 1949 to September 1950

Month	Ashland lateral	East lateral	Talent lateral	Phoenix Canal	Bear Creek Canal
October.....	-	-	a11	a17	a67
November.....	-	-	-	-	-
December.....	-	-	-	-	-
January.....	-	-	-	-	-
February.....	-	-	-	-	-
March.....	-	-	-	-	-
April.....	-	-	-	b631	c69
May.....	d22	3,190	1,990	1,330	1,090
June.....	408	2,300	1,830	1,290	1,020
July.....	1,050	3,630	2,470	633	873
August.....	883	2,700	1,940	610	684
September.....	196	e553	421	639	365
Water year 1949-50.....	-	-	-	-	-

- a Oct. 1-11.
- b Apr. 10-30.
- c Apr. 24-30.
- d May 15-31.
- e Sept. 1-6.

Applegate River near Copper, Oreg.

Location.--Water-stage recorder, lat. 42°03', long. 123°07', in SE¹/₄ sec. 25, T. 40 S., R. 4 W., a quarter of a mile downstream from French Gulch, 1½ miles downstream from Squaw Creek, and 3 miles northeast of Copper store. Datum of gage is 1,759.66 feet above mean sea level, datum of 1929.

Drainage area.--220 square miles.
Records available.--December 1938 to September 1950.

Average discharge.--11 years (1939-50), 370 second-feet.

Extremes.--Maximum discharge during year, 3,670 second-feet Mar. 17 (gage height, 7.78 feet); minimum, 33 second-feet Sept. 13 (gage height, 1.01 feet).

1938-50: Maximum discharge, 13,400 second-feet Jan. 6, 1948 (gage height, 17.84 feet), from rating curve extended above 6,300 second-feet by logarithmic plotting; minimum, 20 second-feet Sept. 23-25, 1939.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. About 11 second-feet diverted for irrigation of 482 acres above station in Applegate River Basin; Grand Applegate ditch diverts about 3.3 second-feet around station on left bank. An average of about 8 second-feet is diverted to Thompson Creek Basin for irrigation. There has been no diversion to Thompson Creek Basin for mining for several years. Several hundred acre-feet normally stored each winter in Squaw Lake for irrigation the following summer.

Revisions.--W 1064: Drainage area.

Rating tables, water year 1949-50, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 18

Jan. 19 to Sept. 30

1.1	35	2.0	151	4.0	890	1.0	32	1.8	134	3.5	660
1.2	43	2.3	216	5.0	1,500	1.2	50	2.2	217	4.0	890
1.4	62	2.6	290	5.7	2,020	1.4	75	2.5	295	5.0	1,500
1.6	86	3.0	420			1.6	100	3.0	461	6.0	2,250
1.8	116	3.5	635								

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	a40	92	64	256	684	740	718	825	187	65	39
2	35	a40	86	61	*272	680	805	664	772	176	60	38
3	35	h40	83	b45	295	736	754	604	688	160	59	37
4	a35	a40	77	b55	319	835	714	560	648	156	61	37
5	a35	a40	103	60	492	860	768	528	612	150	61	39
6												
7	a37	a40	83	b50	709	754	810	508	580	142	61	38
8	a45	a40	78	61	572	664	740	469	512	132	59	36
9	a50	a40	76	65	480	604	680	461	453	130	59	37
10	a50	a35	73	65	420	552	628	469	427	125	58	37
11	a105	a85	71	82	395	500	592	524	473	120	56	35
12												
13	a65	h76	65	71	362	450	572	676	480	116	56	35
14	h56	a70	65	b63	337	412	709	984	532	113	57	35
15	a50	a65	68	76	328	395	785	1,200	458	110	54	34
16	a47	a65	65	69	375	372	696	1,270	409	105	52	35
17	a45	a65	64	b65	461	553	652	1,130	392	102	52	36
18												
19	a43	a70	64	73	616	470	660	1,030	402	96	48	38
20	a42	a75	70	120	588	2,250	704	1,010	395	92	46	43
21	a40	a65	74	1,980	528	1,680	772	880	359	90	46	43
22	a40	a60	69	1,210	492	1,980	870	810	344	87	47	40
23	a40	a60	*63	1,130	461	1,410	1,100	830	334	86	46	39
24												
25	a40	a55	63	1,920	431	1,240	1,100	962	322	85	45	37
26	a40	a55	62	1,730	409	1,510	1,020	1,040	289	82	43	36
27	a40	h76	65	610	402	1,250	906	1,020	272	83	43	36
28	a42	a90	70	1,100	664	1,110	825	950	280	80	42	34
29	a42	a80	64	758	978	950	800	945	250	78	42	35
30												
31	a42	a70	65	608	934	845	776	967	233	76	42	40
2	a42	a130	64	572	855	758	795	945	215	72	41	43
3	a42	a260	63	524	745	684	772	850	206	73	40	41
4	a40	130	70	442	-	644	727	790	204	73	39	39
5	a40	111	71	398	-	632	714	850	197	72	40	39
6	a40	-	64	319	-	664	-	850	-	69	40	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,381	105	35	44.5	2,740
November.....	2,228	260	40	74.3	4,420
December.....	2,208	103	62	71.2	4,380
Calendar year 1949	94,566	2,030	31	259	187,600
January.....	15,446	1,980	45	498	30,640
February.....	14,176	978	256	506	28,120
March.....	26,908	2,250	353	868	53,370
April.....	23,196	1,100	572	773	46,010
May.....	25,494	1,270	612	822	50,570
June.....	12,543	825	197	418	24,880
July.....	3,318	187	69	107	6,580
August.....	1,560	65	39	50.3	3,090
September.....	1,131	43	34	37.7	2,240
Water year 1949-50	129,589	2,250	34	355	257,000

Peak discharge (base, 1,100 sec.-ft.).--Jan. 18 (12 m.) 2,550 sec.-ft.; Jan. 21 (6 p.m.) 2,260 sec.-ft.; Mar. 17 (8 a.m.) 3,670 sec.-ft.; Mar. 21 (12 p.m.) 1,740 sec.-ft.; Apr. 21 (1 a.m.) 1,180 sec.-ft.; May 14 (10 p.m.) 1,380 sec.-ft.; May 22 (10:50 p.m.) 1,200 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for station near Ruch.

b Stage-discharge relation affected by ice.

c Computed from staff-gage reading.

Applegate River near Ruch, Oreg.

Location.--Water-stage recorder, lat. 42°11', long. 123°03', in sec. 15, T. 39 S., R. 3 W., at Cameron Bridge, 1½ miles upstream from Little Applegate River and 4½ miles south of Ruch. Datum of gage is 1,475.09 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.--297 square miles.

Records available.--June 1911 to September 1914, September 1925 to September 1950.

Average discharge.--27 years (1911-14, 1925-26, 1927-50), 348 second-feet.

Extremes.--Maximum discharge during year, 3,910 second-feet Mar. 17 (gage height, 5.12 feet); minimum, 32 second-feet Oct. 3, Sept. 11, 12.

1911-14, 1925-50: Maximum discharge, 20,000 second-feet Feb. 20, 1927 (gage height, 16.0 feet), from rating curve extended above 8,000 second-feet; minimum, 7 second-feet Sept. 2, 1929.

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

Revisions (water years).--W 1064: Drainage area. W 1094: 1946(M).

Rating table, water year 1949-50 (gage height, in feet, and discharge, in second-feet)

-0.3	30	0.3	134	2.0	940
-.2	42	.5	195	2.5	1,290
-.1	55	.8	305	3.0	1,690
0.0	70	1.1	430	3.7	2,340
.1	88	1.5	630		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	48	107	74	a300	720	804	768	875	192	67	41
2	34	47	96	70	h275	690	882	702	823	179	60	42
3	32	47	96	64	a300	756	850	636	714	163	60	41
4	35	47	86	70	377	888	786	580	672	157	58	40
5	37	47	114	72	520	908	823	550	630	151	60	38
6	40	47	96	66	823	810	894	530	588	143	60	40
7	55	47	88	68	860	696	823	490	525	137	61	41
8	55	47	86	74	545	624	744	480	470	134	62	40
9	55	116	83	72	470	570	684	480	439	132	61	40
10	130	107	81	103	444	520	642	540	485	129	60	37
11	79	94	75	86	412	475	614	696	485	124	55	35
12	64	90	72	79	377	434	756	1,020	560	119	58	34
13	58	77	74	94	365	412	875	1,240	462	116	55	34
14	55	77	74	88	398	394	762	1,300	430	107	54	35
15	54	77	72	88	495	373	702	1,180	408	103	54	37
16	50	79	72	88	648	439	702	1,070	412	98	51	40
17	50	86	79	98	648	2,340	756	1,040	412	94	48	42
18	48	79	84	1,960	570	1,720	836	920	373	94	47	46
19	48	70	81	1,260	525	2,190	927	842	353	88	45	43
20	48	68	74	1,160	495	1,510	1,160	856	345	88	45	43
21	48	64	70	2,020	462	1,290	1,170	982	337	86	43	42
22	48	64	70	1,910	434	1,630	1,100	1,080	308	85	42	42
23	50	75	72	1,770	421	1,540	975	1,060	278	84	43	43
24	50	116	81	1,210	614	1,220	882	975	290	86	42	42
25	51	92	74	830	1,020	1,070	849	968	260	83	42	42
26	51	79	72	636	989	954	816	996	237	79	43	46
27	50	177	72	597	920	862	836	989	226	75	43	48
28	50	321	70	575	768	774	816	894	216	68	41	47
29	48	151	74	480	-	720	762	818	206	72	40	47
30	48	124	84	434	-	696	750	882	198	75	40	46
31	48	-	74	a350	-	726	-	901	-	68	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,603	130	32	51.7	3,180
November.....	2,660	321	47	88.7	5,280
December.....	2,503	114	70	80.7	4,960
Calendar year 1949.....	98,457	2,120	30	270	195,300
January.....	16,546	2,020	64	534	32,820
February.....	15,275	1,020	275	546	30,300
March.....	28,751	2,340	373	927	57,030
April.....	24,958	1,170	614	852	49,500
May.....	26,463	1,300	480	854	52,490
June.....	13,016	875	198	434	25,820
July.....	3,407	192	68	110	8,760
August.....	1,579	67	40	50.9	3,130
September.....	1,234	48	34	41.1	2,450
Water year 1949-50.....	137,995	2,340	32	378	275,700

Peak discharge (base, 1,800 sec.-ft.)--Jan. 18 (2 p.m.) 2,810 sec.-ft.; Jan. 21 (6 p.m.) 2,520 sec.-ft.; Mar. 17 (9:30 a.m.) 3,910 sec.-ft.; Mar. 22 (2 a.m.) 1,890 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations near Applegate and near Copper.

h Computed from staff-gage reading.

ROGUE RIVER BASIN

Applegate River near Applegate, Oreg.

Location.--Water-stage recorder, lat. 42°14', long. 123°08', in NE¼ sec. 26, T. 38 S., R. 4 W., 0.9 mile downstream from Keeler Creek and 2 miles southeast of Applegate. Datum of gage is 1,285.33 feet above mean sea level, datum of 1929.

Drainage area.--480 square miles.

Records available.--October 1938 to September 1950.

Average discharge.--12 years, 429 second-feet.

Extremes.--Maximum discharge during year, 4,260 second-feet Mar. 17 (gage height, 6.26 feet); minimum, 12 second-feet Aug. 30.

1938-50: Maximum discharge, 21,200 second-feet Jan. 6, 1948 (gage height, 14.20 feet), from rating curve extended above 5,100 second-feet by logarithmic plotting; minimum, 7 second-feet Sept. 18, 1945 (gage height, 0.30 foot).

Remarks.--Records good. Many diversions above station for irrigation of about 4,000 acres in Applegate River Basin. About 10 second-feet 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 second-feet, respectively, around station.

Revisions.--W 1064: Drainage area.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used June 25 to Sept. 30)

0.7	10	2.0	210	4.0	1,480
.8	15	2.4	360	4.5	2,000
1.0	28	2.8	570	5.2	2,840
1.3	61	3.2	820		
1.6	115	3.5	1,040		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	58	119	88	410	788	904	827	959	180	34	15
2	25	58	109	88	380	755	1,000	774	890	168	31	14
3	26	58	111	72	385	807	939	690	768	151	31	14
4	26	58	97	79	455	968	876	642	710	139	30	16
5	27	58	124	91	594	1,000	904	606	666	135	28	16
6	35	57	111	75	953	897	1,000	576	630	117	30	16
7	52	54	101	84	800	768	925	520	564	111	32	17
8	57	54	99	93	648	690	854	498	515	107	32	17
9	58	133	95	90	570	824	782	498	471	101	30	17
10	154	133	95	122	537	570	710	532	526	103	27	16
11	111	109	88	119	510	526	684	678	526	99	24	16
12	90	103	81	95	466	476	807	1,050	666	90	25	16
13	77	91	86	126	445	460	1,000	1,410	526	86	27	16
14	72	88	84	142	471	440	862	1,500	471	77	25	16
15	69	90	82	119	588	410	788	1,370	445	72	28	16
16	63	91	82	126	742	435	788	1,190	445	64	28	16
17	64	97	88	135	768	2,580	841	1,180	471	64	27	17
18	64	91	99	2,220	666	2,000	932	1,020	420	63	25	19
19	61	82	97	1,650	618	2,810	1,020	897	390	63	20	20
20	60	79	88	1,510	582	1,940	1,350	904	370	61	19	21
21	60	72	84	2,430	542	1,560	1,360	1,050	370	60	19	20
22	60	72	82	2,570	498	2,040	1,260	1,190	328	53	16	20
23	60	75	84	2,350	476	1,660	1,100	1,190	305	51	15	21
24	60	126	95	1,650	648	1,500	984	1,090	320	56	18	22
25	60	109	90	1,060	1,120	1,500	946	1,060	279	49	15	22
26	61	91	88	800	1,100	1,140	904	1,100	250	47	16	24
27	60	120	86	742	1,020	1,000	911	1,100	237	48	15	29
28	60	360	82	742	876	897	904	984	225	48	14	31
29	58	175	86	618	-	820	841	883	213	42	14	30
30	58	137	99	559	-	794	807	939	195	45	14	31
31	58	-	86	445	-	814	-	984	-	37	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	1,872	154	25	60.4	3,710
November.....	2,979	360	54	99.3	5,910
December.....	2,898	124	81	93.5	5,750
Calendar year 1949	110,824	2,470	14	304	219,800
January.....	21,050	2,570	72	679	41,750
February.....	17,868	1,120	380	638	35,440
March.....	33,469	2,810	410	1,080	66,380
April.....	27,923	1,360	684	351	55,380
May.....	28,907	1,500	493	352	57,340
June.....	14,129	939	195	471	28,020
July.....	2,585	180	37	63.4	5,130
August.....	721	34	14	23.3	1,430
September.....	581	31	14	19.4	1,150
Water year 1949-50	154,982	2,810	14	425	307,400

Peak discharge (base, 1,400 sec.-ft.).--Jan. 18 (3:30 p.m.) 3,390 sec.-ft.; Jan. 21 (10:30 p.m.) 3,220 sec.-ft.; Mar. 17 (11 a.m.) 4,260 sec.-ft.; Apr. 21 (3 a.m.) 1,450 sec.-ft.; May 15 (1 a.m.) 1,870 sec.-ft.

Applegate River near Wilderville, Oreg.

Location.--Staff gage, lat. 42°21', long. 123°24', in W¹/₂ sec. 15, T. 37 S., R. 6 W., 900 feet downstream from Jackson Creek and 4 miles southeast of Wilderville. Datum of gage is 949.54 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.--694 square miles.

Records available.--October 1938 to September 1950.

Average discharge.--12 years, 612 second-feet.

Extremes.--Maximum discharge during year, 7,350 second-feet Jan. 18 (gage height, 9.0 feet, from floodmark); minimum observed, 3 second-feet Sept. 3.
1938-50: Maximum discharge observed, 23,100 second-feet Jan. 6, 1948 (gage height, 16.44 feet), from rating curve extended above 9,500 second-feet by logarithmic plotting; minimum observed, 3.0 second-feet Sept. 12-15, 18-25, 1939, Sept. 3, 1950.

Remarks.--Records good except those below 10 second-feet, which are poor. Gage read once daily Oct. 1-31, Apr. 1 to Sept. 30, twice daily Nov. 1 to Mar. 31. Many diversions above station for irrigation and mining. Two irrigation ditches on left bank divert about 17 second-feet around station.

Revisions.--W 1064: Drainage area.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used July 11 to Sept. 30)

0.7	3	1.2	20	2.3	162	4.5	1,400
.8	5	1.4	35	2.5	215	5.0	1,900
.9	7	1.6	49	3.0	405	6.0	3,100
1.0	10	1.8	72	3.5	670	7.7	5,380
1.1	15	2.0	102	4.0	1,000		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	94	182	153	769	1,120	1,330	888	972	155	25	6
2	60	86	164	167	582	1,050	1,410	958	930	132	18	6
3	54	88	155	149	628	1,060	1,310	867	795	120	20	3
4	58	83	153	140	814	1,300	1,200	821	769	113	18	4
5	65	86	218	158	1,120	1,400	1,180	743	730	109	17	5
6	67	83	221	149	2,120	1,330	1,320	730	670	113	16	5
7	83	82	182	153	1,620	1,130	1,210	646	610	96	20	6
8	96	80	164	172	1,290	1,010	1,100	599	577	92	18	6
9	109	170	160	170	1,110	951	1,010	577	555	71	15	7
10	162	268	155	360	1,050	847	958	594	610	72	16	8
11	172	195	147	360	1,010	769	916	694	634	75	15	8
12	144	174	140	282	916	694	958	1,000	808	71	14	6
13	128	162	140	436	834	664	1,240	1,380	646	73	17	7
14	120	149	136	694	854	646	1,090	1,590	588	59	14	9
15	113	140	132	405	1,020	599	1,010	1,530	544	57	14	10
16	106	140	138	360	1,350	599	1,000	1,230	511	47	10	11
17	102	140	147	405	1,350	4,430	1,040	1,250	544	59	16	21
18	106	142	234	4,680	1,170	3,880	1,120	1,100	500	47	11	9
19	102	134	231	3,700	1,060	5,100	1,200	958	441	42	9	8
20	99	128	177	3,590	972	3,650	1,550	330	414	45	9	9
21	96	118	160	5,280	902	3,040	1,590	1,060	387	47	10	9
22	99	115	151	5,180	834	3,790	1,570	1,150	352	39	9	9
23	102	115	144	4,920	776	3,040	1,310	1,180	324	33	10	10
24	99	130	174	3,500	888	2,970	1,170	1,090	360	31	9	11
25	96	155	172	2,110	1,500	2,300	1,120	1,070	312	30	8	16
26	99	136	160	1,560	1,540	1,970	1,000	1,110	272	28	11	20
27	99	134	185	1,550	1,460	1,730	1,040	1,130	254	25	10	34
28	92	432	155	1,980	1,260	1,500	986	1,070	234	45	8	47
29	86	275	158	1,380	-	1,360	909	958	215	39	7	45
30	83	207	193	1,170	-	1,260	902	944	182	30	6	48
31	132	-	177	909	-	1,210	-	1,010	-	31	6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	3,096	172	54	99.9	6,140
November.....	4,441	432	80	148	8,810
December.....	5,175	234	132	167	10,260
Calendar year 1949	153,984	4,400	6	422	305,400
January.....	46,222	5,280	140	1,491	91,680
February.....	30,899	2,120	628	1,104	61,290
March.....	56,399	5,100	599	1,819	111,900
April.....	34,749	1,590	902	1,158	68,920
May.....	30,857	1,590	577	995	61,200
June.....	15,740	972	182	525	31,220
July.....	2,028	155	25	65.4	4,020
August.....	406	25	6	13.1	805
September.....	403	48	3	13.4	799
Water year 1949-50	230,413	5,280	3	631	457,000

East Fork Williams Creek near Williams, Oreg.

Location.--Staff gage, lat. 42°11', long. 123°16' in NW¼ sec. 14, T. 39 S., R. 5 W., a quarter of a mile downstream from Rocky Creek (also known as Rock Creek and Clapboard Gulch) and 4 miles south of Williams. Altitude of gage is 1,635 feet (by barometer).

Drainage area.--11.8 square miles.

Records available.--August 1946 to September 1950 (irrigation seasons only), discontinued.

Extremes (not including diversion).--Maximum discharge observed during year, 36 second-feet Mar. 27 (gage height, 1.17 feet); minimum observed, 1.7 second-feet Aug. 20-22.

1946-50: Maximum discharge observed, 55 second-feet July 4, 1948; maximum gage height, 1.5 feet July 4, 1948, May 2, 1949; minimum discharge observed, 0.7 second-foot Sept. 26, 27, 1946.

Remarks.--Records fair. Gage read twice daily. Several small diversions above station for irrigation; Eastside Canal diverts on right bank around station.

Rating table, period ending Sept. 30, 1950 (gage height, in feet,
and discharge, in second-feet)
(Backwater from leaves Sept. 9-30)

0.4	1.7	0.8	11
.5	3.2	.9	16
.6	5.1	1.0	21
.7	7.6	1.1	29

Discharges, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							29	17	20	6.4	2.3	2.6
2							29	17	20	6.2	2.3	2.6
3							27	16	20	6.2	2.3	2.3
4							27	16	18	6.2	2.0	2.3
5							27	18	18	6.2	2.0	2.3
6							26	18	18	6.2	a2.0	2.0
7							26	18	18	6.2	2.0	2.0
8							21	14	18	6.2	2.0	2.0
9							21	13	17	6.2	2.0	2.2
10							20	13	15	6.2	2.0	a2.2
11							20	14	12	5.1	2.0	2.2
12							23	14	12	4.7	2.0	2.4
13							20	14	11	4.7	2.0	2.4
14							20	17	10	3.6	2.0	2.4
15							20	17	10	3.4	2.0	2.4
16							19	18	10	2.4	2.0	2.4
17							18	18	12	2.3	2.0	2.4
18							18	18	10	2.3	2.0	2.2
19							18	20	10	2.3	2.0	2.2
20							18	20	10	2.3	1.7	2.2
21							18	21	8.4	2.0	1.7	2.2
22							18	21	8.4	2.3	1.7	2.0
23							18	21	8.4	2.6	2.2	2.0
24							17	21	8.4	2.3	2.2	2.0
25							18	21	8.4	2.0	2.6	2.4
26							19	21	8.4	2.3	2.6	3.4
27						36	18	21	7.8	2.6	2.6	2.2
28							18	a21	7.8	2.3	2.6	2.2
29							18	21	7.3	2.3	2.6	1.8
30							17	21	6.7	2.3	2.6	1.6
31							-	21	-	2.3	2.6	-

Month	Observed				Eastside Canal diversion (acre-feet)	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
October.....	-	-	-	-	-	-	-	-	-
November.....	-	-	-	-	-	-	-	-	-
December.....	-	-	-	-	-	-	-	-	-
Calendar year	-	-	-	-	-	-	-	-	-
January.....	-	-	-	-	-	-	-	-	-
February.....	-	-	-	-	-	-	-	-	-
March.....	-	-	-	-	-	-	-	-	-
April.....	29	17	20.9	1,240	189	1,429	24.0		
May.....	21	13	18.1	1,110	343	1,453	23.6		
June.....	20	6.7	12.3	732	340	1,072	18.0		
July.....	6.4	2.0	3.89	239	165	404	6.57		
August.....	2.6	1.7	2.15	132	79	211	3.43		
September.....	3.4	1.8	2.26	134	74	208	3.50		
The period.....	-	-	-	3,587	1,190	4,777	-		

a No gage-height record; discharge interpolated.

West Fork Williams Creek near Williams, Oreg.

Location.--Staff gage, lat. 42°11', long. 123°20', in NW $\frac{1}{4}$ sec. 18, T. 39 S., R. 5 W., three-quarters of a mile upstream from Lone Creek and $5\frac{1}{2}$ miles southwest of Williams.

Drainage area.--12.8 square miles.

Records available.--August 1946 to September 1950 (irrigation seasons only).

Extremes.--Maximum discharge observed during year, 80 second-feet Apr. 1 (gage height, 2.76 feet); minimum observed, 4.1 second-feet Sept. 22.
1946-50: Maximum discharge, 205 second-feet May 2, 1949 (gage height, 3.5 feet, from floodmark), from rating curve extended above 50 second-feet by logarithmic plotting; minimum observed, 3.7 second-feet Sept. 23, 24, 1947.

Remarks.--Records good. Gage read once daily. One diversion above station for irrigation.

Rating table, April to September 1950 (gage height, in feet, and discharge, in second-feet)

1.1	3.3	1.5	9.8	2.2	38
1.2	4.2	1.6	12	2.4	50
1.3	5.6	1.8	20	2.6	66
1.4	7.4	2.0	28	2.8	84

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							80	47	28	11	6.5	4.9
2							78	47	27	12	6.5	4.9
3							76	44	26	12	6.3	5.2
4							71	38	26	11	6.7	5.0
5							72	37	25	11	6.3	4.9
6							71	33	25	11	6.5	4.8
7							66	33	23	11	6.1	4.8
8							64	30	21	11	6.1	4.9
9							58	30	20	10	6.0	4.8
10							54	33	22	10	5.8	5.2
11							49	38	22	9.8	5.6	4.9
12							62	44	21	9.6	5.6	4.6
13							58	50	21	9.3	5.6	4.6
14							55	50	19	8.1	5.5	4.8
15							50	50	19	8.1	5.5	4.6
16							50	49	19	7.9	5.3	4.8
17							54	46	18	7.6	5.3	4.9
18							52	43	18	7.6	5.2	4.6
19							66	38	15	7.4	5.0	4.5
20							72	38	15	7.2	5.0	4.3
21							72	38	15	7.2	5.0	4.2
22							70	39	15	7.0	5.2	4.1
23							70	39	15	7.0	5.3	4.2
24							54	40	15	6.9	5.0	4.2
25							50	37	14	6.9	5.3	5.3
26							46	36	14	6.9	5.0	5.8
27						79	44	34	13	6.7	5.0	5.6
28							40	32	12	6.9	5.0	5.0
29							38	30	12	6.7	5.0	4.9
30							38	29	12	6.7	5.0	4.9
31							-	28	-	6.5	4.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....					
November.....					
December.....					
Calendar year					
January.....	-	-	-	-	-
February.....	-	-	-	-	-
March.....	-	-	-	-	-
April.....	1,780	80	38	59.3	3,530
May.....	1,200	50	28	38.7	2,380
June.....	567	28	12	18.9	1,120
July.....	268.0	12	6.5	8.65	532
August.....	172.1	6.7	4.9	5.55	341
September.....	144.2	5.8	4.1	4.81	286
The period.....	-	-	-	-	8,190

Mungers Creek near Williams, Oreg.

Location.--Staff gage, lat. 42°13', long. 123°20', in NW¹ sec. 6, T. 39 S., R. 5 W., 75 feet downstream from Swamp Creek and 4 miles southwest of Williams. Altitude of gage is 1,760 feet (by barometer).

Drainage area.--6.8 square miles.

Records available.--August 1946 to September 1950 (irrigation seasons only), discontinued.

Extremes.--Maximum discharge observed during year, 47 second-feet Mar. 27 (gage height, 2.22 feet); minimum observed, 0.9 second-foot Sept. 2-4, 12-16, 22-24.
1946-50: Maximum discharge observed, 79 second-feet May 2, 1949 (gage height, 2.54 feet); minimum observed, 0.8 second-foot Aug. 24, 25, 1946.

Remarks.--Records good. Gage read twice daily Apr. 1 to June 3; once daily thereafter.
No diversion above station.

Rating table, period ending Sept. 30, 1950 (gage height, in feet, and discharge, in second-feet)

0.9	0.5	1.3	5.4	1.8	24
1.0	1.2	1.4	7.7	2.0	34
1.1	2.2	1.5	10	2.3	53
1.2	3.6	1.6	14		

Discharge, in second-feet, water year October 1949 to September 1950.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							39	17	6.6	2.9	1.7	1.0
2							38	16	6.3	2.9	1.6	.9
3							35	14	6.1	2.9	1.6	.9
4							32	13	5.9	a2.8	1.6	.9
5							32	13	5.9	2.8	1.6	1.1
6							31	13	5.9	2.5	1.6	1.0
7							28	12	5.9	2.5	1.6	1.0
8							26	11	5.4	2.5	1.6	a1.0
9							24	11	5.2	2.5	1.6	1.0
10							22	12	a5.3	2.3	1.6	1.0
11							21	13	5.4	2.2	1.5	1.0
12							22	14	5.9	2.2	1.5	.9
13							24	14	5.4	2.2	1.4	.9
14							22	13	5.0	2.2	1.4	.9
15							20	14	4.7	2.1	1.4	.9
16							19	13	4.7	2.1	1.4	.9
17							20	13	4.7	2.0	1.3	1.2
18							21	12	4.5	2.0	1.2	1.1
19							22	11	4.5	2.0	1.2	1.1
20							25	10	4.3	2.0	1.2	1.1
21							25	10	4.1	1.9	1.2	1.0
22							24	9.7	3.8	1.8	1.2	.9
23							22	9.4	3.6	1.8	1.2	.9
24							20	9.1	4.3	1.7	1.2	.9
25							18	8.8	4.0	1.7	1.2	1.1
26							16	8.3	3.6	1.6	1.2	1.2
27						47	15	7.7	3.3	1.6	1.2	1.4
28							14	7.7	3.2	1.6	1.2	1.2
29							14	7.5	3.0	1.6	1.1	1.2
30							13	7.0	3.0	1.6	1.1	1.2
31							-	6.8	-	1.6	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October							
November							
December							
Calendar year							
January	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-
April	704	39	13	23.5	3.46	3.85	1,400
May	351.0	17	6.8	11.3	1.66	1.92	696
June	143.5	8.6	3.0	4.78	.703	.78	285
July	66.1	2.9	1.6	2.15	.313	.36	131
August	42.5	1.7	1.1	1.37	.201	.23	84
September	30.8	1.4	.9	1.03	.151	.17	61
The period.....	-	-	-	-	-	-	2,660

a No gage-height record; discharge interpolated.

Powell Creek near Williams, Oreg.

Location.--Water-stage recorder, lat. 42°16', long. 123°18', near center of sec. 16, T. 38 S., R. 5 W., 0.1 mile upstream from Blodgett ditch intake and 2 miles northwest of Williams.

Drainage area.--8.6 square miles.

Records available.--September 1946 to September 1950.

Extremes.--Maximum discharge during year, 262 second-feet Jan. 23 (gage height, 3.80 feet); minimum, 0.9 second-foot Oct. 3, 4.
1946-50: Maximum discharge, 780 second-feet Jan. 6, 1948 (gage height, 4.92 feet), by slope-area method; minimum, that of Oct. 3, 4, 1950.

Remarks.--Records good. No diversions above station.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used July 5-25, Aug. 8 to Sept. 30)

0.9	0.9	1.3	4.7	1.8	16	2.9	96
1.0	1.6	1.4	6.2	2.0	25	3.2	137
1.1	2.5	1.5	8.0	2.3	42	3.5	190
1.2	3.5	1.6	10	2.6	66	3.7	235

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	1.0	1.5	3.4	23	28	33	10	5.0	3.0	2.0	1.3
2	1.0	1.0	2.0	3.1	19	28	32	11	5.0	2.9	2.0	1.4
3	1.0	1.0	1.8	2.7	17	30	29	9.8	4.8	2.8	2.0	1.3
4	1.0	1.0	1.8	2.5	17	31	26	9.3	4.6	2.8	2.0	1.5
5	1.2	1.0	5.9	2.3	21	36	26	9.3	4.5	2.8	2.0	1.5
6	1.7	1.0	3.4	2.2	47	33	25	9.1	4.8	2.8	2.0	1.5
7	2.2	1.0	2.6	2.3	40	28	23	8.7	4.7	2.8	2.0	1.5
8	1.5	1.3	2.2	2.4	34	25	21	8.4	4.5	2.8	1.9	1.5
9	2.0	8.4	2.0	2.5	34	22	19	8.4	4.6	2.8	1.9	1.5
10	2.5	4.2	2.0	6.6	34	20	17	8.2	4.8	2.8	1.9	1.5
11	1.5	3.2	1.8	4.3	34	18	16	9.4	5.2	2.7	1.8	1.5
12	1.3	2.4	1.6	3.3	30	16	16	12	5.2	2.6	1.7	1.4
13	1.2	1.9	1.5	9.5	28	15	16	12	4.5	2.6	1.7	1.4
14	1.2	1.7	1.5	12	32	15	15	11	4.3	2.6	1.7	1.5
15	1.1	1.5	1.5	4.5	42	14	14	10	4.2	2.5	1.7	1.5
16	1.1	1.5	1.5	3.6	55	15	14	9.8	4.2	2.6	1.6	1.6
17	1.1	1.3	3.1	18	51	146	13	9.1	4.2	2.5	1.5	1.7
18	1.1	1.2	6.0	157	44	116	13	8.4	3.9	2.5	1.5	1.6
19	1.1	1.2	3.7	93	41	173	14	8.2	3.9	2.4	1.5	1.5
20	1.1	1.1	2.7	108	38	106	14	7.8	3.9	2.4	1.5	1.5
21	1.1	1.1	2.3	207	34	82	14	7.3	3.7	2.3	1.5	1.4
22	1.1	1.1	2.1	194	30	97	14	7.1	3.5	2.2	1.5	1.2
23	1.1	1.1	2.5	218	28	85	13	6.7	3.7	2.1	1.7	1.2
24	1.0	1.1	3.4	118	35	78	12	6.6	4.0	2.1	1.7	1.2
25	1.0	1.1	3.0	68	42	65	11	6.4	3.6	2.1	1.7	1.5
26	1.1	1.1	2.7	49	42	53	11	6.0	3.4	2.2	1.5	1.8
27	1.1	2.0	2.5	63	37	46	10	5.9	3.3	2.2	1.5	1.9
28	1.0	1.9	2.4	73	32	40	10	5.8	3.2	2.2	1.5	1.7
29	1.1	1.4	3.3	49	-	35	9.5	5.6	3.1	2.2	1.5	1.6
30	1.0	1.8	4.1	37	-	32	9.3	5.6	3.1	2.2	1.5	1.6
31	1.0	-	3.6	28	-	32	-	5.3	-	2.1	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October	38.6	2.5	1.0	1.25	0.145	0.17	77
November	51.6	8.4	1.0	1.72	.200	.22	102
December	82.0	6.0	1.5	2.65	.308	.35	163
Calendar year 1949	2,591.2	118	1.0	7.10	.826	11.19	5,140
January	1,547.2	218	2.2	49.9	5.80	6.69	3,070
February	961	55	17	34.3	3.99	4.16	1,910
March	1,560	173	14	50.3	5.85	6.75	3,090
April	509.8	33	9.3	17.0	1.98	2.20	1,010
May	258.2	12	5.3	8.33	.969	1.12	512
June	125.4	5.2	3.1	4.18	.486	.54	249
July	77.6	3.0	2.1	2.50	.291	.34	154
August	52.9	2.0	1.4	1.71	.199	.23	105
September	44.8	1.9	1.2	1.49	.173	.19	89
Water year 1949-50	5,309.1	218	1.0	14.5	1.69	22.96	10,530

Peak discharge (base, 150 sec.-ft.)--Jan. 18 (3 a.m.) 184 sec.-ft.; Jan. 23 (5:30 a.m.) 262 sec.-ft.; Mar. 17 (7:30 a.m.) 211 sec.-ft.

Slate Creek at Wonder, Oreg.

Location.--Water-stage recorder, lat. 42°22', long. 123°31', in SW $\frac{1}{4}$ sec. 10, T. 37 S., R. 7 W., half a mile upstream from Elliot Creek and 0.4 mile east of Wonder. Datum of gage is 1,035.1 feet above mean sea level (Bureau of Reclamation bench mark).

Drainage area.--30.9 square miles.

Records available.--July to November 1913 and October 1945 to September 1950 in reports of Geological Survey. October 1943 to September 1945 in files of State engineer.

Extremes.--Maximum discharge during year, 1,810 second-foot Jan. 21 (gage height, 6.56 feet); minimum, 0.8 second-foot Sept. 11, 12.

1913, 1943-50: Maximum gage height, 9.0 feet Dec. 28, 1945, from floodmark, former site and datum (discharge not determined); minimum discharge observed, 0.3 second-foot July 16, 17, 1944.

Revisions.--The maximum discharge for the 1948 water year has been revised to 2,940 second-foot Jan. 6, 1948 (gage height, 8.29 feet), superseding figure published in Water-Supply Paper 1124.

Remarks.--Records good except those for period of no gage-height record, which are poor. Several small diversions above station for irrigation. No regulation.

Revisions.--Revised figures of discharge, in second-feet, for the high-water period in the water year 1948, superseding those published in Water-Supply Papers 1124 and 1154, are given herewith.

Jan. 6.....2,430

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
January 1948.....	8,856	2,430	32	286	9.26	10.66	17,570
Water year 1947-48.....	29,337.5	2,430	1.5	80.2	2.60	35.32	58,190
Calendar year 1948.....	29,907.1	2,430	1.5	81.7	2.64	36.00	59,330

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	2.8	12	36	99	95	128	39	12	5.6	2.1	1.0
2	2.2	3.0	12	31	88	92	117	69	11	4.8	2.1	1.0
3	2.2	3.0	10	27	82	95	101	69	11	4.8	2.1	1.1
4	2.2	3.0	12	24	174	101	91	62	10	5.0	2.3	1.3
5	2.5	3.2	68	22	558	154	92	60	10	5.0	2.6	1.0
6	3.0	3.2	46	20	730	143	88	61	12	4.3	1.6	1.1
7	6.7	3.2	31	41	438	114	87	56	13	4.8	1.7	1.3
8	5.0	3.7	24	55	310	98	80	51	12	4.3	1.8	1.4
9	5.0	4.8	20	82	262	93	75	48	12	4.3	2.0	1.3
10	9.1	35	18	354	256	95	67	44	14	4.5	1.8	1.5
11	5.3	26	16	151	216	93	65	44	15	4.3	1.7	1.0
12	4.3	18	14	89	177	89	77	42	16	4.1	1.7	.9
13	4.1	14	13	153	158	86	80	38	13	3.9	2.0	1.1
14	3.7	11	12	166	175	80	72	34	12	3.7	1.7	1.2
15	3.4	8.7	12	95	211	72	67	30	11	3.0	1.4	1.6
16	3.2	7.6	12	74	444	84	65	28	10	2.3	1.3	1.6
17	3.2	6.9	34	110	313	796	68	28	10	2.8	1.4	1.6
18	3.4	6.7	178	837	218	562	62	25	9.1	3.4	1.4	1.8
19	3.4	6.1	91	594	175	666	61	23	9.1	3.4	1.6	2.0
20	3.4	5.6	54	610	152	382	60	21	8.0	3.7	1.1	1.8
21	3.7	5.6	37	1,420	1,130	304	55	21	8.0	3.6	1.1	1.7
22	3.6	5.6	29	963	1,115	444	52	20	8.0	2.6	1.1	1.7
23	3.6	5.6	28	918	1,105	410	46	19	8.0	2.2	1.0	1.7
24	3.6	5.0	40	469	1,140	550	41	18	8.7	2.2	1.4	1.6
25	3.6	4.8	39	249	1,160	346	37	18	8.3	2.3	2.0	1.6
26	3.4	4.8	35	175	1,135	243	35	17	8.0	2.3	2.0	2.0
27	3.2	19	32	424	1,120	204	34	16	6.9	2.5	1.6	2.6
28	3.0	28	28	427	106	169	34	16	6.7	2.8	1.4	2.5
29	3.0	18	34	236	-	145	32	15	6.7	2.6	1.4	2.5
30	3.0	16	41	167	-	130	31	14	6.4	2.3	1.4	2.5
31	3.0	-	39	123	-	130	-	14	-	2.2	1.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October.....	114.3	9.1	2.2	3.69	0.119	0.14	227
November.....	329.1	48	2.8	11.0	.356	.40	653
December.....	1,071	178	10	34.5	1.12	1.29	2,120
Calendar year 1949.....	14,719.9	1,020	.8	40.3	1.30	17.72	29,190
January.....	9,122	1,420	20	294	9.51	10.98	18,090
February.....	6,227	730	82	222	7.18	7.49	12,350
March.....	7,065	796	72	228	7.38	8.50	14,010
April.....	1,996	128	31	66.5	2.15	2.40	3,960
May.....	1,060	69	14	34.2	1.11	1.28	2,100
June.....	305.9	16	6.4	10.2	.350	.37	607
July.....	109.6	5.8	2.2	3.54	.115	.13	217
August.....	51.1	2.6	1.0	1.65	.053	.06	93
September.....	46.8	2.6	.9	1.56	.050	.06	93
Water year 1949-50.....	27,497.8	1,420	.9	75.3	2.44	33.10	54,530

Peak discharge (base, 900 sec.-ft.).--Jan. 21 (5 a.m.) 1,810 sec.-ft.; Mar. 17 (10 a.m.) 1,140 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for Deer Creek near Dryden.

Grave Creek at Pease Bridge, near Placer, Oreg.

Location.--Water-stage recorder, lat. 42°39', long. 123°12', in NW¼ sec. 5, T. 34 S., R 4 W., at bridge 5½ miles northeast of Placer. Datum of gage is 2,384.1 feet above mean sea level, datum of 1929.

Drainage area.--22 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey. September 1940 to September 1941 in reports of State engineer; October 1941 to September 1945 in files of State engineer.

Average discharge.--10 years (1940-50), 47.2 second-feet.

Extremes.--Maximum discharge during year, 898 second-feet Mar. 17 (gage height, 3.66 feet); minimum, 0.3 second-foot Aug. 18, 21.

1940-50: Maximum discharge, 2,400 second-feet Jan. 6, 1948 (gage height, 5.73 feet), by slope-area method; minimum, 0.3 second-foot Sept. 13, 1944, Aug. 16-27, 1946, Aug. 18, 21, 1950.

Remarks.--Records good. Columbia upper ditch diverts water about 2 miles above station. No Regulation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	2.0	12	19	*b41	168	199	58	14	6.6	2.8	1.0
2	.9	2.0	13	17	b35	178	185	56	14	5.3	2.6	1.0
3	.8	2.0	12	b14	b35	205	147	47	14	5.3	2.4	1.0
4	.8	2.0	11	14	48	229	128	43	13	5.6	2.0	1.0
5	1.7	2.0	18	13	104	278	134	45	12	5.6	2.0	1.3
6	5.4	2.0	18	12	214	220	126	45	13	6.1	2.0	1.7
7	9.1	2.0	14	12	152	106	41	16	5.6	1.7	1.5	
8	4.2	2.8	14	12	110	120	93	39	14	5.3	1.3	.8
9	7.5	11	14	12	110	*98	82	42	13	5.3	1.3	.6
10	16	12	13	12	110	88	*79	51	14	5.3	1.0	.7
11	6.3	18	11	12	95	75	80	65	31	5.0	1.1	.7
12	4.4	18	10	12	82	64	106	76	62	4.4	1.7	.6
13	3.6	14	9.6	27	79	59	124	78	39	4.4	2.0	.6
14	2.8	13	10	36	118	54	98	69	29	4.4	1.5	.7
15	2.6	12	12	14	193	51	87	60	23	4.4	1.3	.8
16	2.4	12	18	12	405	62	87	54	20	4.2	1.0	1.1
17	2.2	10	25	14	289	595	106	48	18	4.2	.7	1.9
18	2.0	7.7	29	419	208	415	115	41	16	4.2	.5	3.0
19	2.2	6.6	22	293	196	478	127	36	14	3.9	.6	2.6
20	2.2	5.6	18	220	172	303	143	34	14	3.9	.7	2.4
21	2.2	5.0	16	480	138	254	126	35	13	2.6	.5	2.2
22	2.0	4.4	14	555	124	335	110	35	12	2.6	.6	2.0
23	2.0	4.4	16	615	128	236	86	32	11	2.2	.8	1.9
24	2.0	4.4	25	305	250	182	71	28	13	1.9	1.0	1.3
25	2.0	4.2	22	165	389	145	66	27	12	2.0	1.9	1.1
26	1.9	3.9	22	110	337	132	61	25	9.1	2.2	1.7	5.3
27	1.9	20	22	88	241	139	60	23	8.8	1.9	1.3	5.6
28	1.9	33	21	72	182	115	56	22	7.7	2.8	1.5	5.0
29	2.0	18	22	61	-	104	52	19	8.1	3.9	1.3	4.7
30	2.0	15	22	54	-	106	51	18	7.3	3.6	1.3	4.4
31	2.0	-	21	b47	-	152	-	15	-	2.8	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	100.0	16	0.8	3.23	198
November.....	269.0	33	2.0	8.97	534
December.....	526.6	29	9.6	17.0	1,040
Calendar year 1949	12,470.7	580	.6	34.2	24,720
January.....	3,748	615	12	121	7,430
February.....	4,578	405	35	164	9,080
March.....	5,751	595	51	187	11,490
April.....	3,089	199	51	103	6,130
May.....	1,305	78	15	42.1	2,590
June.....	505.0	62	7.3	16.8	1,000
July.....	127.5	6.6	1.9	4.11	253
August.....	43.2	2.8	.5	1.39	86
September.....	58.5	5.6	.6	1.95	116
Water year 1949-50	20,140.8	615	.5	55.2	30,950

Peak discharge (base, 300 sec.-ft.)--Jan. 18 (3:30 p.m.) 675 sec.-ft.; Jan. 23 (7 to 8 a.m.) 760 sec.-ft.; Feb. 18 (10 a.m.) 485 sec.-ft.; Feb. 25 (8 p.m.) 397 sec.-ft.; Mar. 17 (8:30 a.m.) 898 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

ROGUE RIVER BASIN

East Fork Illinois River near Takilma, Oreg.

Location.--Water-stage recorder, lat. 42°01', long. 123°38', in SE $\frac{1}{4}$ sec. 10, T. 41 S., R. 8 W., 500 feet upstream from highway bridge, a quarter of a mile upstream from Long Gulch, and 3 miles south of Takilma. Datum of gage is 1,746.6 feet above mean sea level (surveys by Bureau of Reclamation).

Drainage area.--42.6 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey. April 1926 to April 1932 and November 1940 to September 1941 in reports of State engineer. October 1941 to September 1945 in files of State engineer.

Extremes.--Maximum discharge during year, 4,050 second-feet Jan. 18 (gage height, 7.62 feet); minimum, 8.6 second-feet Oct. 4.

1926-32, 1940-50: Maximum gage height, 9.4 feet Dec. 28, 1945, from floodmark, site and datum then in use (discharge not determined); minimum discharge observed, 5.2 second-feet Sept. 24-29, 1944.

Revisions.--The maximum discharge for the water year 1948 has been revised to 5,730 second-feet Jan. 7, 1948 (gage height, 8.6 feet, from floodmark), superseding figure published in Water-Supply Paper 1124.

Remarks.--Records good. No regulation. Easterly Upper Canal and Osgood Canal diverted water above station in periods of heavy runoff prior to 1942.

Revisions.--Revised figures of discharge for high-water periods in water year 1948, superseding those published in Water-Supply Paper 1124, are given herewith.

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1947-48		1947-48	
Jan. 2.....	2,060	Apr. 7.....	4,060
4.....	1,860	15.....	1,950
6.....	3,080		

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
January 1948.....	18,181	4,060	57	588	13.8	15.87	36,060
April.....	15,117	1,850	194	437	10.3	11.45	28,020
Water year 1947-48.....	68,855.3	4,060	9.7	188	4.41	60.12	136,600
Calendar year 1948.....	75,881.0	4,060	11	207	4.86	66.24	150,500

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	9.6	71	62	147	273	358	199	209	43	16	9.8
2	9.1	9.5	66	54	131	276	372	190	190	38	16	9.6
3	8.7	9.5	58	46	126	398	307	163	163	37	16	9.6
4	8.7	9.5	54	44	225	419	268	148	148	38	15	9.6
5	13	9.5	104	40	440	533	296	153	132	36	15	9.8
6	23	9.3	75	38	637	426	318	155	125	35	15	9.6
7	22	9.3	62	39	378	315	266	142	105	33	15	9.5
8	13	11	54	38	276	256	225	148	93	32	15	9.5
9	17	71	49	39	238	217	196	163	93	31	15	9.5
10	58	51	44	65	242	194	179	199	136	29	14	9.5
11	22	51	39	59	245	170	174	283	153	27	14	9.5
12	17	36	35	49	203	153	266	402	147	27	14	9.3
13	14	27	33	67	186	143	329	447	124	25	14	9.3
14	12	27	31	105	259	132	259	422	112	25	14	9.5
15	12	28	30	68	335	128	221	353	105	24	13	9.6
16	11	31	31	57	556	406	223	312	98	24	13	9.6
17	11	31	53	402	426	2,290	254	291	89	24	12	11
18	11	27	83	3,290	315	1,290	291	236	83	22	12	11
19	11	24	65	1,300	271	1,750	353	209	80	22	12	9.6
20	11	20	48	1,170	236	850	444	219	80	22	12	9.5
21	11	19	42	1,900	207	695	398	271	75	21	12	9.3
22	10	18	38	1,600	183	954	350	307	67	20	12	8.9
23	10	23	44	1,350	196	651	278	291	64	19	12	8.9
24	10	27	62	780	480	518	234	259	60	18	12	8.9
25	10	23	54	447	585	395	217	256	54	18	12	9.8
26	10	20	52	307	491	326	211	266	50	18	12	12
27	10	263	48	353	412	299	211	247	48	17	11	12
28	10	287	46	419	321	251	207	203	48	17	11	11
29	10	112	263	21	-	231	186	190	47	17	11	9.8
30	9.8	96	73	221	-	231	190	221	46	17	10	9.8
31	9.6	-	66	174	-	271	-	225	-	17	10	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acres-feet
October.....	424.4	58	8.7	13.7	0.322	0.37	842
November.....	1,389.2	287	9.3	46.3	1.09	1.21	2,760
December.....	1,672	104	30	53.9	1.27	1.46	3,320
Calendar year 1949.....	39,143.4	1,080	8.6	107	2.51	34.19	77,850
January.....	14,886	3,290	38	480	11.3	13.00	29,530
February.....	8,747	637	126	312	7.32	7.64	17,350
March.....	15,441	2,290	128	498	11.7	13.48	30,630
April.....	8,071	444	174	269	6.31	7.05	16,010
May.....	7,570	447	142	244	5.73	6.61	15,010
June.....	3,024	209	46	101	2.37	2.64	6,000
July.....	793	43	17	25.6	.601	.69	1,570
August.....	407	16	10	13.1	.308	.36	807
September.....	294.5	12	8.9	9.62	.231	.26	564
Water year 1949-50.....	62,719.1	3,290	8.7	172	4.04	54.77	124,400

Peak discharge (base, 2,500 sec.-ft.).--Jan. 18 (8 a.m.), 4,050 sec.-ft.; Mar. 17 (6 a.m.), 3,830 sec.-ft.

Illinois River at Kerby, Oreg.

Location.--Water-stage recorder, lat. 42°13', long. 123°39', in NW $\frac{1}{4}$ sec. 4, T. 39 S., R. 8 W., 1 mile northwest of Kerby. Datum of gage is 1,215.24 feet above mean sea level, datum of 1929, supplemental adjustment of 1947.

Drainage area.--367 square miles.

Records available.--March 1926 to September 1950.

Average discharge.--24 years, 1,080 second-feet.

Extremes.--Maximum discharge during year, 28,400 second-feet Jan. 18 (gage height, 19.26 feet), from rating curve extended above 14,000 second-feet on basis of slope-area determination at gage height 24.6 feet; minimum daily, 28 second-feet Sept. 2.
1926-50: Maximum discharge, 52,000 second-feet (revised) Feb. 20, 1927 (gage height, 19.6 feet, site and datum then in use), from rating curve extended above 26,000 second-feet on basis of slope-area determination at gage height 19.2 feet; minimum, 13 second-feet Sept. 10-15, 1934.

Revisions.--The figures of maximum discharge for some water years have been revised as shown in the following table. They supersede those shown in the Water-Supply Papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (second-feet)
654.....	1927	Feb. 20	19.6	52,000
964.....	1942	Dec. 2	18.39	25,800
984.....	1943	Dec. 31	21.23	35,100
1064.....	1946	Dec. 28	23.3	43,200
1124.....	1948	Jan. 6	21.2	34,900

Remarks.--Records good except those for periods of no gage-height record, which are poor. Diversions above station for irrigation.

Revisions (water years).--W 864: 1936-37. Revised figures of discharge for high-water periods in the water years 1943 and 1948 are given herewith. They supersede those published in Water-Supply Papers 984 and 1124.

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1942-43		1947-48	
Dec. 30.....	20,400	Jan. 6.....	27,400
31.....	23,900	7.....	25,500
Jan. 21.....	24,000		

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
December 1942.....	176,110	23,900	1,350	5,681	349,300
January 1943.....	137,466	24,000	700	4,434	272,700
Calendar year 1942.....	546,551	23,900	32	1,497	1,084,000
Water year 1942-43.....	588,730	24,000	32	1,613	1,168,000
Calendar year 1943.....	384,791	24,000	32	1,054	763,300
January 1948.....	133,406	27,400	765	4,305	264,600
Water year 1947-48.....	498,919	27,400	53	1,363	989,500
Calendar year 1948.....	525,339	27,400	53	1,435	1,042,000

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 5, 8-16, 26, 28, Nov. 6, 9)

Oct. 1 to Jan. 17

Jan. 18 to Sept. 30

-0.2	38	0.6	200	3.0	1,280	0.1	21	2.0	680	12.0	12,000
-.1	52	1.0	325	4.0	1,980	.2	36	3.0	1,260	14.0	15,500
.1	86	1.5	520	4.7	2,580	.4	74	4.0	1,980	16.0	19,800
.3	127	2.0	745			.8	118	6.0	3,650	18.0	24,600
						1.0	240	8.0	5,120		
						1.5	455	10.0	8,850		

ROGUE RIVER BASIN

Discharge, in second-feet, of Illinois River at Kerby, Oreg.,
water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a52	a72	601	704	1,470	1,670	1,950	1,120	735	157	56	32
2	a50	a72	520	646	1,250	1,600	1,980	1,560	691	154	56	26
3	a50	a72	480	556	1,180	2,200	1,730	1,230	842	148	56	30
4	a50	a71	446	516	2,190	2,200	1,580	1,100	585	145	49	30
5	h54	a71	1,350	476	5,100	3,090	1,610	1,070	545	137	56	32
6	a65	h70	1,130	440	6,280	3,000	1,760	1,090	507	134	56	32
7	a75	a75	805	520	3,940	2,230	1,640	990	484	123	52	36
8	92	a65	664	592	3,040	1,850	1,530	954	453	121	43	36
9	86	347	578	673	2,830	1,670	1,390	942	422	118	45	36
10	180	662	520	2,110	2,680	1,670	1,270	972	471	113	47	34
11	165	666	464	1,510	2,800	1,540	1,200	1,070	498	111	47	34
12	129	512	415	1,040	2,210	1,350	1,250	1,250	545	109	41	34
13	112	366	380	1,450	2,040	1,270	1,890	1,580	480	106	43	34
14	100	297	353	2,140	2,650	1,220	1,680	1,400	440	102	49	36
15	96	254	332	1,260	2,780	1,150	1,470	1,300	417	97	52	38
16	90	233	353	1,010	5,110	1,880	1,380	1,200	399	95	50	38
17	a85	218	676	2,760	3,650	14,100	1,390	1,150	386	93	49	43
18	a80	200	1,680	23,600	2,700	7,850	1,440	1,030	362	91	41	40
19	a80	188	1,320	10,200	2,230	11,900	1,520	946	354	89	41	36
20	a80	175	670	8,520	1,960	5,790	1,700	912	314	67	43	a35
21	a80	162	691	15,600	1,690	4,500	1,630	954	300	62	41	a34
22	d75	158	578	12,800	1,540	6,290	1,520	1,030	276	78	47	a34
23	a75	152	529	12,200	1,520	4,780	1,350	1,030	264	78	47	a33
24	a74	195	732	6,300	3,000	4,610	1,210	948	261	74	49	h33
25	a73	203	660	3,770	3,620	3,480	1,130	694	247	68	49	a40
26	h72	185	619	2,810	2,890	2,680	1,060	900	226	62	45	a45
27	a72	2,500	563	4,380	2,380	2,790	1,040	869	206	56	43	a50
28	h73	2,170	538	4,680	1,940	2,380	1,020	828	167	58	43	a55
29	a73	967	637	2,910	-	2,020	960	740	169	60	41	a50
30	a73	750	845	2,280	-	1,890	918	746	166	60	43	a50
31	a73	-	718	1,750	-	1,670	-	762	-	56	36	-
Month					Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet			
October.....					2,584	180	50	63.4	5,130			
November.....					12,200	2,500	70	407	24,200			
December.....					21,262	1,880	332	667	42,210			
Calendar year 1949					263,455	9,240	31	722	522,600			
January.....					130,183	23,600	440	4,199	258,200			
February.....					76,670	6,280	1,180	2,738	152,100			
March.....					106,730	14,100	1,150	3,443	211,700			
April.....					43,428	1,960	916	1,446	86,140			
May.....					32,169	1,400	740	1,036	63,850			
June.....					12,016	735	166	401	23,830			
July.....					3,088	157	58	96.9	6,080			
August.....					1,460	58	38	47.1	2,900			
September.....					1,118	55	28	37.3	2,220			
Water year 1949-50					442,926	23,600	28	1,213	878,600			

Peak discharge (base, 9,000 sec.-ft.).--Jan. 18 (2 p.m.) 28,400 sec.-ft.; Jan. 21 (3 p.m.) 17,000 sec.-ft.; Mar. 17 (10:30 a.m.) 21,000 sec.-ft.

a No gage-height record; discharge interpolated or computed from summation of records for upstream stations.

d Doubtful gage-height record; discharge computed as explained in footnote a.

h Computed from staff-gage reading.

Althouse Creek near Holland, Oreg.

Location.--Water-stage recorder, lat. 42°06', long. 123°32', in SE $\frac{1}{4}$ sec. 9, T. 40 S., R. 7 W., half a mile upstream from Carter Gulch and 2 miles southeast of Holland.

Drainage area.--23.8 square miles.

Records available.--October 1946 to September 1950. October 1945 to September 1946 at site $\frac{1}{2}$ miles upstream; records not equivalent. October 1943 to July 1944 at site a quarter of a mile downstream and August 1944 to January 1945 at site 400 feet downstream, in files of State engineer (fragmentary).

Extremes.--Maximum discharge during year, 1,060 second-feet Mar. 17 (gage height, 4.41 feet), from rating curve extended above 260 second-feet on basis of slope-area determinations at gage heights 5.14 and 5.96 feet; minimum, 4.4 second-feet Sept. 6, 1945-50: Maximum discharge, 1,520 second-feet Jan. 7, 1948 (gage height, 5.14 feet), by slope-area method; minimum, 3.2 second-feet Sept. 23-25, 1947.

Remarks.--Records good. Slight regulation from mining operations above station. Water used for placer mining is returned to creek above station.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.9	5.9	12	15	665	114	137	114	80	21	9.8	5.7
2	5.9	5.9	14	13	680	112	140	107	73	20	9.8	5.2
3	5.4	5.9	12	b12	80	116	132	93	67	19	9.8	5.2
4	5.4	6.4	12	11	88	122	126	82	63	18	9.8	5.2
5	9.3	6.4	32	9.3	132	165	129	78	60	18	9.8	5.7
6	14.0	6.4	20	9.3	226	148	129	71	59	17	9.8	5.2
7	16	6.4	16	10	145	129	124	67	54	17	9.3	5.2
8	10	7.7	14	11	114	116	114	65	49	17	8.9	5.2
9	14	37	13	11	102	107	107	65	48	17	8.9	5.7
10	20	19	12	17	102	100	102	69	52	17	8.4	5.7
11	10	18	10	17	100	93	100	86	52	16	8.4	5.7
12	8.4	15	9.3	15	91	86	119	114	52	15	8.0	5.2
13	7.0	10	9.3	23	91	82	122	134	43	15	8.0	5.2
14	6.4	10	8.4	27	*107	78	114	140	39	15	8.0	5.7
15	5.9	10	8.4	17	122	76	109	140	39	14	7.5	5.7
16	5.9	11	9.3	13	195	104	112	137	38	14	7.5	6.1
17	5.9	11	16	84	159	620	119	129	36	14	7.0	8.0
18	6.4	9.3	25	610	129	445	126	119	34	14	6.6	7.5
19	6.4	7.7	20	*290	116	650	140	112	33	14	6.6	7.0
20	6.4	7.0	14	290	109	328	159	109	32	14	6.1	6.6
21	6.4	7.0	12	483	100	276	156	116	31	13	6.1	6.1
22	6.4	6.4	11	392	88	293	151	122	30	12	6.1	5.7
23	6.4	7.7	13	384	86	251	137	122	28	12	6.6	5.2
24	6.4	7.7	14	244	109	223	126	116	28	12	7.0	5.2
25	6.4	6.4	13	159	129	188	122	114	27	12	6.6	7.0
26	6.4	6.4	13	119	132	165	116	112	25	12	6.1	8.4
27	6.4	22	12	129	126	151	114	107	23	11	6.1	8.4
28	6.4	27	11	126	116	134	112	98	22	12	6.1	7.5
29	6.4	16	*15	104	-	124	107	91	22	12	6.1	7.0
30	6.4	17	16	91	-	122	104	88	22	11	5.7	6.6
31	6.4	-	14	78	-	126	-	86	-	10	5.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	245.0	20	5.4	7.90	0.332	0.38	486
November	339.6	37	5.9	11.3	.475	.53	674
December	430.7	32	8.4	13.9	.584	.67	854
Calendar year 1949	15,826.1	486	4.5	43.4	1.82	24.72	31,390
January	3,813.6	610	9.3	123	5.17	5.96	7,580
February	3,199	226	60	114	4.79	5.00	6,350
March	5,844	650	76	189	7.94	9.13	11,590
April	3,705	159	100	124	5.21	5.79	7,350
May	3,203	140	65	103	4.33	5.01	6,350
June	1,261	80	22	42.0	1.76	1.97	2,500
July	455	21	10	14.7	.618	.71	902
August	236.2	9.8	5.7	7.62	.320	.37	468
September	183.8	8.4	5.2	6.13	.258	.29	365
Water year 1949-50	22,915.9	650	5.2	62.8	2.64	35.81	45,450

Peak discharge (base, 500 sec.-ft.).--Jan. 18 (3:30 a.m.) 782 sec.-ft.; Jan. 21 (6:30 a.m.) 600 sec.-ft.; Mar. 17 (6:30 a.m.) 1,060 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Sucker Creek near Holland, Oreg.

Location.--Staff gage, lat 42°09', long. 123°28', in NE $\frac{1}{4}$ sec. 25, T. 39 S., R. 7 W., 1 mile downstream from Grayback Creek and 4.3 miles northeast of Holland. Datum of gage is 1,777.84 feet above mean sea level, datum of 1929 (surveys by Bureau of Reclamation).

Drainage area.--76 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey.

April 1940 to August 1941 at site half a mile upstream and September 1941 to September 1945 in files of State engineer.

Extremes.--Maximum discharge during year, 2,260 second-feet Mar. 17 (gage height, 5.8 feet, from graph based on gage readings); minimum observed, 24 second-feet Oct. 2-4, Sept. 23, 24.
1940-50: Maximum discharge, 5,090 second-feet Jan. 7, 1948 (gage height, 8.3 feet, from floodmark), by slope-area method; minimum observed, 19 second-feet Sept. 27, 28, 1947.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Gage read once daily, oftener during periods of high water. No regulation. 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.

Rating table, water year 1949-50 (gage height, in feet,
and discharge, in second-feet)
(Shifting-control method used June 3 to Sept. 30)

1.2	21	2.3	210	4.0	930
1.4	38	2.6	300	4.5	1,240
1.6	62	2.9	410	5.0	1,580
1.8	94	3.2	530		
2.0	134	3.5	665		

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	26	47	45	162	a320	402	314	410	87	40	29
2	24	26	57	40	145	307	386	307	349	84	40	27
3	24	26	42	40	152	356	363	324	80	41	27	
4	24	26	42	42	252	356	356	258	297	77	40	27
5	34	26	65	38	363	490	378	246	279	72	40	27
6	34	26	52	37	482	410	356	228	255	72	38	27
7	40	26	47	40	335	356	342	222	228	72	38	26
8	31	29	45	40	282	321	314	210	210	70	38	27
9	52	87	42	40	246	328	282	210	199	70	38	27
10	52	49	40	62	252	264	264	246	204	70	38	27
11	49	52	36	52	234	240	252	349	249	66	36	27
12	34	44	36	54	222	222	363	482	219	64	36	27
13	31	39	36	117	222	210	349	514	190	59	36	29
14	30	40	36	87	261	199	314	522	182	59	36	27
15	29	40	35	59	321	216	294	474	172	58	34	27
16	29	38	38	57	498	302	300	466	167	57	34	31
17	28	38	47	121	410	1,510	328	418	167	56	34	33
18	27	34	58	1,110	349	1,180	349	370	157	54	34	33
19	28	33	47	620	321	1,570	418	370	146	54	33	29
20	29	32	40	620	276	875	466	410	146	53	33	27
21	29	31	40	1,110	252	715	458	466	141	52	33	27
22	29	31	39	1,050	228	787	426	450	156	52	33	26
23	29	38	45	990	228	735	394	450	132	48	34	24
24	29	39	45	620	349	620	370	442	124	48	33	24
25	28	a35	42	402	a440	514	349	482	115	48	32	31
26	27	36	42	314	426	506	342	498	111	48	31	33
27	27	130	40	394	394	418	342	450	107	46	31	33
28	27	94	38	294	349	349	321	394	100	46	30	33
29	27	54	40	252	-	324	307	410	94	45	29	32
30	27	59	47	210	-	328	307	450	91	42	29	31
31	26	-	45	204	-	356	-	410	-	42	29	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	960	52	24	31.0	0.408	0.47	1,900
November	1,284	130	26	42.8	.563	.63	2,550
December	1,351	65	35	43.6	.574	.66	2,680
Calendar year 1949	45,358	1,050	22	124	1.63	22.19	89,930
January	9,161	1,110	37	296	3.89	4.48	18,170
February	8,419	498	143	301	3.96	4.12	16,700
March	15,684	1,570	199	506	6.66	7.67	31,110
April	10,492	466	252	350	4.61	5.13	20,810
May	11,788	522	210	380	5.00	5.77	23,580
June	5,701	410	91	190	2.50	2.79	11,310
July	1,851	87	42	59.7	.786	.91	3,670
August	1,081	41	29	34.9	.459	.53	2,140
September	855	33	24	28.5	.375	.42	1,700
Water year 1949-50	68,627	1,570	24	188	2.47	33.58	136,100

a No gage-height record; discharge computed on basis of records for Grayback Creek near Holland.

Grayback Creek near Holland, Oreg.

Location.--Water-stage recorder, lat. $42^{\circ}08'$, long. $123^{\circ}27'$, in NW $\frac{1}{4}$ sec. 31, T. 39 S., R. 6 W., 600 feet upstream from mouth and $4\frac{1}{2}$ miles northeast of Holland. Datum of gage is 1,836.92 feet above mean sea level (surveys by Bureau of Reclamation).

Drainage area.--24.1 square miles.

Records available.--September 1946 to September 1950.

Extremes (not adjusted for diversion).--Maximum discharge during year, 688 second-feet Mar. 17; maximum gage height, 5.07 feet Mar. 17 (momentary backwater from log); minimum discharge, 5.6 second-feet Oct. 2-4.
1946-50: Maximum discharge, 1,500 second-feet Jan. 7, 1948 (gage height, 5.92 feet), by slope-area method; minimum, 5.0 second-feet Sept. 23, 24, 1949.
Revisions.--The figures of maximum discharge for the water years 1947 and 1949 have been revised to 476 second-feet Nov. 22, 1946 (gage height, 3.94 feet) and 592 second-feet Feb. 22, 1949 (gage height, 4.23 feet), superseding figures published in Water-Supply Papers 1094 and 1154.

Remarks.--Records good. Water diverted above station by Grayback Canal for irrigation.

Revisions.--Revised figures of discharge for high-water periods in the water years 1947, 1948, 1949 are given herewith. They supersede those published in Water-Supply Papers 1094, 1124, and 1154.

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1946-47		1947-48	
Nov. 22.....	227	Jan. 8.....	373
		Feb. 22.....	319
1947-48		1948-49	
Jan. 2.....	298	Dec. 12.....	322
4.....	300	Feb. 22.....	317
6.....	773		
7.....	945		

Month	Observed				Grayback Canal diversion (acre-feet)	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
November 1946.....	227	10	54.5	3,240	86	3,326	55.9	2.32	2.59
Water year 1946-47	253	5.8	37.0	26,780	2,380	29,160	40.3	1.67	22.67
January 1948.....	945	39	162	9,980	119	10,099	164	6.80	7.84
February.....	319	33	71.1	4,090	135	4,225	73.5	3.05	3.29
Water year 1947-48	945	7.3	65.7	47,720	1,800	49,520	68.2	2.83	38.49
December 1948.....	322	26	80.6	4,960	52	5,010	81.5	3.38	3.90
Calendar year 1948	945	11	70.1	50,920	1,780	52,700	72.6	3.01	39.98
February 1949.....	317	20	70.7	3,930	90	4,020	72.4	3.00	3.12
Water year 1948-49	322	5.5	42.5	30,780	1,990	32,770	45.3	1.88	25.49

Revised peak discharge.--1947-48: Jan. 2 (11 a.m.) 367 sec.-ft.; Feb. 22 (3:30 a.m.) 468 sec.-ft.
1948-49: Dec. 7 (11:30 a.m.) 346 sec.-ft.; Dec. 12 (8 a.m.) 468 sec.-ft.; May 2 (5:30 a.m.) 308 sec.-ft.

ROGUE RIVER BASIN

Discharge, in second-feet, Grayback Creek near Holland, Oreg.,
water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.2	9.6	17	17	56	104	130	95	109	30	13	8.0
2	6.0	9.3	18	16	52	102	132	91	102	27	13	7.7
3	5.8	9.3	17	14	51	111	120	84	93	27	13	7.7
4	6.0	9.3	16	16	70	119	114	78	88	26	13	7.1
5	8.8	9.3	23	15	85	155	118	78	82	26	13	7.4
6	9.6	9.3	20	15	136	136	118	73	78	24	13	7.1
7	13	9.3	18	15	102	119	111	70	69	24	13	6.8
8	10	10	17	15	83	108	102	69	64	23	13	6.8
9	20	23	17	15	77	97	95	69	61	23	13	6.8
10	28	18	16	17	78	90	90	74	63	22	12	6.8
11	16	18	15	16	77	82	86	85	68	22	12	6.8
12	13	16	14	17	74	77	109	105	70	21	12	6.8
13	11	14	14	19	74	72	113	120	59	20	12	6.8
14	10	14	14	22	86	70	102	122	57	20	12	7.1
15	10	14	14	19	102	66	96	116	54	20	11	7.4
16	10	13	14	18	162	100	95	116	54	19	11	7.7
17	10	13	18	46	138	416	100	113	56	19	10	8.6
18	10	12	20	454	115	307	105	103	51	18	10	8.3
19	10	11	18	232	106	476	116	98	50	18	9.8	8.0
20	11	11	16	212	97	269	134	100	49	18	9.8	8.3
21	11	10	15	313	88	236	134	109	47	18	9.8	8.0
22	10	10	15	328	82	265	126	116	44	18	9.5	7.7
23	10	12	17	310	82	219	114	114	45	18	9.8	7.7
24	10	11	19	212	115	183	107	113	44	18	10	7.7
25	10	10	17	140	142	157	103	116	39	17	9.8	8.9
26	9.9	10	17	108	140	142	98	122	37	16	9.5	9.8
27	10	22	16	106	130	134	95	120	36	15	9.2	10
28	9.9	36	16	102	113	118	90	107	34	16	8.6	8.9
29	9.9	18	18	85	-	113	85	102	34	16	8.3	8.0
30	9.6	22	17	76	-	111	86	109	33	15	8.0	7.7
31	9.6	-	17	62	-	118	-	111	-	14	8.0	-

Month	Observed				Grayback Canal diversion (acre-feet)	Adjusted for diversion			
	Discharge in second-feet			Runoff in acre-feet		Runoff in acre-feet	Discharge in second-feet		Runoff in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October.....	28	5.8	10.8	663	118	781	12.7	0.527	0.61
November.....	36	9.3	13.8	820	45	865	14.5	.602	.67
December.....	23	14	16.8	1,030	73	1,100	17.9	.743	.86
Calendar year 1949	317	5.5	36.0	26,050	1,820	27,870	38.5	1.60	21.68
January.....	454	14	98.5	6,050	106	6,160	100	4.15	4.78
February.....	162	51	96.9	5,380	35	5,420	97.6	4.05	4.22
March.....	476	66	158	9,700	57	9,760	159	6.60	7.61
April.....	134	85	107	6,390	72	6,460	109	4.52	5.04
May.....	122	69	99.9	6,140	116	6,260	102	4.23	4.88
June.....	109	33	59.0	3,510	93	3,600	60.5	2.51	2.80
July.....	30	13	20.2	1,240	212	1,450	23.6	.979	1.13
August.....	13	8.0	10.9	673	207	880	14.3	.593	.68
September.....	10	6.8	7.75	461	234	695	11.7	.485	.54
Water year 1949-50	476	5.8	58.1	42,060	1,370	43,430	60.0	2.49	33.82

Peak discharge (base, 300 sec.-ft.).— Jan. 18 (7 a.m.) 564 sec.-ft.; Jan. 22 (9 a.m.) 367 sec.-ft.;
Mar. 17 (7 a.m.) 688 sec.-ft.; Mar. 21 (11 p.m.) 363 sec.-ft.

West Fork Illinois River near O'Brien, Oreg.

Location.--Staff gage, lat. 42°04', long. 123°43', in NW¼ sec. 25, T. 40 S., R. 9 W., 800 feet upstream from bridge on U. S. Highway 199 and half a mile southwest of O'Brien. Datum of gage is 1,404.37 feet above mean sea level, datum of 1929.

Drainage area.--46.6 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey. February to November 1930 and February 1943 to September 1945 in files of State engineer.

Extremes.--Maximum discharge observed during year, 8,560 second-feet Jan. 18 (gage height, 10.2 feet, from floodmark); minimum observed, 3.2 second-feet Sept. 7, 1930, 1943-50: Maximum discharge, 13,400 second-feet Dec. 28, 1945 (gage height, 12.63 feet, present site and datum, from floodmark), from rating curve extended above 7,200 second-feet on basis of slope-area computation at gage height 12.96 feet; minimum, 2.1 second-feet Sept. 16, 17, 1945.

Remarks.--Records good. Staff gage read once daily October, November, May to September; twice daily or oftener for rest of year. One small diversion above station.

Rating tables, water year 1949-50 (gage height, in feet, and discharge, in second-feet)
(Backwater from leaves Oct. 1 to Nov. 8)

Oct. 1 to Jan. 17					Jan. 17 to Sept. 30						
0.5	3.9	1.2	80	3.0	640	0.5	2.8	1.4	115	4.0	1,250
.6	8.8	1.4	120	3.5	880	.6	6.8	1.7	189	5.0	1,960
.7	16	1.7	190	4.0	1,150	.7	13	2.0	280	6.0	2,830
.8	25	2.0	270	5.0	1,840	.8	21	2.5	460	7.0	3,860
1.0	48	2.5	430			1.0	43	3.0	680	8.0	5,070
						1.2	74	3.5	940	9.1	6,660

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.3	8.3	152	195	274	277	322	156	36	19	7.4	4.4
2	6.4	7.3	138	178	243	264	301	261	33	18	7.4	4.4
3	6.4	7.3	112	150	219	296	268	240	31	16	6.8	4.4
4	5.4	8.3	91	132	562	360	234	192	31	16	6.8	4.4
5	9.5	8.3	518	110	1,480	830	252	189	30	15	6.8	4.4
6	8.3	8.3	354	101	1,530	640	274	195	30	15	6.8	3.6
7	30	8.3	235	134	800	436	268	174	33	16	6.8	3.2
8	14	9.5	180	143	655	360	264	164	33	15	6.8	4.4
9	9.5	246	143	150	660	304	246	159	31	15	6.8	4.4
10	56	210	118	672	630	336	222	139	43	15	7.4	4.4
11	20	188	99	374	675	318	204	134	43	14	6.8	5.2
12	14	116	82	238	496	277	271	120	51	14	6.8	3.6
13	12	73	75	264	452	249	374	107	38	14	6.8	4.4
14	11	54	66	381	567	231	336	98	33	13	6.4	5.2
15	8.3	43	60	240	562	219	264	98	31	13	6.0	4.8
16	8.3	38	80	205	1,330	813	246	78	25	12	6.0	4.4
17	7.3	32	315	1,720	755	3,440	219	74	31	12	6.0	5.2
18	7.3	27	865	6,540	512	1,670	204	71	30	12	5.2	9.3
19	6.4	25	368	2,120	410	2,410	189	67	28	12	5.2	6.8
20	7.3	23	238	1,670	368	970	184	64	27	12	5.2	6.0
21	7.3	21	183	3,330	308	730	164	57	25	11	6.8	6.0
22	7.3	20	145	2,630	280	1,160	156	57	23	11	6.4	6.0
23	8.3	20	136	2,730	304	868	137	54	23	9.9	6.0	5.6
24	8.3	21	222	1,170	695	896	122	51	25	9.9	6.0	5.6
25	8.3	18	183	680	690	720	115	49	23	9.9	6.8	6.8
26	8.3	21	176	508	496	532	107	46	23	9.3	6.4	6.8
27	9.5	847	161	1,040	399	576	102	43	21	9.3	6.4	13
28	8.3	330	141	970	322	492	96	54	21	8.0	6.0	11
29	7.3	264	200	567	-	392	94	43	20	9.3	5.2	6.7
30	7.3	210	228	428	-	346	86	40	19	9.3	6.0	7.4
31	7.3	-	195	336	-	346	-	38	-	8.0	4.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	342.2	56	5.4	11.0	679
November.....	2,912.6	847	7.3	97.1	5,780
December.....	6,279	865	60	203	12,450
Calendar year 1949	50,526.0	2,600	2.7	138	100,200
January.....	30,106	6,540	101	971	59,710
February.....	16,674	1,530	219	596	33,070
March.....	21,858	3,440	219	705	45,350
April.....	6,343	374	86	211	12,580
May.....	3,312	261	38	107	6,570
June.....	891	51	19	29.7	1,770
July.....	392.9	19	8.0	12.7	779
August.....	196.6	7.4	4.4	6.34	390
September.....	173.8	13	3.2	5.79	345
Water year 1949-50	89,481.1	6,540	3.2	245	177,500

Deer Creek near Dryden, Oreg.

Location.--Water-stage recorder, lat. $42^{\circ}16'$, long. $123^{\circ}27'$, near center of sec. 18, T. 38 S., R. 6 W., 500 feet downstream from confluence of North and South Forks and 5 miles east of Dryden. Datum of gage is 1,650.10 feet above mean sea level (surveys by Bureau of Reclamation).

Drainage area.--23 square miles.

Records available.--October 1945 to September 1950 in reports of Geological Survey. November 1941 to September 1945 in files of State engineer.

Extremes.--Maximum discharge during year, 1,080 second-feet Jan. 18 (gage height, 5.82 feet); minimum, 1.1 second-feet Sept. 3.

1941-50: Maximum discharge, 2,750 second-feet Dec. 28, 1945 (gage height, 8.1 feet, present datum, from graph based on gage readings), from rating curve extended above 850 second-feet by logarithmic plotting; minimum observed, 1 second-foot Sept. 3-7, 22-27, Oct. 2-7, 9, 1942, Sept. 23, 1949.

Remarks.--Records fair. No regulation. One small diversion above station for irrigation.

Discharge, in second-feet, water year October 1949 to September 1950

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	2.4	20	27	73	102	152	68	47	8.0	2.9	1.8
2	1.8	2.6	16	23	62	100	155	64	43	7.7	2.6	1.3
3	1.6	2.6	12	19	56	134	127	55	37	7.3	2.6	1.3
4	1.6	2.6	11	18	65	159	110	49	35	7.0	2.6	1.6
5	2.6	2.6	43	14	127	201	113	49	31	6.6	2.9	1.8
6	4.3	3.2	26	13	258	152	119	49	29	6.3	2.9	1.6
7	7.0	3.2	18	14	161	117	100	44	26	6.0	2.6	1.6
8	5.0	4.7	18	15	127	96	86	44	22	6.0	2.6	1.6
9	6.4	29	17	16	122	82	76	47	21	5.6	2.6	1.6
10	16	22	15	37	114	73	68	63	22	5.6	2.6	1.6
11	6.6	20	11	29	110	64	65	90	24	5.6	2.6	1.6
12	5.0	14	9.2	24	93	57	90	119	29	5.3	2.6	1.3
13	4.0	11	8.4	42	89	54	110	122	23	5.0	2.4	1.3
14	3.5	12	7.7	50	114	50	95	113	21	5.0	3.2	1.6
15	2.9	13	7.3	31	146	47	82	102	19	4.7	3.7	1.8
16	2.6	14	8.0	24	278	67	82	93	19	4.7	3.7	2.1
17	2.6	12	24	97	205	688	92	86	18	4.3	3.5	4.3
18	2.6	8.8	54	852	150	459	100	76	16	4.3	3.2	4.0
19	2.6	7.3	31	501	134	678	122	65	15	4.0	2.9	3.2
20	2.6	6.3	19	483	119	372	142	65	14	4.0	2.9	2.6
21	2.6	5.6	14	808	102	300	130	76	13	4.0	2.9	2.6
22	2.6	5.3	12	764	90	417	114	85	12	3.7	2.9	2.4
23	2.4	5.3	18	706	89	302	93	79	12	3.7	3.5	2.4
24	2.4	6.0	35	411	161	256	76	69	12	3.5	3.5	1.8
25	2.4	5.3	24	226	226	187	72	67	11	3.5	3.2	3.5
26	2.4	5.0	25	148	190	154	67	69	10	3.5	2.9	5.6
27	2.4	47	22	213	152	139	65	65	9.5	3.2	2.4	5.6
28	2.4	57	20	250	119	114	64	54	9.2	3.2	2.4	4.7
29	2.4	23	29	146	-	100	59	49	8.4	3.5	2.4	4.0
30	2.4	30	39	110	-	102	58	51	8.4	3.2	2.1	3.7
31	2.6	-	32	86	-	124	-	50	-	2.9	2.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	110.1	16	1.6	3.55	0.154	0.18	218
November	382.8	57	2.4	12.8	.557	.62	759
December	645.6	54	7.3	20.8	.904	1.04	1,280
Calendar year 1949	13,222.1	506	1.1	36.2	1.57	21.38	26,210
January	6,197	852	13	200	8.70	10.02	12,290
February	3,732	278	56	135	5.78	6.03	7,400
March	5,947	688	47	192	8.35	9.62	11,800
April	2,884	155	58	96.1	4.18	4.66	5,720
May	2,177	122	44	70.2	3.05	3.52	4,320
June	616.5	47	8.4	20.6	.896	1.00	1,220
July	150.9	8.0	2.9	4.87	.212	.24	299
August	87.9	3.7	2.1	2.84	.123	.14	174
September	76.1	5.6	1.3	2.54	.110	.12	151
Water year 1949-50	23,006.9	852	1.3	63.0	2.74	37.19	45,630

Peak discharge (base, 500 sec.-ft.).--Jan. 18 (11:30 a.m.) 1,080 sec.-ft.; Jan. 22 (6 a.m.) 884 sec.-ft.; Mar. 17 (8:30 a.m.) 1,020 sec.-ft.

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 and Freewater, Oreg., amounts to about 50,000 acre-feet 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 downstream from 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 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 second-feet, of springs in Walla Walla River Basin, Oreg.-Wash., during water year October 1949 to September 1950†

Springs of the inner zone			
Date	Spring	Locality	Discharge (second-feet)
Feb. 22	Nicholas Spring, Oreg.....	NE½NE¼ sec. 24, T. 6 N., R. 35 E., 150 feet above confluence of spring channel and Walla Walla River.	1.71
June 22	....do.....	....do.....	1.78
Sept. 29	....do.....	....do.....	.53
Feb. 18	Big Spring Branch (west prong), Oreg.	SE¼NW¼ sec. 24, T. 6 N., R. 35 E., at Ballou residence, 75 feet above bridge on county road.	8.33
June 18	....do.....	....do.....	15.7
Sept. 29	....do.....	....do.....	8.14
Feb. 20	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.	2.99
June 22	....do.....	....do.....	3.78
Sept. 29	....do.....	....do.....	2.42
Feb. 18	Engle Spring, Oreg.....	NW¼SE¼ sec. 23, T. 6 N., R. 35 E., total flow at diversion dam.	3.24
June 18	....do.....	....do.....	3.05
Sept. 29	....do.....	....do.....	4.49
Feb. 18	Downing Spring, Oreg.....	SE¼SW¼ sec. 23, T. 6 N., R. 35 E., at weir 200 feet below spring orifice.	.68
June 19	....do.....	....do.....	2.50
Sept. 29	....do.....	....do.....	3.06
Feb. 18	Hauu Spring, Oreg.....	NW¼SE¼ sec. 23, T. 6 N., R. 35 E., at Hauu farm, 200 feet above highway crossing.	1.38
June 18	....do.....	....do.....	2.32
Sept. 29	....do.....	....do.....	2.20
Springs of the intermediate and other zones			
Feb. 20	McEvoy Spring, Wash.....	SE¼NW¼ sec. 10, T. 6 N., R. 35 E., at McEvoy farm, 200 feet above Walla Walla Valley.	1.75
June 18	....do.....	....do.....	3.36
Sept. 30	....do.....	....do.....	4.55
Feb. 18	Lewis Spring, Oreg.....	NW¼NW¼ sec. 23, T. 6 N., R. 35 E., below road crossing.	1.65
June 22	....do.....	....do.....	2.02
Sept. 29	....do.....	....do.....	2.50
Feb. 20	Unnamed spring, Wash.....	NW¼NE¼ sec. 16, T. 6 N., R. 35 E., at small diversion structure.	1.72
June 18	....do.....	....do.....	3.18
Sept. 30	....do.....	....do.....	3.16
Feb. 18	East Mud Creek (west prong), Oreg.	SW¼SW¼ sec. 22, T. 6 N., R. 35 E., at two weirs.	.52
June 22	....do.....	....do.....	2.71
Sept. 30	....do.....	....do.....	3.02
Feb. 18	East Mud Creek (east prong), Oreg.	SE¼SW¼ sec. 22, T. 6 N., R. 35 E., in diversion ditch 150 feet below diversion dam.	.44
June 22	....do.....	....do.....	1.45
Sept. 30	....do.....	....do.....	1.25
Feb. 20	East Mud Creek (branch of), Oreg.	SW¼SW¼ sec. 16, T. 6 N., R. 35 E., near Lockwood dwelling.	1.85
June 24	....do.....	....do.....	4.62
Sept. 30	....do.....	....do.....	3.41
Feb. 22	South Mud Creek, Oreg.....	SE¼NW¼ sec. 28, T. 6 N., R. 35 E., at Vonder Ahe farm.	.46
June 22	....do.....	....do.....	4.08

† Measurements by Umatilla County deputy watermaster.

¹Piper, A. M., Robinson, T. W., and Thomas, H. E., Ground Water in the Walla Walla 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.

SPRINGS IN THE WALLA WALLA RIVER BASIN, OREG.-WASH.

Discharge measurements in second-feet, of springs in Walla Walla River Basin, Oreg.-Wash., during water year October 1949 to September 1950†--Continued

Springs of the intermediate and other zones--Continued

Date	Spring	Locality	Discharge (second-feet)
Oct. 2	South Mud Creek, Oreg.....	SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 28, T. 6 N., R. 35 E., at Vonder Ahe farm.	3.18
Feb. 18	Johnson Creek, Oreg.....	SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 6 N., R. 35 E., at two weirs.	1.07
June 20	....do.....	....do.....	3.68
Sept. 30	....do.....	....do.....	2.93
Feb. 18	Dugger Creek, Oreg.....	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 32, T. 6 N., R. 35 E., at two weirs.	3.69
June 20	....do.....	....do.....	9.82
Sept. 30	....do.....	....do.....	7.00
Feb. 22	Schwartz Spring Branch (south prong), Oreg.	SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 23, T. 6 N., R. 34 E., at weirs.	4.74
June 20	....do.....	....do.....	5.57
Oct. 1	....do.....	....do.....	2.40
Feb. 22	Schwartz Spring Branch (north prong), Oreg.	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 23, T. 6 N., R. 34 E., in ditch diverting from spring.	1.57
June 20	....do.....	....do.....	2.83
Oct. 1	....do.....	....do.....	3.50
Feb. 22	South Mud Creek, Oreg.....	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 13, T. 6 N., R. 34 E., at Krumbaugh farm.	.91
June 22	....do.....	....do.....	2.96
Oct. 1	....do.....	....do.....	4.35

† Measurements by Umatilla County deputy watermaster.

Measurements of stream flow in the Pacific slope basins in Oregon and lower Columbia River Basin made at points other than gaging stations are given in the following table:

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950

Willow Creek Basin, Oreg.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Feb. 27	Willow Creek.....	Columbia River.....	Above Hinton Creek, at southeast limit of Heppner.	77.1
June 17	Balm Canyon.....	Rhea Creek.....	SE $\frac{1}{4}$ sec. 15, T. 4 S., R. 26 E., $\frac{1}{2}$ mile above mouth and 10 miles south of Heppner.	**2,700

**Flow at crest stage; computed by slope-area method.

John Day River Basin, Oreg.

Aug. 30	Canyon Creek.....	John Day River.....	Sec. 1, T. 15 S., R. 31 E., 6 miles south of Canyon City.	3.91
Nov. 10	Lake Creek.....	East Fork Beech Creek.	Sec. 7, T. 12 S., R. 32 E., at outlet of Magone Lake, 12 miles northwest of Frairie City.	a.0
Aug. 30	.....do.....	.....do.....	.....do.....	0
31	South Fork John Day River.	John Day River.....	Highway bridge at mouth at Dayville..	13.0
31	Rock Creek.....	.....do.....	Mouth, $\frac{7}{8}$ miles northwest of Dayville	a.8

a Estimated.

Deschutes River Basin, Oreg.

Oct. 31	Deschutes River..	Columbia River.....	NW $\frac{1}{4}$ sec. 28, T. 21 S., R. 8 E., at former gaging station below Sheep Springs, near Lapine.	1,020
Nov. 10	.....do.....	.....do.....	.....do.....	533
Sept. 6	.....do.....	.....do.....	.....do.....	517
12	.....do.....	.....do.....	.....do.....	517
28	.....do.....	.....do.....	.....do.....	505
Feb. 10	.....do.....	.....do.....	Sec. 7, T. 18 S., R. 12 E., 1,600 feet downstream from gage above Mill Pond, near Bend.	579
15	.....do.....	.....do.....	Near north line sec. 7, T. 18 S., R. 12 E., 2,200 feet downstream from gage above Mill Pond, near Bend.	576
May 15	.....do.....	.....do.....	SE $\frac{1}{4}$ sec. 6, T. 18 S., R. 12 E., at cableway 3,200 feet downstream from gage above Mill Pond, near Bend.	*1,440
23	.....do.....	.....do.....	.....do.....	*1,670
June 13	.....do.....	.....do.....	.....do.....	*2,260
29	.....do.....	.....do.....	.....do.....	*1,390
July 13	.....do.....	.....do.....	.....do.....	*1,870
21	.....do.....	.....do.....	.....do.....	*1,820
Aug. 7	.....do.....	.....do.....	.....do.....	*1,850
14	.....do.....	.....do.....	.....do.....	*1,730
28	.....do.....	.....do.....	.....do.....	*1,710
Sept. 18	.....do.....	.....do.....	.....do.....	*1,510
June 14	Little Deschutes River.	Deschutes River.....	SE $\frac{1}{4}$ sec. 30, T. 20 S., R. 11 E., at Johnson Ranch, 10 miles north of Lapine.	*1,010
Sept. 28	Davis Creek.....	.....do.....	SW $\frac{1}{4}$ sec. 7, T. 22 S., R. 8 E., below springs at north head of creek.	*81.9
28	.....do.....	.....do.....	NW $\frac{1}{4}$ sec. 8, T. 22 S., R. 8 E., above unnamed left-bank tributary.	*223
Oct. 3	.....do.....	.....do.....	SE $\frac{1}{4}$ sec. 5, T. 22 S., R. 8 E., downstream from unnamed left-bank tributary.	*228
11	Spring River.....	.....do.....	SW $\frac{1}{4}$ sec. 1, T. 20 S., R. 10 E., 14 miles north of Lapine.	*28.5
Aug. 25	South Fork Crooked River.	Crooked River.....	Mouth, 5 miles southwest of Paulina.	a1.5
25	Bear Creek.....	.....do.....	Mouth, 15 miles south of Prineville.	a.7
24	Ochoco Creek.....	.....do.....	NE $\frac{1}{4}$ sec. 1, T. 15 S., R. 17 E., above Lawson Creek, 11 miles east of Prineville.	2.76
24	Mill Creek.....	Ochoco Creek.....	SW $\frac{1}{4}$ sec. 26, T. 14 S., R. 17 E., at highway crossing east of Prineville.	0
24	McKay Creek.....	Crooked River.....	NW $\frac{1}{4}$ sec. 24, T. 14 S., R. 15 E., 3 miles north of Prineville.	8.60
23	Shitike Creek.....	Deschutes River.....	Mouth, at Warm Springs.....	94.6
23	Badger Creek.....	Warm Springs River..	Two channels in sec. 19, T. 7 S., R. 11 E., at bridge 2 miles above mouth.	16.7
23	Mill Creek.....	.....do.....	Sec. 19, T. 8 S., R. 11 E., at site of former gaging station near Warm Springs.	50.6
23	Boulder Creek....	Mill Creek.....	NE $\frac{1}{4}$ sec. 31, T. 8 S., R. 11 E., at road crossing.	0
23	Middle Creek.....	Boulder Creek.....	SE $\frac{1}{4}$ sec. 30, T. 8 S., R. 11 E., at bridge.	0
23	Beaver Creek.....	Warm Springs River..	SW $\frac{1}{4}$ sec. 8, T. 7 S., R. 11 E., at road bridge.	20.9
12	Clear Creek.....	White River.....	Outlet of Clear Lake, near Government Camp.	8.38

* Furnished by Deschute County watermaster.

a Estimated.

Mill Creek Basin, Oreg.

Sept. 19	Mill Creek.....	Columbia River.....	SE $\frac{1}{4}$ sec. 14, T. 1 N., R. 12 E., 5 miles by road southwest of The Dalles.	1.37
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MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Klickitat River Basin, Wash.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Oct. 25	Big Muddy Creek..	Klickitat River.....	W $\frac{1}{2}$ sec. 27, T. 8 N., R. 12 E., at site of former gaging station 1 1/5 miles above Cougar Creek and 9 $\frac{1}{2}$ miles north of Glenwood.	39.5
Nov. 30	....do.....	....do.....	....do.....	144
Feb. 15	....do.....	....do.....	....do.....	70.4
Apr. 3	....do.....	....do.....	....do.....	76.5
May 19	....do.....	....do.....	....do.....	178
July 7	....do.....	....do.....	....do.....	290
Oct. 27	Little Klickitat River.	....do.....	SE $\frac{1}{4}$ sec. 9, T. 4 N., R. 14 E., at gaging station, $\frac{1}{2}$ mile above mouth and 2 miles northeast of Wahkiacus.	34.9
Dec. 1	....do.....	....do.....	....do.....	58.9
Feb. 1	....do.....	....do.....	....do.....	88.9
Mar. 12	....do.....	....do.....	....do.....	415
Apr. 5	....do.....	....do.....	....do.....	445
May 20	....do.....	....do.....	....do.....	246
July 10	....do.....	....do.....	....do.....	67.2
Aug. 9	....do.....	....do.....	....do.....	35.3
Sept. 26	....do.....	....do.....	....do.....	36.6

Mosier Creek Basin, Oreg.

Sept. 18	Mosier Creek.....	Columbia River.....	NE $\frac{1}{4}$ sec. 12, T. 2 N., R. 11 E., a mile southeast of Mosier.	2.18
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Rock Creek Basin, Oreg.

Sept. 18	Rock Creek.....	Columbia River.....	Sec. 2 T. 2 N., R. 11 E., at highway crossing at Mosier.	0
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Hood River Basin, Oreg.

Sept. 19	East Fork Hood River.	Hood River.....	At site of former gaging station (below East Fork Irrigation District Canal), near Mount Hood.	59.3
20	Hood River.....	Columbia River.....	At site of former gaging station at Tucker Bridge, near Hood River.	325
19	Middle Fork Hood River.	Hood River.....	Above Tony Creek, 2 $\frac{1}{2}$ miles south of Dee.	67.4
19	Tony Creek.....	Middle Fork Hood River.	Mouth, 2 $\frac{1}{2}$ miles south of Dee.....	11.5
19	Dead Point Creek	West Fork Hood River	NW $\frac{1}{4}$ sec. 1, T. 1 N., R. 9 E., above diversion for fish hatchery, 0.3 mile above mouth.	3.49
20	Neal Creek.....	Hood River.....	Sec. 15, T. 2 N., R. 10 E., below highway crossing, 1 mile above mouth.	19.2
20	Indian Creek.....	....do.....	SW $\frac{1}{4}$ sec. 36, T. 3 N., R. 10 E., at highway crossing, below diversion, at south limit of Hood River.	11.2

Little White Salmon River Basin, Wash.

Oct. 28	Broughton Lumber Co. diversion.	Little White Salmon River.	SW $\frac{1}{4}$ sec. 36, T. 4 N., R. 9 E., at Willard.	20.1
Mar. 10	....do.....	....do.....	....do.....	19.1
Apr. 6	....do.....	....do.....	....do.....	18.1
July 12	....do.....	....do.....	....do.....	21.9
Sept. 27	....do.....	....do.....	....do.....	18.3

Minor basins between Hood River and Sandy River, Oreg.

Sept. 20	Phelps Creek.....	Columbia River.....	SW $\frac{1}{4}$ sec. 27, T. 3 N., R. 10 E., at highway crossing.	4.04
20	Perham Creek.....	....do.....	Mouth, 6 miles west of Hood River.....	1.70
20	Viento Creek.....	....do.....	Mouth, at Viento.....	2.58
21	Starvation Creek.	....do.....	Mouth, 1 mile southwest of Viento.....	2.28
21	Cabin Creek.....	....do.....	NE $\frac{1}{4}$ sec. 4, T. 2 N., R. 9 E., at highway crossing 1 $\frac{1}{2}$ miles southwest of Viento.	a.2
21	Warren Creek.....	....do.....	Sec. 4 T. 2 N., R. 9 E., at highway crossing 2 miles southwest of Viento.	a.5
22	Lindsey Creek....	....do.....	NE $\frac{1}{4}$ sec. 5 T. 2 N., R. 9 E., at highway crossing at mouth, 3 miles east of Wyeth.	6.63
21	Summit Creek.....	....do.....	NW $\frac{1}{4}$ sec. 5, T. 2 N., R. 9 E., 300 feet above highway crossing and 2 miles east of Wyeth.	a.3
21	....do.....	....do.....	Highway crossing, 2 miles east of Wyeth.	0
21	Herman Creek.....	....do.....	NW $\frac{1}{4}$ sec. 6, T. 1 N., R. 8 E., below highway crossing, 2 miles northeast of Cascade Locks.	19.8
21	Eagle Creek.....	....do.....	Mouth, 1 $\frac{1}{2}$ miles northeast of Bonneville.	32.9
21	Tanner Creek.....	....do.....	Above diversion $\frac{1}{2}$ mile above mouth, at Bonneville.	42.6
22	Horsetail Creek..	....do.....	Below falls at mouth, 2 miles southwest of Dodson.	3.07
22	Oneonta Creek....	....do.....	Above highway at mouth, 2 miles southwest of Dodson.	1.97

a Estimated.

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Minor Basins between Hood River and Sandy River, Oreg.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Sept. 22	Multnomah Creek	Columbia River.....	Mouth, below Multnomah Falls.....	2.95
22	Bridal Veil Creek.	....do.....	Above falls, $\frac{1}{2}$ mile above mouth, at Bridal Veil.	9.76
Nov. 4	Cedar Creek....	Sandy River.....	SW $\frac{1}{4}$ sec. 18, T. 2 S., R. 5 E., 1 mile above mouth and 1 mile east of Sandy.	13.5
4	Gordon Creek....	....do.....	SW $\frac{1}{4}$ sec. 11, T. 1 S., R. 4 E., at mouth, 5 miles northwest of Bull Run.	21.6
Sept. 8	Unnamed stream..	Columbia River.....	NW $\frac{1}{4}$ sec. 30, T. 1 N., R. 3 E., above small diversion dam off 162d Ave., Portland.	.04

Willamette River Basin, Oreg.

July 27	Waldo Lake tunnel.	Black Creek.....	Outlet of unused tunnel from Kloudahl Bay.	9.46
Aug. 30	Coast Fork Willamette River	Willamette River....	NW $\frac{1}{4}$ sec. 29, T. 18 S., R. 2 W., 2.5 miles east of Goshen.	147
Oct. 5	Teeter Creek....	Row River.....	Mouth, near Dorena.....	*4.1
11	....do.....	....do.....	....do.....	*29.8
18	....do.....	....do.....	....do.....	*8.4
26	....do.....	....do.....	....do.....	*6.5
Nov. 8	....do.....	....do.....	....do.....	*14.5
22	....do.....	....do.....	....do.....	*6.8
25	....do.....	....do.....	....do.....	*33.4
29	....do.....	....do.....	....do.....	*65.6
Dec. 6	....do.....	....do.....	....do.....	*103
20	....do.....	....do.....	....do.....	*81.6
Oct. 11	Rat Creek.....	....do.....	Mouth, at Dorena.....	*8.5
18	....do.....	....do.....	....do.....	*3.6
26	....do.....	....do.....	....do.....	*1.5
Nov. 8	....do.....	....do.....	....do.....	*44
22	....do.....	....do.....	....do.....	*2.4
25	....do.....	....do.....	....do.....	*17.0
29	....do.....	....do.....	....do.....	*34.9
Dec. 6	....do.....	....do.....	....do.....	*57.0
20	....do.....	....do.....	....do.....	*49.4
Nov. 2	McKenzie River..	Willamette River....	N $\frac{1}{2}$ sec. 20, T. 14 S., R. 7 E., 500 feet downstream from Middle Falls.	405
Aug. 4	....do.....	....do.....	....do.....	654
Nov. 2	....do.....	....do.....	NW $\frac{1}{4}$ sec. 20, T. 14 S., R. 7 E., $\frac{1}{3}$ mile below Middle Falls.	452
Feb. 10	....do.....	....do.....	....do.....	527
Mar. 21	....do.....	....do.....	....do.....	881
June 1	....do.....	....do.....	....do.....	1,190
Aug. 4	....do.....	....do.....	....do.....	697
Nov. 2	....do.....	....do.....	NE $\frac{1}{4}$ sec. 1, T. 15 S., R. 6 E., 0.3 mile upstream from Kink Creek and 1 mile below Lower Falls.	617
Mar. 21	....do.....	....do.....	....do.....	1,290
June 1	....do.....	....do.....	....do.....	1,570
July 21	....do.....	....do.....	....do.....	1,050
Aug. 4	....do.....	....do.....	....do.....	970
12	Smith River....	McKenzie River....	600 feet above mouth, 6 miles north of Belknap Springs.	*29.7
June 1	Anderson Creek..	....do.....	Mouth, 5 miles north of Belknap Springs.	37.2
Oct. 12	Gate Creek.....	....do.....	Mouth, at Vida.....	91.8
Nov. 18	....do.....	....do.....	....do.....	35.0
Jan. 11	....do.....	....do.....	....do.....	210
Feb. 22	....do.....	....do.....	....do.....	464
Apr. 6	....do.....	....do.....	....do.....	420
May 15	....do.....	....do.....	....do.....	234
July 15	....do.....	....do.....	....do.....	42.3
Aug. 23	....do.....	....do.....	....do.....	28.9
18	Bear Creek.....	Coyote Creek.....	NE $\frac{1}{4}$ sec. 22, T. 18 S., R. 5 W., 7 miles southeast of Crow.	.27
Apr. 5	Bowers Slough...	Willamette River....	NE $\frac{1}{4}$ sec. 33, T. 10 S., R. 4 W., at road bridge 4 miles northeast of Albany.	4.63
July 20	Calapooya River.	....do.....	Mouth, below power plant tailrace, at Albany.	224
Aug. 24	....do.....	....do.....	....do.....	143
Nov. 3	Middle Santiam River.	South Santiam River.	At site of former gaging station, near Foster.	297
Dec. 15	....do.....	....do.....	....do.....	1,310
Mar. 8	....do.....	....do.....	....do.....	5,030
Apr. 13	....do.....	....do.....	....do.....	3,310
May 23	....do.....	....do.....	....do.....	2,830
July 19	....do.....	....do.....	....do.....	370
Aug. 23	....do.....	....do.....	....do.....	218
Nov. 2	Albany power canal.	....do.....	Above power plant at Albany.....	80.2
Dec. 31	Little Luckiamute River.	Luckiamute River....	At road bridge 0.5 mile above mouth near Suver.	1,290
Feb. 8	....do.....	....do.....	....do.....	1,730
Mar. 20	....do.....	....do.....	....do.....	1,100
June 13	....do.....	....do.....	....do.....	59.8
Sept. 11	....do.....	....do.....	....do.....	12.5
Aug. 14	Unnamed stream..	Spring Valley Creek.	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 24, T. 6 S., R. 4 W., on Purvie Ranch, below all springs.	.15

* Furnished by Corps of Engineers.

† Furnished by Eugene Water and Electric Board.

MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Willamette River Basin, Oreg.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Sept. 12	Turner Creek....	North Yamhill River.	SW $\frac{1}{4}$ sec. 10, T. 2 S., R. 5 W., above city of Yamhill diversion, 7 $\frac{1}{2}$ miles northwest of Yamhill.	1.32
12	....do.....	....do.....	SW $\frac{1}{4}$ sec. 10, T. 2 S., R. 5 W., below city of Yamhill diversion, 7 $\frac{1}{2}$ miles northwest of Yamhill.	.04
12	....do.....	....do.....	Sec. 14 or 15, T. 2 S., R. 5 W., 6 $\frac{1}{2}$ miles northwest of Yamhill.	.1
Dec. 20	....do.....	....do.....	Mouth, 4 miles northwest of Yamhill....	50.9
Aug. 22	....do.....	....do.....	....do.....	.09
Sept. 12	....do.....	....do.....	....do.....	0
Oct. 20	Mill Creek.....	Pudding River.....	Mouth, at Aurora.....	10.4
Aug. 11	....do.....	....do.....	....do.....	7.92
Sept. 21	....do.....	....do.....	....do.....	7.68

Lake River Basin**

1949				
Apr. 12c	Burntbridge Creek.	Vancouver Lake.....	NW $\frac{1}{4}$ sec. 15, T. 2 N., R. 1 E., at old culvert $\frac{1}{2}$ mile west of U. S. Highway 99 and 1 $\frac{1}{2}$ miles north of Vancouver	10.0
12c	Salmon Creek....	Lake River.....	NW $\frac{1}{4}$ sec. 7, T. 3 N., R. 3 E., at road crossing 5 miles west of Venersborg.	27.9
12c	....do.....	....do.....	SW $\frac{1}{4}$ sec. 25, T. 3 N., R. 1 E., at road crossing 1 mile northeast of U. S. Highway 99 crossing and 5 miles north of Vancouver.	46.6
1950				
Apr. 4	....do.....	....do.....	SE $\frac{1}{4}$ sec. 26, T. 3 N., R. 1 E., at crossing of U. S. Highway 99, 4 miles north of Vancouver.	216
10	....do.....	....do.....	....do.....	271
May 15	....do.....	....do.....	....do.....	68.6
24	....do.....	....do.....	....do.....	46.5
July 5	....do.....	....do.....	....do.....	24.7
17	....do.....	....do.....	....do.....	22.5
Aug. 7	....do.....	....do.....	....do.....	18.6
18	....do.....	....do.....	....do.....	16.2

** Includes measurements made in water year 1949.

c Erroneously published in Water-Supply Paper 1154 as Sept. 12.

Cowlitz River Basin, Wash.

Aug. 29	Purcell Creek...	Cowlitz River.....	SW $\frac{1}{4}$ sec. 29, T. 14 N., R. 10 E., at highway crossing, 6 miles northeast of Packwood.	91.3
29	Unnamed stream..	....do.....	S $\frac{1}{2}$ sec. 31, T. 14 N., R. 10 E., at highway crossing, 4 $\frac{1}{2}$ miles northeast of Packwood.	9.02
30	Coal Creek.....	....do.....	NW $\frac{1}{4}$ sec. 6, T. 13 N., R. 10 E., at highway crossing, 4 miles northeast of Packwood.	14.2
Sept. 22	....do.....	....do.....	....do.....	7.06
10	Lake Creek.....	....do.....	NE $\frac{1}{4}$ sec. 20, T. 13 N., R. 10 E., 2,000 feet below Packwood Lake and 4 $\frac{1}{2}$ miles east of Packwood.	49.0
Aug. 7	....do.....	....do.....	NE $\frac{1}{4}$ sec. 11, T. 13 N., R. 9 E., at highway crossing, 2 $\frac{1}{2}$ miles northeast of Packwood.	127
Sept. 6	....do.....	....do.....	....do.....	80.9
June 29	Johnson Creek...	....do.....	SE $\frac{1}{4}$ sec. 32, T. 13 N., R. 9 E., $\frac{1}{2}$ mile above mouth and 2 $\frac{1}{2}$ miles southwest of Packwood.	712
Aug. 29	Unnamed stream..	....do.....	SW $\frac{1}{4}$ sec. 32, T. 13 N., R. 9 E., at highway crossing, 3 $\frac{1}{2}$ miles southwest of Packwood.	No flow
July 18	Smith Creek.....	....do.....	SW $\frac{1}{4}$ sec. 32, T. 13 N., R. 9 E., at highway crossing, 3 $\frac{1}{2}$ miles southwest of Packwood.	77.4
Aug. 8	....do.....	....do.....	....do.....	22.3
Sept. 7	....do.....	....do.....	....do.....	10.2
Aug. 29	Dry Creek.....	....do.....	NW $\frac{1}{4}$ sec. 5, T. 12 N., R. 9 E., at highway crossing, 4 miles southwest of Packwood.	No flow
30	Willame Creek...	....do.....	S $\frac{1}{2}$ sec. 31, T. 13 N., R. 9 E., 500 feet above mouth and 4 miles southwest of Packwood.	12.6
Sept. 22	....do.....	....do.....	....do.....	8.33
Aug. 29	Unnamed stream..	....do.....	NE $\frac{1}{4}$ sec. 12, T. 12 N., R. 8 E., at county road crossing, 100 feet north of highway and S $\frac{1}{2}$ miles southwest of Packwood.	No flow
29	Burton Creek....	....do.....	SW $\frac{1}{4}$ sec. 12, T. 12 N., R. 8 E., at highway crossing, 6 miles southwest of Packwood.	1.45
Sept. 21	....do.....	....do.....	....do.....	.71
Aug. 29	Garret Creek....	....do.....	W $\frac{1}{2}$ sec. 14, T. 12 N., R. 8 E., at highway crossing, 7 $\frac{1}{2}$ miles southwest of Packwood.	a.30
29	Unnamed stream..	....do.....	NE $\frac{1}{4}$ sec. 15, T. 12 N., R. 8 E., at highway crossing, 8 miles southwest of Packwood.	No flow

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Cowlitz River Basin, Wash.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Aug. 30	Unnamed stream..	Cowlitz River.....	NW $\frac{1}{4}$ sec. 22, T. 12 N., R. 8 E., at road crossing, 9 miles southwest of Packwood.	No flow
30	Kilborn Creek...	...do.....	NE $\frac{1}{4}$ sec. 21, T. 12 N., R. 8 E., at road crossing, 7 miles east of Randle.	1.90
30	Cougar Creek....	...do.....	N $\frac{1}{2}$ sec. 21, T. 12 N., R. 8 E., at road crossing, 7 miles east of Randle.	No flow
30	Owens Creek.....	...do.....	SW $\frac{1}{4}$ sec. 20, T. 12 N., R. 8 E., at road crossing, 6 miles southeast of Randle.	a.30
30	Cunningham Creek	...do.....	SE $\frac{1}{4}$ sec. 19, T. 12 N., R. 8 E., at road crossing, 5 $\frac{1}{2}$ miles southeast of Randle.	a.15
July 18	Davis Creek.....	Purcell Slough.....	NW $\frac{1}{4}$ sec. 16, T. 12 N., R. 8 E., at highway crossing, 7 miles east of Randle.	34.0
Aug. 8	....do.....	...do.....	....do.....	10.3
Sept. 7	....do.....	...do.....	....do.....	4.90
Aug. 29	Hopkins Creek...	...do.....	NW $\frac{1}{4}$ sec. 17, T. 12 N., R. 8 E., at highway crossing, 6 miles east of Randle.	No flow
29	Sethe Creek.....	Cowlitz River.....	SW $\frac{1}{4}$ sec. 7, T. 12 N., R. 8 E., at highway crossing, 4 $\frac{1}{2}$ miles east of Randle.	No flow
29	Unnamed stream..	Sethe Creek.....	SE $\frac{1}{4}$ sec. 12, T. 12 N., R. 7 E., at highway crossing, 4 $\frac{1}{2}$ miles east of Randle.	*a.20
29	Surrey Creek....	Cowlitz River.....	SE $\frac{1}{4}$ sec. 11, T. 12 N., R. 7 E., at highway crossing, 3 $\frac{1}{2}$ miles east of Randle.	No flow
30	Unnamed stream..	...do.....	NE $\frac{1}{4}$ sec. 22, T. 12 N., R. 7 E., at road crossing, 2 $\frac{1}{2}$ miles southeast of Randle.	No flow
Oct. 6	Silver Creek....	...do.....	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10, T. 12 N., R. 7 E., 300 feet above highway crossing, 2 miles east of Randle.	129
Aug. 29	Mill Creek.....	...do.....	S $\frac{1}{2}$ sec. 8, T. 12 N., R. 7 E., 50 feet below highway crossing, at Randle.	.49
Sept. 21	....do.....	...do.....	....do.....	.32
Oct. 6	Kiona Creek....	...do.....	NW $\frac{1}{4}$ sec. 10, T. 12 N., R. 6 E., at highway crossing, 4 miles west of Randle.	15.4
June 29	....do.....	...do.....	N $\frac{1}{2}$ sec. 14, T. 12 N., R. 6 E., at county bridge, 3 miles west of Randle.	55.1
July 20	....do.....	...do.....	....do.....	11.0
Aug. 8	....do.....	...do.....	....do.....	5.16
Sept. 9	....do.....	...do.....	....do.....	1.57
Oct. 26	....do.....	...do.....	SE $\frac{1}{4}$ sec. 18, T. 12 N., R. 7 E., at county bridge, 1 $\frac{1}{2}$ miles southwest of Randle.	13.8
June 15	....do.....	...do.....	....do.....	114
29	Squaw Creek....	Kiona Creek.....	N $\frac{1}{2}$ sec. 14, T. 12 N., R. 6 E., at county bridge, 3 miles west of Randle.	3.33
Sept. 9	....do.....	...do.....	....do.....	1.12
Aug. 28	Blind Creek....	Squaw Creek.....	NE $\frac{1}{4}$ sec. 14, T. 12 N., R. 6 E., at county bridge, 3 miles west of Randle.	No flow
July 20	Big Springs Creek.	Kiona Creek.....	NW $\frac{1}{4}$ sec. 13, T. 12 N., R. 6 E., at old road crossing, 0.4 mile south of highway No. 5 and 2 $\frac{1}{2}$ miles west of Randle.	.91
Aug. 8	....do.....	...do.....	....do.....	.88
Sept. 9	....do.....	...do.....	....do.....	.53
Aug. 28	Oliver Creek....	...do.....	SE $\frac{1}{4}$ sec. 12, T. 12 N., R. 6 E., at highway crossing, 2 miles west of Randle.	1.23
Sept. 20	....do.....	...do.....	....do.....	.59
Aug. 28	Peters Creek....	...do.....	SW $\frac{1}{4}$ sec. 7, T. 12 N., R. 7 E., at highway crossing, 1 mile west of Randle.	a.03
Oct. 6	Silver Creek....	Cowlitz River.....	SE $\frac{1}{4}$ sec. 20, T. 12 N., R. 7 E., at road crossing, 1 $\frac{1}{2}$ miles south of Randle.	10.6
Sept. 1	Unnamed stream..	Silver Creek.....	NE $\frac{1}{4}$ sec. 34, T. 12 N., R. 7 E., at road crossing, 4 miles southeast of Randle.	a.10
9	....do.....	Cowlitz River.....	SE $\frac{1}{4}$ sec. 21, T. 12 N., R. 6 E., at road crossing, 5 miles southwest of Randle.	a.40
9	....do.....	...do.....	S $\frac{1}{2}$ sec. 29, T. 12 N., R. 6 E., at road crossing, 7 miles southwest of Randle.	a.30
Aug. 31	Cispus River....	...do.....	S $\frac{1}{2}$ sec. 23, T. 10 N., R. 9 E., 800 feet above road crossing below Orr Creek, 20 miles southeast of Randle.	302
31	Buck Creek.....	Cispus River.....	NE $\frac{1}{4}$ sec. 17, T. 10 N., R. 9 E., at road crossing, 18 miles southeast of Randle.	No flow
31	Doe Creek.....	...do.....	SW $\frac{1}{4}$ sec. 8, T. 10 N., R. 9 E., at road crossing, 17 miles southeast of Randle.	a.25
31	Unnamed stream..	...do.....	W $\frac{1}{2}$ sec. 31, T. 11 N., R. 9 E., at road crossing, 15 miles southeast of Randle.	a.15
31	....do.....	...do.....	NW $\frac{1}{4}$ sec. 31, T. 11 N., R. 9 E., at road crossing, 15 miles southeast of Randle.	a.10

* Furnished by Corps of Engineers.

a Estimated.

MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Cowlitz River Basin, Wash.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Aug. 31	Blue Lake Creek.	Cispus River.....	SW $\frac{1}{4}$ sec. 30, T. 11 N., R. 9 E., at road crossing, 14 miles southeast of Randle.	7.96
31	Smoothrock Creek	....do.....	NE $\frac{1}{4}$ sec. 25, T. 11 N., R. 8 E., at road crossing, 13 miles southeast of Randle.	a.15
31	Slickrock Creek.	....do.....	SE $\frac{1}{4}$ sec. 23, T. 11 N., R. 8 E., at road crossing, 12 miles southeast of Randle.	a.10
31	Unnamed stream..	....do.....	NE $\frac{1}{4}$ sec. 23, T. 11 N., R. 8 E., at road crossing, 12 miles southeast of Randle.	a.20
31	....do.....	....do.....	....do.....	a.07
31	Horse Creek.....	....do.....	NE $\frac{1}{4}$ sec. 23, T. 11 N., R. 8 E., at road crossing, 11 $\frac{1}{2}$ miles southeast of Randle.	a.15
Oct. 6	North Fork Cispus River..	....do.....	SE $\frac{1}{4}$ sec. 10, T. 11 N., R. 8 E., 200 feet below road crossing, 10 miles southeast of Randle.	61.3
July 19	....do.....	....do.....	....do.....	133
Aug. 9	....do.....	....do.....	....do.....	63.4
Sept. 8	....do.....	....do.....	....do.....	41.1
Aug. 31	Unnamed stream..	....do.....	NW $\frac{1}{4}$ sec. 16, T. 11 N., R. 8 E., at road crossing, 9 $\frac{1}{2}$ miles southeast of Randle.	No flow
31	Camp Creek.....	....do.....	NE $\frac{1}{4}$ sec. 17, T. 11 N., R. 8 E., at road crossing, 8 $\frac{1}{2}$ miles southeast of Randle.	.63
31	Dry Creek.....	....do.....	SW $\frac{1}{4}$ sec. 7, T. 11 N., R. 8 E., at road crossing, 8 miles southeast of Randle.	No flow
Oct. 26	Tower Rock Springs.	....do.....	NE $\frac{1}{4}$ sec. 13, T. 11 N., R. 7 E., at road crossing, 8 miles southeast of Randle.	3.97
Aug. 31	Stump Creek.....	....do.....	NW $\frac{1}{4}$ sec. 12, T. 11 N., R. 7 E., at road crossing, 7 miles southeast of Randle.	.67
31	Unnamed stream..	....do.....	E $\frac{1}{2}$ sec. 11, T. 11 N., R. 7 E., at road crossing, 7 miles southeast of Randle.	*.03
Sept. 1	....do.....	....do.....	NE $\frac{1}{4}$ sec. 14, T. 11 N., R. 7 E., at road crossing, 7 $\frac{1}{2}$ miles south of Randle.	No flow
July 19	Greenhorn Creek.	....do.....	SE $\frac{1}{4}$ sec. 15, T. 11 N., R. 7 E., 400 feet below road crossing and 7 $\frac{1}{2}$ miles south of Randle.	18.7
Aug. 9	....do.....	....do.....	....do.....	11.1
Sept. 1	....do.....	....do.....	....do.....	6.24
1	Falls Creek.....	....do.....	SE $\frac{1}{4}$ sec. 16, T. 11 N., R. 7 E., at road crossing, 7 $\frac{1}{2}$ miles south of Randle.	a.08
1	Nash Creek.....	....do.....	SW $\frac{1}{4}$ sec. 16, T. 11 N., R. 7 E., at road crossing, 7 miles south of Randle.	a.10
1	Iron Creek.....	....do.....	SW $\frac{1}{4}$ sec. 19, T. 11 N., R. 7 E., at road crossing, 8 miles south of Randle.	27.3
1	Unnamed stream..	....do.....	NE $\frac{1}{4}$ sec. 24, T. 11 N., R. 6 E., at road crossing, 8 miles southwest of Randle.	No flow
1	....do.....	....do.....	S $\frac{1}{2}$ sec. 13, T. 11 N., R. 6 E., at road crossing, 7 miles southwest of Randle.	a.20
July 20	Goat Creek.....	Cowlitz River.....	NW $\frac{1}{4}$ sec. 11, T. 11 N., R. 5 E., at railroad crossing, 150 feet above mouth and 3 miles southeast of Kosmos.	18.4
Aug. 10	....do.....	....do.....	....do.....	10.9
Sept. 9	....do.....	....do.....	....do.....	6.76
Aug. 28	South Fork Rainy Creek.	Rainy Creek.....	NW $\frac{1}{4}$ sec. 9, T. 12 N., R. 6 E., at highway crossing, 7 miles northeast of Kosmos.	No flow
28	....do.....	....do.....	NE $\frac{1}{4}$ sec. 8, T. 12 N., R. 6 E., 1,000 feet below Stiltner Creek and 6 $\frac{1}{2}$ miles northeast of Kosmos.	2.38
Sept. 21	....do.....	....do.....	....do.....	2.10
Oct. 6	Rainy Creek.....	Cowlitz River.....	SW $\frac{1}{4}$ sec. 28, T. 12 N., R. 5 E., at bridge at Kosmos.	8.78
Aug. 28	Stiltner Creek..	South Fork Rainy Creek.	NE $\frac{1}{4}$ sec. 8, T. 12 N., R. 6 E., at highway crossing, 6 $\frac{1}{2}$ miles northeast of Kosmos.	a.07
28	North Fork Rainy Creek.	Rainy Creek.....	SE $\frac{1}{4}$ sec. 7, T. 12 N., R. 6 E., 50 feet below highway and 5 $\frac{1}{2}$ miles northeast of Kosmos.	.57
Sept. 21	....do.....	....do.....	....do.....	.13
Aug. 28	Unnamed stream..	....do.....	SW $\frac{1}{4}$ sec. 7, T. 12 N., R. 6 E., at highway crossing, 5 miles northeast of Kosmos.	No flow
28	Lunch Creek.....	....do.....	SE $\frac{1}{4}$ sec. 12, T. 12 N., R. 5 E., 50 feet below highway crossing and 4 $\frac{1}{2}$ miles northeast of Kosmos.	.44
Sept. 21	....do.....	....do.....	....do.....	.23
Aug. 29	Uden Creek.....	....do.....	NW $\frac{1}{4}$ sec. 22, T. 12 N., R. 5 E., at road crossing, 1 $\frac{1}{2}$ miles northeast of Kosmos.	a.30
29do.....do.....	W $\frac{1}{2}$ sec. 28, T. 12 N., R. 5 E., at highway crossing at Kosmos.	1.25
Sept. 21do.....do.....do.....	.61

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a Estimated.

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Cowlitz River Basin, Wash.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Aug. 29	Frost Creek.....	Uden Creek.....	SE $\frac{1}{4}$ sec. 15, T. 12 N., R. 5 E., at road crossing, 2 miles northeast of Kosmos.	a.03
29	Unnamed stream..	....do.....	E $\frac{1}{2}$ sec. 22, T. 12 N., R. 5 E., at road crossing, 1 mile northeast of Kosmos.	a.02
June 27	Sand Creek.....	Cowlitz River.....	SW $\frac{1}{4}$ sec. 31, T. 12 N., R. 5 E., 100 feet below highway crossing and 2 miles southwest of Kosmos.	.80
July 20	....do.....	....do.....	....do.....	.35
Aug. 10	....do.....	....do.....	....do.....	.25
Sept. 9	....do.....	....do.....	....do.....	.19
Aug. 27	Unnamed stream..	....do.....	SE $\frac{1}{4}$ sec. 36, T. 12 N., R. 4 E., at highway crossing, 3 miles southwest of Kosmos.	a.20
Oct. 7	Landers Creek...	....do.....	NW $\frac{1}{4}$ sec. 7, T. 11 N., R. 5 E., at bridge 500 feet below gaging station and 3 $\frac{1}{2}$ miles southwest of Kosmos.	1.79
Aug. 27	Indian Creek....	Landers Creek.....	SE $\frac{1}{4}$ sec. 2, T. 11 N., R. 4 E., at road crossing, 4 miles southwest of Kosmos.	No flow
27	Steel Canyon Creek.	Cowlitz River.....	NW $\frac{1}{4}$ sec. 2, T. 11 N., R. 4 E., at road crossing, 4 miles southwest of Kosmos.	No flow
27	Unnamed stream..	....do.....	SW $\frac{1}{4}$ sec. 34, T. 12 N., R. 4 E., at highway crossing, 5 miles southwest of Kosmos.	No flow
27	....do.....	....do.....	W $\frac{1}{2}$ sec. 29, T. 12 N., R. 4 E., at highway crossing, 5 $\frac{1}{2}$ miles southwest of Morton.	*.15
27	Simmons Creek...	....do.....	NE $\frac{1}{4}$ sec. 13, T. 12 N., R. 3 E., 15 feet above road crossing and 5 miles southwest of Morton.	2.10
Sept. 20	....do.....	....do.....	....do.....	1.48
Aug. 27	Combs Creek.....	Simmons Creek.....	NW $\frac{1}{4}$ sec. 8, T. 12 N., R. 4 E., at road crossing, 3 $\frac{1}{2}$ miles southwest of Morton.	a.01
27	Unnamed stream..	Combs Creek.....	NE $\frac{1}{4}$ sec. 7, T. 12 N., R. 4 E., at highway crossing, 4 miles southwest of Morton.	a.15
27	....do.....	....do.....	Center sec. 7, T. 12 N., R. 4 E., at highway crossing, 4 miles southwest of Morton.	a.07
27	....do.....	Simmons Creek.....	SW $\frac{1}{4}$ sec. 7, T. 12 N., R. 4 E., at highway crossing, 4 $\frac{1}{2}$ miles southwest of Morton.	a.25
27	....do.....	Cowlitz River.....	NW $\frac{1}{4}$ sec. 24, T. 12 N., R. 3 E., at highway crossing, 4 $\frac{1}{2}$ miles southeast of Mossyrock.	a.20
27	Sulphur Creek...	....do.....	SW $\frac{1}{4}$ sec. 14, T. 12 N., R. 3 E., 600 feet below highway crossing and 4 miles southeast of Mossyrock.	1.00
Sept. 20	....do.....	....do.....	....do.....	.60
Aug. 27	Unnamed stream..	Sulphur Creek.....	Line between secs. 14 and 15, T. 12 N., R. 3 E., at highway crossing, 3 $\frac{1}{2}$ miles southeast of Mossyrock.	a.02
27	....do.....	Cowlitz River.....	SE $\frac{1}{4}$ sec. 15, T. 12 N., R. 3 E., 3 $\frac{1}{2}$ miles southeast of Mossyrock.	a.04
21	Tilton River....	....do.....	S $\frac{1}{2}$ sec. 18, T. 13 N., R. 5 E., 75 feet above highway crossing and 4 miles northeast of Morton.	7.22
Sept. 19	....do.....	....do.....	....do.....	6.50
Aug. 21	Unnamed stream..	Tilton River.....	NE $\frac{1}{4}$ sec. 5, T. 13 N., R. 5 E., at highway crossing, 7 miles northeast of Morton.	a.02
21	....do.....	....do.....	....do.....	a.01
21	....do.....	....do.....	N $\frac{1}{2}$ sec. 5, T. 13 N., R. 5 E., at road crossing, 7 miles northeast of Morton.	a.05
21	....do.....	....do.....	S $\frac{1}{2}$ sec. 5, T. 13 N., R. 5 E., at highway crossing, 6 $\frac{1}{2}$ miles northeast of Morton.	3.62
21	....do.....	....do.....	SW $\frac{1}{4}$ sec. 5, T. 13 N., R. 5 E., 50 feet above highway crossing, 6 miles northeast of Morton.	.19
21	....do.....	....do.....	Line between secs. 5 and 8, T. 13 N., R. 5 E., at highway crossing, 6 miles northeast of Morton.	No flow
21	....do.....	....do.....	NW $\frac{1}{4}$ sec. 8, T. 13 N., R. 5 E., at highway crossing, 5 $\frac{1}{2}$ miles northeast of Morton.	a.01
21	....do.....	....do.....	SW $\frac{1}{4}$ sec. 8, T. 13 N., R. 5 E., at road crossing, 5 miles northeast of Morton.	a.05
21	....do.....	....do.....	SE $\frac{1}{4}$ sec. 7, T. 13 N., R. 5 E., at highway crossing, 5 miles northeast of Morton.	a.06
25	....do.....	....do.....	....do.....	a.10
Oct. 7	West Fork Tilton River.	....do.....	NE $\frac{1}{4}$ sec. 13, T. 13 N., R. 4 E., 600 feet below Ladd Logging Co., bridge and 4 miles northeast of Morton.	78.8
Aug. 21	Nineteen Creek..do.....	W $\frac{1}{2}$ sec. 19, T. 13 N., R. 5 E., 75 feet upstream from highway and 3 $\frac{1}{2}$ miles northeast of Morton.	1.42
Sept. 19do.....do.....do.....	1.00

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a Estimated.

MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Cowlitz River Basin, Wash.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Oct. 7	East Fork Tilton River.	Tilton River.....	NE $\frac{1}{4}$ sec. 25, T. 13 N., R. 4 E., 100 feet below highway crossing and 2 $\frac{1}{2}$ miles northeast of Morton.	67.0
July 21	....do.....	....do.....	....do.....	26.0
Aug. 11	....do.....	....do.....	....do.....	17.0
Sept. 10	....do.....	....do.....	....do.....	11.7
Aug. 21	Coal Canyon Creek.	....do.....	SE $\frac{1}{4}$ sec. 25, T. 13 N., R. 4 E., at highway crossing, 2 miles northeast of Morton.	No flow
27	Lake Creek.....	....do.....	SE $\frac{1}{4}$ sec. 3, T. 12 N., R. 4 E., 800 feet above road crossing and 1 mile southwest of Morton.	.76
Sept. 21	....do.....	....do.....	....do.....	.95
Aug. 28	Unnamed stream..	Davis Lake.....	NW $\frac{1}{4}$ sec. 17, T. 12 N., R. 5 E., at highway crossing, 3 $\frac{1}{2}$ miles southeast of Morton.	No flow
28	....do.....	....do.....	SE $\frac{1}{4}$ sec. 7, T. 12 N., R. 5 E., at highway crossing, 3 miles southeast of Morton.	No flow
28	....do.....	Lake Creek.....	SE $\frac{1}{4}$ sec. 1, T. 12 N., R. 4 E., at highway crossing, 1 $\frac{1}{2}$ miles southeast of Morton.	a.01
28	....do.....	....do.....	SE $\frac{1}{4}$ sec. 1, T. 12 N., R. 4 E., at highway crossing, 1 mile southeast of Morton.	a.01
28	....do.....	....do.....	SW $\frac{1}{4}$ sec. 1, T. 12 N., R. 4 E., at highway crossing, 1 mile southeast of Morton.	a.02
22	....do.....	Tilton River.....	S $\frac{1}{2}$ sec. 34, T. 13 N., R. 4 E., at highway crossing, 1 mile northwest of Morton.	a.01
22	....do.....	....do.....	SW $\frac{1}{4}$ sec. 34, T. 13 N., R. 4 E., at highway crossing, 1 $\frac{1}{2}$ miles northwest of Morton.	a.01
27	Highland Creek..	....do.....	E $\frac{1}{2}$ sec. 4, T. 12 N., R. 4 E., 40 feet below road crossing, 1 mile west of Morton.	2.54
Sept. 21	....do.....	....do.....	....do.....	1.73
Aug. 27	Unnamed stream..	Highland Creek.....	Line between secs. 3 and 4, T. 12 N., R. 4 E., at road crossing, 1 $\frac{1}{2}$ miles southwest of Morton.	a.15
22	....do.....	Tilton River.....	SE $\frac{1}{4}$ sec. 33, T. 13 N., R. 4 E., at highway crossing, 1 $\frac{1}{2}$ miles northwest of Morton.	a.01
22	....do.....	....do.....	N $\frac{1}{2}$ sec. 33, T. 13 N., R. 4 E., at highway crossing, 2 miles northwest of Morton.	a.01
22	....do.....	....do.....	NW $\frac{1}{4}$ sec. 33, T. 13 N., R. 4 E., 200 feet above road crossing and 2 $\frac{1}{2}$ miles northwest of Morton.	.78
22	....do.....	....do.....	NW $\frac{1}{4}$ sec. 29, T. 13 N., R. 4 E., at culvert, 3 $\frac{1}{2}$ miles northwest of Morton.	.10
22	....do.....	....do.....	NE $\frac{1}{4}$ sec. 30, T. 13 N., R. 4 E., at highway crossing, 4 miles northwest of Morton.	No flow
July 21	North Fork Tilton River.	....do.....	NW $\frac{1}{4}$ sec. 30, T. 13 N., R. 4 E., 500 feet above mouth and 4 $\frac{1}{2}$ miles northwest of Morton.	36.7
Aug. 10	....do.....	....do.....	....do.....	29.0
Sept. 11	....do.....	....do.....	....do.....	29.8
Aug. 22	Barons Creek....	....do.....	SE $\frac{1}{4}$ sec. 26, T. 13 N., R. 3 E., 30 feet below highway crossing and 5 $\frac{1}{2}$ miles northeast of Mossyrock.	.46
Sept. 19	....do.....	....do.....	....do.....	.30
Aug. 22	Unnamed stream..	....do.....	NW $\frac{1}{4}$ sec. 35, T. 13 N., R. 3 E., at highway crossing, 5 miles northeast of Mossyrock.	a2.2
22	....do.....	....do.....	NW $\frac{1}{4}$ sec. 27, T. 13 N., R. 3 E., at highway crossing, 4 $\frac{1}{2}$ miles northeast of Mossyrock.	a.06
22	....do.....	....do.....	SE $\frac{1}{4}$ sec. 121, T. 13 N., R. 3 E., at highway crossing, 5 miles northeast of Mossyrock.	a.15
26	Alder Creek.....	....do.....	NE $\frac{1}{4}$ sec. 20, T. 13 N., R. 3 E., 5 miles northeast of Mossyrock.	.43
Sept. 19	....do.....	....do.....	....do.....	.38
Aug. 22	Unnamed stream..	....do.....	NW $\frac{1}{4}$ sec. 20, T. 13 N., R. 3 E., at highway crossing, 5 miles north of Mossyrock.	No flow
22	....do.....	....do.....	W $\frac{1}{2}$ sec. 20, T. 13 N., R. 3 E., at highway crossing, 4 $\frac{1}{2}$ miles north of Mossyrock.	a.01
26	Bear Canyon Creek.	....do.....	SE $\frac{1}{4}$ sec. 18, T. 13 N., R. 3 E., 50 feet below highway crossing and 5 miles north of Mossyrock.	5.68
Sept. 20	....do.....	....do.....	....do.....	2.47
Aug. 26	Shermans Creek..	....do.....	South line sec. 13, T. 13 N., R. 2 E., 100 feet above road crossing, 1 mile northwest of Cinebar.	.25
Sept. 19	....do.....	....do.....	....do.....	.23
Aug. 26	Cinnabar Creek..	....do.....	West line sec. 13, T. 13 N., R. 2 E., 100 feet above highway crossing, 1 $\frac{1}{2}$ miles northwest of Cinebar.	8.01
Sept. 20	....do.....	....do.....	....do.....	4.73

a Estimated.

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Cowlitz River Basin, Wash.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
21	Klickitat Creek.	Cowlitz River.....	SE $\frac{1}{4}$ sec. 10, T. 12 N., R. 2 E., at highway crossing, 3 miles west of Mossyrock.	No flow
Aug. 26	Unnamed stream..	....do.....	NE $\frac{1}{4}$ sec. 16, T. 12 N., R. 2 E., at highway crossing, $1\frac{1}{2}$ miles north of Mayfield.	a.03
26	....do.....	....do.....	SE $\frac{1}{4}$ sec. 16, T. 12 N., R. 2 E., at highway crossing, 1 mile north of Mayfield.	a.06
26	....do.....	....do.....	NE $\frac{1}{4}$ sec. 21, T. 12 N., R. 2 E., $\frac{1}{2}$ mile north of Mayfield.	a.01
26	Silver Creek....	....do.....	SE $\frac{1}{4}$ sec. 8, T. 12 N., R. 2 E., at road crossing, 2 miles north of Mayfield.	a.01
26	....do.....	....do.....	NE $\frac{1}{4}$ sec. 20, T. 12 N., R. 2 E., at highway crossing, 1 mile northwest of Mayfield.	a.005
Sept. 20	....do.....	....do.....	....do.....	.04
Aug. 26	Mill Creek.....	....do.....	South line sec. 15, T. 13 N., R. 2 E., 200 feet above highway crossing and 2 $\frac{1}{2}$ miles west of Cinebar.	2.68
Sept. 20	....do.....	....do.....	....do.....	2.08
June 16	....do.....	....do.....	SE $\frac{1}{4}$ sec. 12, T. 12 N., R. 1 E., at highway crossing, 3 miles northwest of Mayfield.	8.83
30	....do.....	....do.....	....do.....	6.78
July 21	....do.....	....do.....	....do.....	4.03
Aug. 11	....do.....	....do.....	....do.....	3.69
Sept. 11	....do.....	....do.....	....do.....	3.46
July 7	Salmon Creek....	....do.....	NW $\frac{1}{4}$ sec. 28, T. 11 N., R. 1 W., 300 feet below former gaging station and 2 $\frac{1}{2}$ miles southeast of Toledo.	3.86
26	....do.....	....do.....	....do.....	2.34
Sept. 6	....do.....	....do.....	....do.....	1.68
June 15	Lacamas Creek...	....do.....	NW $\frac{1}{4}$ sec. 27, T. 11 N., R. 2 W., $\frac{1}{2}$ mile above highway crossing and $1\frac{1}{2}$ miles east of Vader.	4.30
July 7	....do.....	....do.....	....do.....	2.97
26	....do.....	....do.....	....do.....	2.87
Sept. 6	....do.....	....do.....	....do.....	2.27
June 14	Stillwater Creek	Olequa Creek.....	NE $\frac{1}{4}$ sec. 25, T. 11 N., R. 3 W., at site of former gaging station, $1\frac{1}{2}$ miles northwest of Vader.	16.8
July 6	....do.....	....do.....	....do.....	6.53
26	....do.....	....do.....	....do.....	3.38
Sept. 6	....do.....	....do.....	....do.....	2.52
June 14	Scantigrease Creek.	Arkansas Creek.....	SE $\frac{1}{4}$ sec. 18, T. 9 N., R. 2 W., at road crossing, 3 $\frac{1}{2}$ miles west of Castle Rock.	7.54
July 6	....do.....	....do.....	....do.....	3.94
26	....do.....	....do.....	....do.....	2.06
Sept. 6	....do.....	....do.....	....do.....	1.32
June 14	North Fork Arkansas Creek	....do.....	SE $\frac{1}{4}$ sec. 9, T. 9 N., R. 2 W., at road crossing, 1 mile west of Castle Rock.	15.0
July 6	....do.....	....do.....	....do.....	6.88
26	....do.....	....do.....	....do.....	3.87
Sept. 6	....do.....	....do.....	....do.....	2.74
June 15	Ostrander Creek.	Cowlitz River.....	NW $\frac{1}{4}$ sec. 12, T. 8 N., R. 2 W., at former gaging station 1 mile above mouth and 4 miles northeast of Kelso.	9.91
July 6	....do.....	....do.....	....do.....	3.98
26	....do.....	....do.....	....do.....	2.64
Sept. 7	....do.....	....do.....	....do.....	2.02
Feb. 15	Coweman River...	....do.....	NW $\frac{1}{4}$ sec. 26, T. 8 N., R. 1 W., at logging bridge, 6 $\frac{1}{2}$ miles east of Kelso.	1,890
24	....do.....	....do.....	S $\frac{1}{2}$ sec. 32, T. 8 N., R. 1 W., at site chosen for gaging station, 5 $\frac{1}{2}$ miles above mouth near Kelso.	**7,750
Feb. 15	....do.....	....do.....	SE $\frac{1}{4}$ sec. 35, T. 8 N., R. 2 W., at old highway crossing, at Kelso.	2,540

** Flow at crest stage; computed by slope-area method.
a Estimated.

Coal Creek Basin, Wash.

June 14	Coal Creek.....	Columbia River.....	SE $\frac{1}{4}$ sec. 10, T. 8 N., R. 3 W., at road crossing, 5 miles northwest of Longview.	16.7
July 5	....do.....	....do.....	....do.....	7.68
25	....do.....	....do.....	....do.....	4.09
Sept. 6	....do.....	....do.....	....do.....	2.70

Germany Creek Basin, Wash.

June 14	Germany Creek...	Columbia River.....	NW $\frac{1}{4}$ sec. 12, T. 8 N., R. 4 W., at site of former gaging station, half a mile above mouth, near Longview.	23.4
July 5	....do.....	....do.....	....do.....	11.3
25	....do.....	....do.....	....do.....	8.73
Sept. 6	....do.....	....do.....	....do.....	5.41

MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Skamokawa Creek Basin, Wash.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
June 13	Wilson Creek....	Skamokawa Creek....	SW $\frac{1}{4}$ sec. 4, T. 9 N., R. 8 W., at road crossing $\frac{1}{2}$ miles northeast of Skamokawa.	18.5
July 5	....do.....	....do.....	....do.....	14.0
25	....do.....	....do.....	....do.....	9.75
Sept. 5	....do.....	....do.....	....do.....	8.33

Grays River Basin, Wash.

June 13	Hull Creek.....	Grays River.....	NE $\frac{1}{4}$ sec. 13, T. 10 N., R. 8 W., at site of former gaging station, $\frac{1}{2}$ mile above mouth, at Grays River.	9.58
July 5	....do.....	....do.....	....do.....	5.66
25	....do.....	....do.....	....do.....	2.58
Sept. 5	....do.....	....do.....	....do.....	9.27

Coastal streams between Columbia River and Umpqua River, Oreg.

Sept. 6	Necanicum River..	Pacific Ocean.....	NW $\frac{1}{4}$ sec. 23, T. 5 N., R. 9 W., below Bergsvik Creek, at Necanicum.	5.01
6	Bergsvik Creek...	Necanicum River.....	Sec. 26 or 35, T. 5 N., R. 9 W., at highway bridge at Necanicum.	.92
6	Joe Creek.....	Bergsvik Creek.....	Mouth, at Necanicum.....	.94
6	Little Humbug Creek.	Necanicum River.....	Mouth, at highway bridge 1.2 miles west of Necanicum.	1.73
6	North Fork Necanicum River.	....do.....	Mouth, below fish hatchery, 2 miles west of Necanicum.	3.41
6	Mail Creek.....	....do.....	Highway crossing 5 miles west of Necanicum.	1.62
7	Salmonberry River.	Nehalem River.....	SE $\frac{1}{4}$ sec. 10, T. 3 N., R. 8 W., at mouth.	27.6
7	North Fork Nehalem River.	....do.....	At Tillamook-Clatsop county line, near Mohler.	34.5
7	Jack Horner Creek.	Soapstone Creek....	Mouth, sec. 15, T. 4 N., R. 9 W., near Necanicum.	1.57
7	Big Rack Heap Creek.	North Fork Nehalem River.	SW $\frac{1}{4}$ sec. 7, T. 3 N., R. 9 W., at highway bridge above Rack Heap Creek, near Mohler.	.25
7	Rack Heap Creek.	Big Rack Heap Creek	Mouth, near Mohler.....	a.15
7	North Fork Wilson River.	Wilson River.....	At site of former gaging station near Tillamook.	17.4
8	Tillamook River.	Pacific Ocean.....	Above Bewley Creek, 3 miles south of Tillamook.	6.71
8	Nestucca River..	....do.....	Above East Creek, at Blaine.....	36.4
8	East Creek.....	Nestucca River.....	Mouth, at Blaine.....	9.94
Aug. 11	Farland Creek...	....do.....	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 29, T. 3 S., R. 9 W., about 500 feet below Armbrust diversion dam, at Beaver.	.14
11	West Fork Farland Creek.	Farland Creek.....	NW $\frac{1}{4}$ sec. 33, T. 3 S., R. 9 W., below Coles dam, near Beaver.	Trace
11	East Fork Farland Creek.	....do.....	....do.....	a.1
11	Coles ditch	(diverting from) West Fork Farland Creek.	NW $\frac{1}{4}$ sec. 33, T. 3 S., R. 9 W., 50 feet below intake near Beaver.	.68
11	....do.....	(diverting from) East Fork Farland Creek.	NW $\frac{1}{4}$ sec. 33, T. 3 S., R. 9 W., just below intake near Beaver.	1.11
11	Armbrust ditch..	(diverting from) Farland Creek.	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 29, T. 3 S., R. 9 W., 60 feet below intake, near Beaver.	1.12
Sept. 11	Beaver Creek....	Nestucca River.....	Mouth, at Beaver.....	12.6
11	Three Rivers....	....do.....	Below highway crossing at Hebo.....	18.2
11	Little Nestucca River.	....do.....	Sec. 15, T. 5 S., R. 10 W., $2\frac{1}{2}$ miles southeast of Oretown.	17.3
11	Salmon River...	Pacific Ocean.....	SW $\frac{1}{4}$ sec. 29, T. 6 S., R. 10 W., at Otis.	32.9
11	Schooner Creek...	....do.....	Sec. 25, T. 7 S., R. 11 W., above bridge, 2 miles east of Taft.	11.8
11	Yaquina River...	....do.....	NW $\frac{1}{4}$ sec. 33, T. 10 S., R. 9 W., $\frac{1}{2}$ miles northeast of Chilwood.	6.53
Aug. 23	Little Depoe Slough.	Depoe Creek.....	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 19, T. 10 S., R. 10 W., on Bahrke's farm, 3 miles southwest of Siletz.	.71
Sept. 12	Big Elk Creek...	Yaquina River.....	Sec. 24, T. 11 S., R. 10 W., 2 miles southeast of Elk City.	10.2
12	Yachats River...	Pacific Ocean.....	Sec. 36, T. 14 S., R. 12 W., 1.7 miles east of Yachats.	19.6
12	Tenmile Creek....	....do.....	Mouth, 6 miles south of Yachats.....	8.56
12	Big Creek.....	....do.....	Mouth, 9 miles south of Yachats.....	6.06
12	Siuslaw River....	....do.....	Sec. 30, T. 17 S., R. 9 W., 1.2 miles west of Swisshome.	94.8
13	Wildcat Creek...	Siuslaw River.....	Sec. 15, T. 18 S., R. 8 W., 0.6 mile above mouth at Austa.	8.79
13	North Fork Siuslaw River.	....do.....	Above McLeod Creek, at Minerva.....	9.19
13	McLeod Creek....	North Fork Siuslaw River.	Mouth, at Minerva.....	a.8
13	Woahink Lake Outlet.	Siltcoos Lake.....	NW $\frac{1}{4}$ sec. 27, T. 19 S., R. 12 W., at lake outlet.	9.28

a Estimated.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Umpqua River Basin, Oreg.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
July 24	South Umpqua River.	Umpqua River.....	Sec. 21, T. 30 S., R. 4 W., below Beal Creek, 1½ miles south of Days Creek.	126
Nov. 8	....do.....	....do.....	NW¼ sec. 18, T. 30 S., R. 5 W., 2 miles below Cow Creek.	130
Aug. 9	....do.....	....do.....	....do.....	131
July 24	Jackson Creek...	South Umpqua River..	SE¼ sec. 18 T. 30 S., R. 1 W., 0.6 mile above mouth and 5 miles north-east of Tillier.	35.3
Aug. 9	Cow Creek.....	....do.....	At site of former gaging station at Riddle.	38.6
Nov. 8	Myrtle Creek....	....do....	NW¼ sec. 27, T. 29 S., R. 5 W., below North Fork at Myrtle Creek.	16.4
Sept. 6	Lookingglass Creek.	....do.....	Mouth, at Brockway.....	0
28	Olalla Creek....	Lookingglass Creek..	Sec. 21, T. 29 S., R. 7 W., below Byron Creek, above Berry Creek, 4 miles southeast of Tenmile.	1.0
28	....do.....	....do.....	NW¼ sec. 34, T. 28 S., R. 7 W., at Ross farm, 2½ miles east of Tenmile.	.83
Oct. 14	North Umpqua River.	Umpqua River.....	Sec. 21, T. 26 S., R. 3 E., above Slide Creek.	905
14	Slide Creek.....	....do.....	Sec. 21, T. 26 S., R. 3 E., at mouth.	a3
12	Trap Creek.....	Clearwater River....	Mouth, 8 miles northwest of Diamond Lake.	1.61
Dec. 6	....do.....	....do.....	....do.....	1.64
Feb. 8	....do.....	....do.....	....do.....	2.25
Apr. 4	....do.....	....do.....	....do.....	6.42
May 23	....do.....	....do.....	....do.....	25.7
July 12	....do.....	....do.....	....do.....	3.98
Sept. 21	....do.....	....do.....	....do.....	1.82
Oct. 13	Camas Creek....	Fish Creek.....	SW¼ sec. 10 T. 27 S., R. 3 E., at mouth.	1.67
Dec. 7	....do.....	....do.....	....do.....	5.25
Feb. 8	....do.....	....do.....	....do.....	12.9
Apr. 4	....do.....	....do.....	....do.....	30.2
May 24	....do.....	....do.....	....do.....	36.4
July 13	....do.....	....do.....	....do.....	3.29
Aug. 9	....do.....	....do.....	....do.....	a1.2
Sept. 21	....do.....	....do.....	....do.....	.69
11	Calapooya Creek.	Umpqua River.....	Below highway bridge, at Oakland.	13.3
July 5	Elk Creek.....	....do.....	Sec. 6, T. 23 S., R. 4 W., above Adams Creek, near Yoncalla.	5.99
25	....do.....	....do.....	....do.....	3.54
Aug. 10	....do.....	....do.....	....do.....	2.27
29	....do.....	....do.....	....do.....	1.90
Sept. 11	....do.....	....do.....	....do.....	1.34
July 7	....do.....	....do.....	Sec. 21, T. 22 S., R. 5 W., at Boswell Springs.	12.3
25	....do.....	....do.....	....do.....	5.83
Aug. 10	....do.....	....do.....	....do.....	3.43
29	....do.....	....do.....	....do.....	3.16
Sept. 11	....do.....	....do.....	....do.....	1.80
15	....do.....	....do.....	Sec. 20, T. 22 S., R. 7 W., 1 mile north of Elkton.	2.90
May 31	Adams Creek....	Elk Creek.....	Sec. 6, T. 23 S., R. 4 W., above McDonald diversion, 3½ miles east of Yoncalla.	3.22
Aug. 10	....do.....	....do.....	....do.....	1.50
29	....do.....	....do.....	....do.....	1.18
Sept. 11	....do.....	....do.....	....do.....	1.07
Aug. 10	....do.....	....do.....	Sec. 6, T. 23 S., R. 4 W., below McDonald diversion.	0
29	....do.....	....do.....	....do.....	.06
Sept. 11	....do.....	....do.....	....do.....	0
July 25	....do.....	....do.....	Sec. 6, T. 23 S., R. 4 W., just above road bridge.	1.02
Aug. 10	....do.....	....do.....	....do.....	a.2
Sept. 11	....do.....	....do.....	....do.....	8.15
July 7	....do.....	....do.....	....do.....	1.81
Aug. 10	....do.....	....do.....	....do.....	a.9
Sept. 11	....do.....	....do.....	....do.....	a.35
Aug. 10	Unnamed stream..	(diverting from) Adams Creek.	Sec. 8, T. 23 S., R. 4 W., 100 feet below diversion, near Yoncalla.	1.50
Sept. 11	....do.....	....do.....	....do.....	1.07
May 31	....do.....	Adams Creek.....	Sec. 6, T. 23 S., R. 4 W., 500 feet below McDonald diversion, near Yoncalla, Oreg.	a.05
Aug. 10	....do.....	....do.....	....do.....	a.1
Sept. 11	....do.....	....do.....	....do.....	a.1
July 7	Theft Creek....	Elk Creek.....	Sec. 30, T. 22 S., R. 4 W., mouth, near Yoncalla.	2.28
25	....do.....	....do.....	....do.....	.96
Aug. 10	....do.....	....do.....	....do.....	.54
29	....do.....	....do.....	....do.....	.34
Sept. 11	....do.....	....do.....	....do.....	.20
14	Smith River....	Umpqua River.....	Sec. 31, T. 20 S., R. 9 W., below falls, 15 miles northeast of Gardiner.	10.4

a Estimated

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MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River Basin during water year October 1949 to September 1950--Continued

Coastal streams between Umpqua River and Rogue River, Oreg.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Sept. 14	Tenmile Creek...	Pacific Ocean.....	Sec. 13, T. 23 S., R. 13 W., below Eel Creek, 1 mile west of Lakeside.	2.51
14	Eel Creek.....	Tenmile Creek.....	.....do.....	4.08
15	South Fork Coos River.	Coos River.....	Sec. 27, T. 25 S., R. 11 W., 1 mile east of Dellwood.	24.9
14	East Fork Millicoma River.	Millicoma River.....	Sec. 4, T. 25 S., R. 11 W., at head of tide, near Allegany.	10.3
14	Marlow Creek....	East Fork Millicoma River.	Mouth, at Allegany.....	0
14	West Fork Millicoma River	Millicoma River.....	Sec. 8, T. 25 S., R. 11 W., at head of tide, near Allegany.	2.97
5	Middle Fork Coquille River	Coquille River.....	At site of former gaging station, near Myrtle Point.	13.4
9	North Fork Coquille River	.....do.....	.....do.....	29.0
11	Floras Creek....	Pacific Ocean.....	Sec. 2, T. 31 S., R. 15 W., at Lang-lois.	2.43
11	Sixes River.....	.....do.....	Above Crystal Creek, at Sixes.....	12.4
11	Crystal Creek....	Sixes River.....	Mouth, at Sixes.....	al.0
11	Elk River.....	Pacific Ocean.....	Above U. S. Highway 101, 2 miles south of Sixes.	39.4
11	Brush Creek....	.....do.....	SE $\frac{1}{4}$ sec. 25, T. 33 S., R. 15 W., 8 miles southeast of Port Orford.	8.37
11	.....do.....	.....do.....	NW $\frac{1}{4}$ sec. 25, T. 33 S., R. 15 W., 0.9 mile below site of above measurement.	9.30
12	Euchre Creek....	.....do.....	NE $\frac{1}{4}$ sec. 8, T. 35 S., R. 14 W., above highway bridge near Wedderburn.	8.74

a Estimated.

Rogue River Basin, Oreg.

Sept. 10	Rogue River.....	Pacific Ocean.....	Above Illinois River, at Agness.....	1,230
May 31	Bybee Creek....	Rogue River.....	NE $\frac{1}{4}$ sec. 26, T. 30 S., R. 3 E., at mouth, 13 miles northeast of Prospect.	116
July 26	.....do.....	.....do.....	.....do.....	40.8
Sept. 20	.....do.....	.....do.....	.....do.....	27.1
May 31	Castle Creek....	.....do.....	SW $\frac{1}{4}$ sec. 25, T. 30 S., R. 3 E., at mouth, 15 miles northeast of Prospect.	88.4
July 26	.....do.....	.....do.....	.....do.....	28.9
Sept. 20	.....do.....	.....do.....	.....do.....	17.5
July 18	Cool Creek ^e	Mill Creek.....	Sec. 32, T. 32 S., R. 3 E., at Prospect.	10.9
June 6	Sheep Creek ^f...	.....do.....	Sec. 29, T. 32 S., R. 3 E., above main power canal, half a mile north of Prospect.	24.0
6	.....do.....	.....do.....	Sec. 29, T. 32 S., R. 3 E., at Crater Lake highway crossing.	16.3
6	.....do.....	.....do.....	Sec. 29, T. 32 S., R. 3 E., 450 feet below Crater Lake highway crossing.	1.55
Oct. 5	Dead Indian Creek.	South Fork Little Butte Creek.	Sec. 15, T. 38 S., R. 3 E., 14 miles northeast of Ashland.	.93
Apr. 27	.....do.....	.....do.....	.....do.....	35.2
Aug. 3	.....do.....	.....do.....	.....do.....	.44
Sept. 10	Illinois River..	Rogue River.....	Mouth, at Agness.....	175
July 9	Wood Creek.....	West Fork Illinois River.	Sec. 8, T. 41 S., R. 8 W., about 4 miles southeast of O'Brien.	al.0
16	.....do.....	.....do.....	.....do.....	a.8
2	.....do.....	.....do.....	Sec. 32, T. 40 S., R. 8 W., about 2 miles southeast of O'Brien.	1.68
9	.....do.....	.....do.....	.....do.....	1.26
16	.....do.....	.....do.....	.....do.....	.97
23	.....do.....	.....do.....	.....do.....	.90
2	.....do.....	.....do.....	SW $\frac{1}{4}$ sec. 20, T. 40 S., R. 8 W., above Fry Gulch 1 mile east of O'Brien.	2.04
July 9	.....do.....	.....do.....	.....do.....	1.47
16	.....do.....	.....do.....	.....do.....	.84
23	.....do.....	.....do.....	.....do.....	1.33
2	.....do.....	.....do.....	Mouth, 1 mile east of O'Brien.	2.16
9	.....do.....	.....do.....	.....do.....	1.78
16	.....do.....	.....do.....	.....do.....	1.48
23	.....do.....	.....do.....	.....do.....	1.37
2	Fry Gulch.....	Wood Creek.....	Sec. 20, T. 40 S., R. 8 W., 1 mile east of O'Brien.	0
9	.....do.....	.....do.....	.....do.....	0
23	.....do.....	.....do.....	.....do.....	0

a Estimated.

e Intermittent stream.

f Intermittent stream; short periods of flow in 1917, 1938, 1943, 1949, and 1950. Flow sinks into ground just below measuring sections.

Coastal streams south of Rogue River, Oreg.

Sept. 12	Pistol River....	Pacific Ocean.....	W $\frac{1}{4}$ sec. 21, T. 38 S., R. 14 W., 2.7 miles by road above U. S. highway 101 bridge, near Gold Beach.	8.23
12	.....do.....	.....do.....	SE $\frac{1}{4}$ sec. 20, T. 38 S., R. 14 W., half a mile above U. S. Highway 101 and 10 miles south of Gold Beach.	.72
12	Chetco River....	.....do.....	SW $\frac{1}{4}$ sec. 35, T. 40 S., R. 13 W., above Jack Creek and below North Fork, near Harbor.	61.4
12	Winchuck River..do.....	Sec. 24, T. 41 S., R. 13 W., half a mile above South Fork, near Harbor.	7.82

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