

UNITED STATES DEPARTMENT OF THE INTERIOR

RAY LYMAN WILBUR, Secretary

GEOLOGICAL SURVEY

W. C. MENDENHALL, Director

Water-Supply Paper 724

SURFACE WATER SUPPLY *of the* UNITED STATES 1931

PART 12

NORTH PACIFIC SLOPE DRAINAGE BASINS

C. PACIFIC SLOPE BASINS IN OREGON AND LOWER
COLUMBIA RIVER BASIN

NATHAN C. GROVER, Chief Hydraulic Engineer

G. H. CANFIELD and G. L. PARKER
District Engineers

Prepared in cooperation with the States of
OREGON and WASHINGTON



UNITED STATES

GOVERNMENT PRINTING OFFICE

WASHINGTON : 1933

This copy is
removed from the official files
UNLAWFUL TO REPRODUCE
S. Sup. Vol. 2. pp. 27
PUBLIC PROPERTY and not to be
SECTION

CONTENTS

	Page
Authorization and scope of work.....	1
Definition of terms.....	2
Explanation of data.....	2
Accuracy of field data and computed results.....	4
Publications.....	5
Cooperation.....	10
Division of work.....	10
Gaging-station records.....	11
Columbia River.....	11
Columbia River at The Dalles, Oreg.....	11
Tributaries of Columbia River below mouth of Snake River.....	13
Walla Walla River Basin.....	13
South Fork of Walla Walla River near Milton, Oreg.....	13
Umatilla River Basin.....	14
Umatilla River above McKay Creek, near Pendleton, Oreg.....	14
Umatilla River above Furnish Reservoir, near Yeakum, Oreg.....	15
Umatilla River near Umatilla, Oreg.....	16
McKay Creek near Pilot Rock, Oreg.....	17
McKay Reservoir near Pendleton, Oreg.....	18
McKay Creek near Pendleton, Oreg.....	19
Birch Creek at Rieth, Oreg.....	20
Diversions from Umatilla River between Furnish Reservoir and Umatilla, Oreg.....	21
Willow Creek Basin.....	22
Willow Creek near Morgan, Oreg.....	22
John Day River Basin.....	23
John Day River at Prairie City, Oreg.....	23
John Day River at Picture Gorge, near Dayville, Oreg.....	24
John Day River at Service Creek, Oreg.....	25
John Day River at McDonald Ferry, Oreg.....	26
Strawberry Creek above South Fork, near Prairie City, Oreg.....	27
Prairie power canal at Prairie City, Oreg.....	28
North Fork of John Day River near Dale, Oreg.....	29
North Fork of John Day River at Monument, Oreg.....	30
Middle Fork of John Day River at Ritter, Oreg.....	31
Fox Creek at gorge near Fox, Oreg.....	32
Cottonwood Creek near Monument, Oreg.....	33
Deschutes River Basin.....	34
Crane Prairie Reservoir near Lapine, Oreg.....	34
Deschutes River at Crane Prairie, near Lapine, Oreg.....	35
Deschutes River above Davis Creek, near Lapine, Oreg.....	36
Deschutes River at Pringle Falls, near Lapine, Oreg.....	37
Deschutes River at Benham Falls, near Bend, Oreg.....	38
Deschutes River below Lava Island, near Bend, Oreg.....	39

Gaging-station records—Continued.

Tributaries of Columbia River below mouth of Snake River—Con.

Deschutes River Basin—Continued.	Page
Deschutes River below Bend, Oreg.....	40
Deschutes River near Madras, Oreg.....	41
Deschutes River at Sherars Bridge, Oreg.....	42
Deschutes River at Moody, near Biggs, Oreg.....	43
Little Deschutes River near Lapine, Oreg.....	44
Crescent Lake Reservoir near Crescent, Oreg.....	45
Crescent Creek at Crescent Lake, near Crescent, Oreg.....	45
Diversions from Deschutes River, near Bend, Oreg.....	46
Tumalo Creek near Bend, Oreg.....	47
Squaw Creek near Sisters, Oreg.....	48
Crooked River near Culver, Oreg.....	49
Metolius River near Grandview, Oreg.....	50
Lake Creek near Sisters, Oreg.....	51
White River below Tygh Valley, Oreg.....	52
Klickitat River Basin.....	53
Klickitat River near Glenwood, Wash.....	53
Klickitat River at Pitt, Wash.....	54
Hood River Basin.....	55
Hood River near Hood River, Oreg.....	55
Pacific Power & Light Co.'s conduit near Hood River, Oreg.....	57
White Salmon River Basin.....	58
White Salmon River near Trout Lake, Wash.....	58
White Salmon River at Husum, Wash.....	59
Sandy River Basin.....	60
Sandy River above Salmon River, at Brightwood, Oreg.....	60
Sandy River near Marmot, Oreg.....	61
Sandy River below Bull Run River, near Bull Run, Oreg.....	62
Little Zigzag River at Twin Bridges, near Rhododendron, Oreg.....	63
Still Creek near Government Camp, Oreg.....	64
Salmon River near Government Camp, Oreg.....	65
Salmon River below Linney Creek, Oreg.....	66
Salmon River at Welches, Oreg.....	67
Bull Run Reservoir near Bull Run, Oreg.....	68
Bull Run River below Bull Run Reservoir, Oreg.....	69
Bull Run River near Bull Run, Oreg.....	70
Little Sandy River near Bull Run, Oreg.....	71
Willamette River Basin.....	72
Middle Fork of Willamette River at Eula, Oreg.....	72
Willamette River at Springfield, Oreg.....	73
Willamette River at Albany, Oreg.....	74
Willamette River at Salem, Oreg.....	75
Coast Fork of Willamette River at Saginaw, Oreg.....	76
McKenzie River at McKenzie Bridge, Oreg.....	77
McKenzie River near Vida, Oreg.....	78
Eugene power canal near Walterville, Oreg.....	79
Long Tom River at Monroe, Oreg.....	80
North Santiam River at Detroit, Oreg.....	81
North Santiam River at Mehama, Oreg.....	82
Little North Santiam River near Mehama, Oreg.....	83
South Santiam River at Waterloo, Oreg.....	84
Middle Santiam River near Foster, Oreg.....	85

Gaging-station records—Continued.

Tributaries of Columbia River below mouth of Snake River—Con.

Willamette River Basin—Continued.

	Page
Albany power canal near Lebanon, Oreg.....	86
Yamhill River at Lafayette, Oreg.....	87
Haskins Creek near McMinnville, Oreg.....	88
Molalla River near Canby, Oreg.....	89
Pudding River at Aurora, Oreg.....	90
Tualatin River near Willamette, Oreg.....	91
Oswego Canal near Oswego, Oreg.....	92
Clackamas River at Big Bottom, Oreg.....	93
Clackamas River above Three Lynx Creek, Oreg.....	94
Clackamas River near Cazadero, Oreg.....	95
Oak Grove Fork above power plant intake, Oreg.....	96
Lewis River Basin.....	97
Lewis River above Muddy River, near Cougar, Wash.....	97
Lewis River near Cougar, Wash.....	98
Lewis River near Amboy, Wash.....	99
Lewis River at Ariel, Wash.....	100
Big Creek below Skookum Meadow, Wash.....	102
Rush Creek above falls, Wash.....	103
Meadow Creek below Lone Butte Meadow, Wash.....	104
Muddy River near Cougar, Wash.....	105
Swift Creek near Cougar, Wash.....	106
Canyon Creek near Amboy, Wash.....	107
East Fork of Lewis River near Heisson, Wash.....	108
Kalama River Basin.....	109
Kalama River near Kalama, Wash.....	109
Cowlitz River Basin.....	110
Cowlitz River at Packwood, Wash.....	110
Cowlitz River at Mossy Rock, Wash.....	111
Cowlitz River near Castle Rock, Wash.....	112
Clear Fork of Cowlitz River near Packwood, Wash.....	113
Cispus River near Randle, Wash.....	115
North Fork of Toutle River at St. Helen, Wash.....	116
Toutle River near Silver Lake, Wash.....	117
Youngs River Basin.....	118
Youngs River near Astoria, Oreg.....	118
Streams between Columbia River and Klamath River.....	119
Rogue River Basin.....	119
Rogue River above Bybee Creek, Oreg.....	119
Rogue River above Prospect, Oreg.....	120
Rogue River below South Fork of Rogue River, near Pros- pect, Oreg.....	121
Rogue River at Raygold, near Central Point, Oreg.....	122
Mill Creek near Prospect, Oreg.....	123
South Fork of Rogue River near Prospect, Oreg.....	124
Middle Fork of Rogue River near Prospect, Oreg.....	125
Red Blanket Creek near Prospect, Oreg.....	126
South Fork of Big Butte Creek near Butte Falls, Oreg.....	127
South Fork of Little Butte Creek at Big Elk ranger station, Oreg.....	128
South Fork of Little Butte Creek near Lakecreek, Oreg.....	129
Fish Lake Reservoir near Lakecreek, Oreg.....	130

Gaging-station records—Continued.

Streams between Columbia River and Klamath River—Continued.

Rogue River Basin—Continued.

	Page
North Fork of Little Butte Creek at Fish Lake, near Lakecreek, Oreg.....	131
North Fork of Little Butte Creek above intake of Rogue River Valley Canal, near Lakecreek, Oreg.....	132
Diversions from Little Butte Creek near Lakecreek, Oreg..	133
Emigrant Gap Reservoir near Ashland, Oreg.....	134
Emigrant Creek near Ashland, Oreg.....	135
Bear Creek at Medford, Oreg.....	136
Diversions in Bear Creek Basin, Oreg.....	137
West Fork of Ashland Creek near Ashland, Oreg.....	138
East Fork of Ashland Creek near Ashland, Oreg.....	139
Applegate River near Ruch, Oreg.....	140
Illinois River at Kerby, Oreg.....	141
Coquille River Basin.....	142
South Fork of Coquille River at Powers, Oreg.....	142
Middle Fork of Coquille River near Bridge, Oreg.....	143
Middle Fork of Coquille River near Myrtle Point, Oreg....	144
Rock Creek near Remote, Oreg.....	145
North Fork of Coquille River near Myrtle Point, Oreg.....	146
Umpqua River Basin.....	147
Umpqua River near Elkton, Oreg.....	147
Cow Creek near Azalea, Oreg.....	148
North Umpqua River below Lake Creek, Oreg.....	149
North Umpqua River at Toketee Falls, Oreg.....	150
North Umpqua River above Rock Creek, near Glide, Oreg..	151
North Umpqua River near Glide, Oreg.....	152
Lake Creek at Diamond Lake, near Fort Klamath, Oreg....	153
Clearwater River above Trap Creek, Oreg.....	154
Siuslaw River Basin.....	155
Lake Creek at Triangle Lake, Oreg.....	155
Siletz River Basin.....	156
Siletz River at Siletz, Oreg.....	156
Nestucca River Basin.....	157
Nestucca River near McMinnville, Oreg.....	157
Trask River Basin.....	158
Trask River near Tillamook, Oreg.....	158
Wilson River Basin.....	159
Wilson River near Tillamook, Oreg.....	159
Miscellaneous discharge measurements.....	160
Index.....	163

ILLUSTRATION

	Page
FIGURE 1. Typical river-measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car.....	3

SURFACE WATER SUPPLY OF PACIFIC SLOPE BASINS IN OREGON AND LOWER COLUMBIA RIVER BASIN, 1931

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of flow made on streams in the United States during the year ending September 30, 1931.

The data presented in these reports were collected by the United States Geological Survey under the following authority contained in the organic law (20 Stat. L., p. 394):

Provided, That this officer [the Director] shall have the direction of the Geological Survey and the classification of the public lands and examination of the geological structure, mineral resources, and products of the national domain.

The work was begun in 1888 in connection with special studies relating to irrigation. Since the fiscal year ending June 30, 1895, successive appropriation bills passed by Congress have carried the following items:

For gaging the streams and determining the water supply of the United States, and for the investigation of underground currents and artesian wells, and for the preparation of reports upon the best methods of utilizing the water resources.

Annual appropriations for the fiscal years ending June 30, 1895-1932

1895-----	\$13, 500. 00	1908-1910 .	\$100, 000. 00	1926-----	\$165, 000. 00
1896-----	24, 500. 00	1911-1917 .	150, 000. 00	1927-----	151, 000. 00
1897-1899 .	50, 000. 00	1918-----	175, 000. 00	1928-----	147, 000. 00
1900-----	70, 000. 00	1919-----	148, 244. 10	1929-----	270, 500. 00
1901-1902 .	100, 000. 00	1920-----	175, 000. 00	1930-----	275, 000. 00
1903-1906 .	200, 000. 00	1921-1923 .	180, 000. 00	1931-----	565, 000. 00
1907-----	150, 000. 00	1924-1925 .	170, 000. 00	1932-----	711, 000. 00

In the execution of the work many private and State organizations have cooperated, either by furnishing data or by assisting in collecting data. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected; cooperation of the second kind is acknowledged on page 10.

Measurements of stream flow have been made at about 6,270 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1931, 2,660 gaging stations were being maintained by the Geological Survey and the cooperating organizations. Many miscellaneous discharge measurements were made at

other points. In connection with this work data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in water-supply papers from time to time.

DEFINITION OF TERMS

The volume of water flowing in a stream—the “run-off” or “discharge”—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those that represent a rate of flow, as second-feet, gallons per minute, miner’s inches, and discharge in second-feet per square mile, and (2) those that represent the actual quantity of water, as run-off in inches, acre-feet, and millions of cubic feet. The principal terms used in this series of reports are second-feet, second-feet per square mile, run-off in inches, and acre-feet. They may be defined as follows:

“Second-feet” is an abbreviation for “cubic feet per second.” A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section 1 foot wide and 1 foot deep at an average velocity of 1 foot per second. It is generally used as a fundamental unit from which others are computed.

“Second-feet 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 run-off is distributed uniformly both as regards time and area.

“Run-off in inches” is the depth to which an area would be covered if all the water flowing from it in a given period were uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in inches.

“An acre-foot,” equivalent to 43,560 cubic feet, is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation.

The following terms not in common use are here defined:

“Stage-discharge relation,” an abbreviation for the term “relation of gage height to discharge.”

“Control,” a term used to designate the natural section or stretch of the channel or artificial structure below the gage which determines the stage-discharge relation at the gage.

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1930, and ending September 30, 1931. At the beginning of January in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, or in ponds, lakes, and swamps, or as underground water, and this stored

water passes off in the streams during the spring break-up. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to

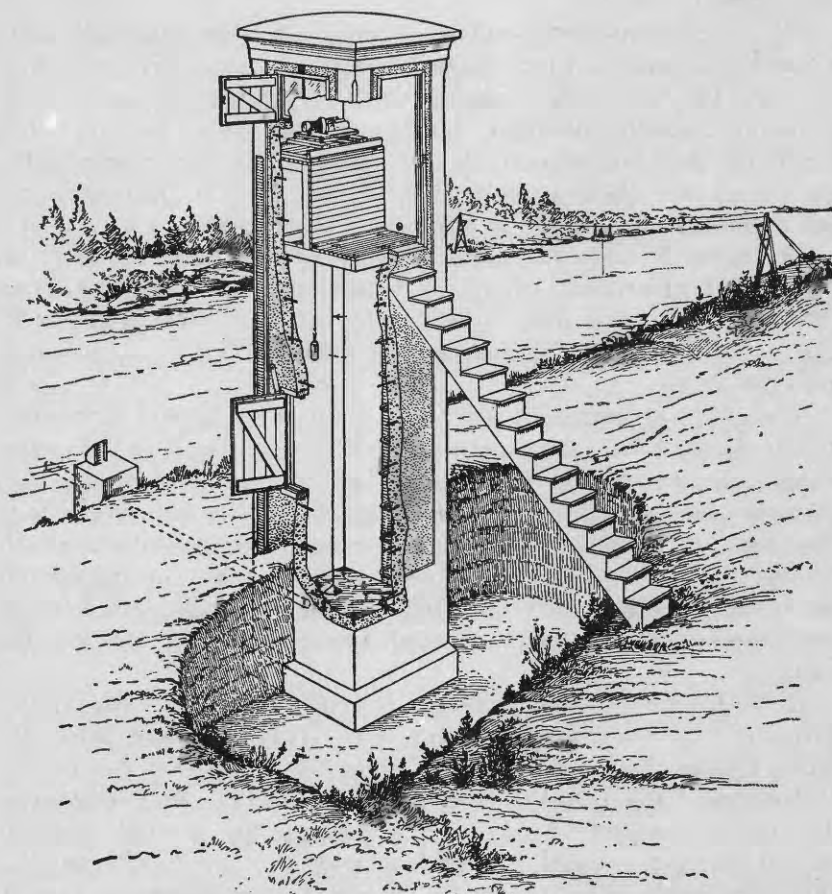


FIGURE 1.—Typical river-measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car

supplement the gage heights and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a staff or chain 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. A typical gaging station, equipped with water-stage recorder and measuring cable and car, is shown in Figure 1.

Rating tables, giving the discharge for any stage, are prepared from the discharge measurements. The application of the daily gage height to these rating tables gives the daily discharge from which the monthly and yearly mean discharge is determined.

The data presented for each gaging station in the area covered by this report comprise a description of the station, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and run-off.

The description of the station gives, in addition to statements regarding location and type of gage, information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded discharge, and the accuracy of the records. The maximum discharge given under "Extremes" does not represent the crest discharge unless a water-stage recorder was in operation or a nonrecording gage was read at the time of the crest.

The table of daily discharge gives, in general, the discharge in second-feet corresponding to the daily gage height, which may be a once daily reading or the mean of twice daily readings of a nonrecording gage, or the mean daily gage height obtained from a water-stage recorder graph.

At stations on streams subject to sudden or rapid diurnal fluctuation the discharge obtained from the rating table and the mean daily gage height may not be the true mean discharge for the day. If such stations are equipped with water-stage recorders, the mean daily discharge may be obtained by averaging discharge at regular intervals during the day or by using the discharge integrator, an instrument for obtaining mean daily discharge from a continuous gage-height graph and containing as an essential element the rating curve of the station.

In the table of monthly discharge the column headed "Maximum" gives the maximum daily discharge and not the discharge when the water surface was at crest height. Likewise, in the column headed "Minimum" the quantity given is the minimum daily discharge. The column headed "Mean" is the average flow in cubic feet per second during the month. On this average flow are based computations recorded in the remaining columns, which are defined on page 2.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily (1) on the permanency of the stage-discharge relation and (2) on the accuracy of observation 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 records are accurate within 5 per cent; "good," within 10 per cent; "fair," within 15 per cent; and "poor," 20 per cent or more.

The monthly means for any station may represent with high accuracy the quantity of water flowing past the gage, but the figures showing discharge per square mile and depth in inches may be subject to gross errors caused by the inclusion of large noncontributing districts in the measured drainage area, by lack of information concerning water diverted for irrigation or other use, or by inability to interpret the effect of artificial regulation of the flow of the river above the station. "Second-feet per square mile" and "Run-off in inches" are therefore not computed if such errors appear probable. The computations are also omitted for stations on streams draining areas in which the annual rainfall is less than 20 inches.

The table of monthly discharge gives a general idea of the flow at the station. The table of daily discharge allows more detailed studies of the variation in flow. It should be borne in mind, however, that the observations in each succeeding year may be expected to throw new light on data previously published.

Many gaging stations on streams in the irrigated areas of the United States are situated above most of the diversions from those streams, and the discharge recorded does not show the water supply available for further development, as prior appropriations below the stations must first be satisfied.

PUBLICATIONS

Investigation of water resources by the United States Geological Survey has consisted in large part of measurements of the volume of flow of streams and studies of the conditions affecting that flow, but it has comprised also investigation of such closely allied subjects as irrigation, water storage, water power, underground waters, and quality of waters. Most of the results of these investigations have been published in the series of water-supply papers, but some have appeared in the bulletins, professional papers, monographs, and annual reports.

The results of stream-flow measurements are now published annually in 12 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.

Part 12. North Pacific slope drainage basins, in three parts:

- A, Pacific slope basins in Washington and upper Columbia River Basin.
- B, Snake River Basin.
- C, Pacific slope basins in Oregon and lower Columbia River Basin.

Water-supply papers and other publications of the United States Geological Survey containing data in regard to the water resources of the United States may be obtained or consulted as indicated 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 local offices of the water-resources branch of the Geological Survey, as follows:

Augusta, Me., Statehouse.
 Boston, Mass., 2500 Customhouse.
 Hartford, Conn., 60 Washington Street.
 Albany, N. Y., 603 State Public Works Building.
 Trenton, N. J., 710 Trenton Trust Building.
 Harrisburg, Pa., 604 Claster Building.
 Charlottesville, Va., Brooks Museum, University of Virginia.
 South Charleston, W. Va., Naval Ordnance Plant.
 Asheville, N. C., 210 Post Office Building.
 Columbia, S. C., 801 National Loan & Exchange Bank Building.
 Ocala, Fla., Post Office Building.
 Tuscaloosa, Ala., Post Office Building.
 Chattanooga, Tenn., 630 Power Building.
 Columbus, Ohio, Engineering Experiment Station, Ohio State University.
 Indianapolis, Ind., 319 Federal Building.
 Urbana, Ill., 302 University New Agricultural Building.
 Madison, Wis., 337N State Capitol.
 St. Paul, Minn., 632 State Office Building
 Topeka, Kans., 23 Federal Building.
 Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
 Fort Smith, Ark., Post Office Building.
 Austin, Tex., State Capitol.
 Santa Fe, N. Mex., State Capitol.
 Tucson, Ariz., 210 Post Office Building.
 Denver, Colo., 403 Post Office Building.
 Salt Lake City, Utah, 303 Federal Building.
 Idaho Falls, Idaho, 228 Federal Building.
 Boise, Idaho, Federal Building.
 Helena, Mont., 416 Power Block.
 Tacoma, Wash., 406 Federal Building.
 Portland, Oreg., 606 Post Office Building.
 San Francisco, Calif., 303 Customhouse.
 Los Angeles, Calif., 751 South Figueroa Street, room 510.
 Honolulu, Hawaii, Territorial Office Building.

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

Stream-flow records have been obtained at about 6,270 points in the United States, and the data obtained have been published in the reports tabulated as follows:

Stream-flow data in reports of the United States 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 Sept. 1890.
12th A, pt. 2	do	1884 to June 30, 1891.
13th A, pt. 3	Mean discharge in second-feet	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871 to 1893)	1888 to Dec. 31, 1893.
B 131	Descriptions, measurements, gage heights, and ratings	1893 and 1894.
16th A, pt. 2	Descriptive information only	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).	1895.
W 11	Gage heights (also gage heights for earlier years)	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895 and 1896.
W 15	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas River.	1897.
W 16	Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte Rivers, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28	Measurements, ratings, and gage heights, Arkansas River, and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)	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 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
W 75	Monthly discharge	1901.
W 82 to 85	Complete data	1902.
W 97 to 100	do	1903.
W 124 to 135	do	1904.
W 165 to 178	do	1905.
W 201 to 214	do	1906.
W 241 to 252	do	1907-8.
W 261 to 272	do	1909.
W 281 to 292	do	1910.
W 301 to 312	do	1911.
W 321 to 332	do	1912.
W 351 to 362	do	1913.
W 381 to 394	do	1914.
W 401 to 414	do	1915.
W 431 to 444	do	1916.
W 451 to 464	do	1917.
W 471 to 484	do	1918.
W 501 to 514	do	1919-20.
W 521 to 534	do	1921.
W 541 to 554	do	1922.
W 561 to 574	do	1923.
W 581 to 594	do	1924.
W 601 to 614	do	1925.
W 621 to 634	do	1926.
W 641 to 654	do	1927.
W 661 to 674	do	1928.
W 681 to 694	do	1929.
W 696 to 709	do	1930.
W 711 to 724	do	1931.

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 in the same relative order as the regular gaging stations. An index of the reports containing records obtained prior to 1904 has been published in Water-Supply Paper 119.

The following table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1931. The data for any particular station will, as a rule, be found in the reports covering the years during which the station was maintained. For example, 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, 383, 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, 1899-1931

[For basins included see p. 5]

Year	1	2	3	4	5	6	7	8	9	10	11	12-A	12-B	12-C
1899 a	35	35, 36	36	36	36	36, 37	37	37	37, 38	38, 39	38, 39	38	38	38
1900 a	47, 48	48, 49	48, 49	49	49	49, 50	50	50	50, 51	51	51	51	51	51
1901	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75	65, 75
1902	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83	82, 83
1903	97	97	97	97	97	97	97	97	97	97	97	97	97	97
1904	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125	124, 125
1905	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166	165, 166
1906	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202	201, 202
1907-8	241	242	243	244	245	246	247	248	249	250, 251	251	252	252	252
1909	261	262	263	264	265	266	267	268	269	270, 271	271	272	272	272
1910	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912	321	322	323	324	325	326	327	328	329	330	331	332	332-B	332-C
1913	351	352	353	354	355	356	357	358	359	360	361	362-A	362-B	362-C
1914	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919-20	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925	601	602	603	604	605	606	607	608	609	610	611	612	613	614
1926	621	622	623	624	625	626	627	628	629	630	631	632	633	634
1927	641	642	643	644	645	646	647	648	649	650	651	652	653	654
1928	661	662	663	664	665	666	667	668	669	670	671	672	673	674
1929	681	682	683	684	685	686	687	688	689	690	691	692	693	694
1930	696	697	698	699	700	701	702	703	704	705	706	707	708	709
1931	711	712	713	714	715	716	717	718	719	720	721	722	723	724

a Rating tables and index to Water-Supply Papers 35-39 contained in Water-Supply Paper 39. Tables of monthly discharge for 1899 in Twenty-first Annual Report, Part 4.

b James River only.

c Gallatin River.

d Green and Gunnison Rivers and Colorado River above junction with Gunnison.

e Kings and Kerns Rivers and south Pacific slope basins.

f Rating tables and index to Water-Supply Papers 47-52 and data on precipitation, wells, and irrigation in California and Utah contained in Water-Supply Paper 52.

g Tables of monthly discharge for 1900 in Twenty-second annual report, Part 4.

h Wessickson and Schuykill Rivers to James River.

i Scioto River.

j Loup and Platte Rivers near Columbus, Nebr., and all tributaries below junction with Platte River.

k Tributaries of Mississippi River from east.

l Lake Ontario and tributaries to St. Lawrence River proper.

m Hudson Bay only.

n New England Rivers only.

o Hudson River to Delaware River, inclusive.

p Susquehanna River to Yackin River, inclusive.

q Platte and Kansas Rivers.

r The Great Basin in California, except Truckee and Carson River Basins.

s Below junction with Gila River.

t Rogue, Umpqua, and Siletz Rivers only.

COOPERATION

The work was done under cooperative agreements as follows: In Oregon with Charles E. Stricklin, State engineer; and in Washington with the Department of Conservation and Development, Erle J. Barnes, director, and Chas. J. Bartholet, supervisor of hydraulics.

Acknowledgment is due also to the Corps of Engineers, United States Army, for financial assistance in collecting records published herein.

Assistance in collecting records was also rendered by the following municipalities, organizations, corporations, and individuals: In Oregon by Coos, Crook, Deschutes, Jackson, and Umatilla Counties; cities of Astoria, Eugene, McMinnville, and Portland; The California Oregon Power Co.; Columbia Valley Power Co.; Deschutes Falls Power Co., Pacific Power & Light Co., Portland General Electric Co., and in Washington by Backus-Brooks Co. and the Northwestern Electric Co.

DIVISION OF WORK

The data for stations in Oregon and Washington (except those in the Cowlitz River Basin) were collected and prepared for publication under the direction of G. H. Canfield, district engineer, assisted by K. N. Phillips, B. S. Barnes, A. H. Williams, A. B. Goodwin, C. A. Young, M. C. Boyer, W. T. Miller, A. R. Peracca, and Miss Belle Irwin. Data for some stations in Oregon, noted in station descriptions, were collected by the State of Oregon under the supervision of Charles E. Stricklin, State engineer. Records for these stations, computed in the office of the Oregon State engineer, were reviewed and prepared for publication by G. H. Canfield, K. N. Phillips, and A. H. Williams.

The data for stations in the Cowlitz River Basin in Washington were collected and prepared for publication under the direction of G. L. Parker, district engineer, assisted by D. J. F. Calkins, R. B. Kilgore, Arthur Johnson, G. M. Thayer, O. B. Johnson, M. C. Boyer, H. C. Woster, J. P. Bonner, Frank Stermitz, L. I. Meyer, R. J. Swanson, A. R. Haynes, and A. P. Martinsen.

The records were reviewed and the manuscript assembled by C. E. Knox.

GAGING-STATION RECORDS

COLUMBIA RIVER

COLUMBIA RIVER AT THE DALLES, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 3, T. 1 N., R. 13 E., at foot of Court Street at The Dalles, 18 miles below Deschutes River and above Hood and Klickitat Rivers. Zero of gage is 46.55 feet above mean sea level.

DRAINAGE AREA.—237,000 square miles.

RECORDS AVAILABLE.—June, 1878, to September, 1931. Maximum stages 1858 to 1877.

EXTREMES.—Maximum discharge during year, 308,000 second-feet May 19 (gage height, 18.8 feet); minimum, 50,800 second-feet Jan. 1, 2, 22.

1858–1931: Maximum discharge, 1,170,000 second-feet June 6, 1894 (gage height, 59.6 feet); minimum, 40,000 second-feet Jan. 18, 21, 1930 (gage height, 88.8 feet on gage above Celilo Falls).

REMARKS.—Records good. Gage readings at head of Celilo Falls, 12 miles upstream, used for periods of ice effect or no gage readings at The Dalles Oct. 17–27, Dec. 21 to Jan. 1. Diversions for irrigation constitute only a small portion of total flow. Gage-height record furnished by United States Weather Bureau.

Daily discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	86,600	64,700	62,000	50,800	60,000	58,700	137,000	135,000	271,000	247,000	159,000	104,000
2.....	85,600	64,700	62,000	50,800	59,300	58,000	144,000	144,000	269,000	244,000	158,000	103,000
3.....	84,700	64,700	62,700	51,300	58,700	58,000	207,000	158,000	288,000	243,000	157,000	102,000
4.....	83,800	64,000	62,000	52,300	58,700	58,000	185,000	173,000	288,000	237,000	153,000	101,000
5.....	82,900	64,700	60,000	62,000	58,700	56,700	155,000	189,000	263,000	232,000	152,000	100,000
6.....	81,100	65,400	60,000	57,300	58,700	56,700	143,000	203,000	263,000	223,000	145,000	98,100
7.....	80,200	65,400	60,000	56,700	56,700	57,300	131,000	213,000	263,000	216,000	145,000	96,200
8.....	79,300	65,400	60,700	56,700	56,000	58,000	125,000	219,000	260,000	210,000	142,000	95,200
9.....	77,500	65,400	61,300	55,300	56,000	58,700	130,000	228,000	261,000	208,000	141,000	94,200
10.....	76,600	64,700	61,300	54,100	56,000	58,700	134,000	228,000	258,000	202,000	139,000	94,200
11.....	81,100	65,400	61,300	53,500	55,300	58,000	136,000	226,000	268,000	197,000	137,000	95,200
12.....	82,000	64,700	59,300	53,500	54,100	59,300	134,000	223,000	271,000	195,000	135,000	98,100
13.....	82,000	64,700	60,000	54,700	52,900	60,000	130,000	225,000	273,000	192,000	131,000	106,000
14.....	82,000	64,000	60,700	55,300	52,300	62,000	130,000	232,000	279,000	190,000	130,000	112,000
15.....	78,400	64,000	60,000	54,700	53,500	65,400	131,000	247,000	282,000	188,000	128,000	114,000
16.....	75,700	64,700	60,700	52,900	53,500	69,000	132,000	271,000	287,000	186,000	124,000	114,000
17.....	77,300	66,100	62,000	54,100	54,100	71,400	135,000	284,000	287,000	185,000	121,000	111,000
18.....	75,200	68,200	62,000	53,500	55,300	73,900	131,000	295,000	292,000	185,000	118,000	110,000
19.....	75,200	66,100	62,000	51,800	58,000	80,200	129,000	308,000	289,000	183,000	118,000	109,000
20.....	75,200	66,100	61,300	51,800	56,700	83,800	124,000	303,000	284,000	182,000	114,000	107,000
21.....	75,200	64,700	59,900	51,300	56,700	88,400	123,000	297,000	282,000	181,000	113,000	103,000
22.....	73,100	63,400	59,900	50,800	58,000	98,100	120,000	290,000	281,000	179,000	111,000	99,100
23.....	71,100	62,000	58,200	52,300	59,300	101,000	118,000	286,000	277,000	177,000	109,000	96,200
24.....	71,100	63,400	58,200	53,500	59,300	104,000	119,000	282,000	277,000	173,000	109,000	94,200
25.....	71,100	63,400	66,600	55,300	59,300	109,000	114,000	277,000	276,000	170,000	107,000	93,200
26.....	71,100	62,700	56,600	58,700	59,300	109,000	114,000	284,000	276,000	167,000	106,000	91,300
27.....	71,100	62,700	55,000	60,700	58,700	102,000	114,000	284,000	271,000	167,000	104,000	89,400
28.....	67,500	62,700	55,000	60,000	58,700	99,100	116,000	290,000	266,000	162,000	101,000	86,600
29.....	65,400	62,700	55,000	59,300	-----	94,200	119,000	281,000	261,000	162,000	103,000	84,700
30.....	65,400	62,700	52,100	58,000	-----	93,200	124,000	273,000	255,000	164,000	106,000	82,000
31.....	66,100	-----	52,100	58,000	-----	102,000	-----	271,000	-----	162,000	108,000	-----

Monthly discharge, in second-feet, of Columbia River at The Dalles, Oreg., 1930-31

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	86,600	65,400	76,500	0.323	0.37	4,700,000
November.....	68,200	62,000	64,400	.272	.30	3,830,000
December.....	62,700	52,100	59,400	.251	.29	3,650,000
January.....	62,000	50,800	54,900	.232	.27	3,380,000
February.....	60,000	52,300	56,900	.240	.25	3,180,000
March.....	109,000	56,700	76,200	.322	.37	4,690,000
April.....	207,000	114,000	133,000	.561	.63	7,910,000
May.....	308,000	135,000	246,000	1.04	1.20	15,100,000
June.....	292,000	255,000	273,000	1.15	1.28	16,200,000
July.....	247,000	162,000	196,000	.827	.95	12,100,000
August.....	159,000	101,000	127,000	.636	.62	7,810,000
September.....	114,000	82,000	99,500	.420	.47	5,920,000
The year.....	308,000	50,800	122,000	.515	7.00	88,400,000

TRIBUTARIES OF COLUMBIA RIVER BELOW MOUTH OF SNAKE RIVER

WALLA WALLA RIVER BASIN

SOUTH FORK OF WALLA WALLA RIVER NEAR MILTON, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 10, T. 4 N., R. 37 E., a quarter of a mile above Pacific Power and Light Co.'s penstock intake and $1\frac{1}{2}$ miles southeast of Milton.

RECORDS AVAILABLE.—February to October, 1903 (gage heights only); August, 1906, to November, 1917 (incomplete); May to September, 1931. At site 6 miles downstream, November, 1903, to May, 1906.

EXTREMES.—Maximum discharge during period, 175 second-feet May 21 (gage height, 0.99 foot); minimum, 78 second-feet Aug. 24, Sept. 27–30.

1903–1917, 1931: Maximum discharge recorded, 1,650 second-feet Apr. 14, 1904; flood of May 30–31, 1906, which washed out gage, was probably much higher; minimum, that of Aug. 24, Sept. 27–30, 1931.

Maximum stage known, about 9 feet Mar. 31, 1931, referred to present gage.

REMARKS.—Records good except those for June 17–30, which are fair. Discharge estimated May 22–27. No diversions or regulations above station. Part of records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1931

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1.....		136	93	81	81	16.....		131	85	83	83
2.....		136	89	81	81	17.....		167	85	83	83
3.....		131	89	81	81	18.....		136	85	83	83
4.....		126	89	80	81	19.....		131	85	83	83
5.....		121	89	80	81	20.....		126	81	83	83
6.....		121	89	83	81	21.....	175	121	81	83	83
7.....		121	89	83	81	22.....		121	81	81	83
8.....		121	89	80	81	23.....		126	81	81	83
9.....		117	89	80	83	24.....		119	81	78	83
10.....		126	85	80	83	25.....	163	108	81	81	83
11.....		117	85	80	83	26.....		108	81	81	80
12.....		117	85	80	83	27.....		99	81	81	78
13.....		117	85	83	83	28.....	151	99	81	81	78
14.....		121	85	83	83	29.....	151	95	81	81	78
15.....		126	89	83	83	30.....	146	95	81	81	78
						31.....	141		81	81	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
May 21–31.....	175	141	158	3,450
June.....	167	95	121	7,200
July.....	93	81	84.9	5,220
August.....	83	78	81.4	5,010
September.....	83	78	81.7	4,860
The period.....				25,700

UMATILLA RIVER BASIN

UMATILLA RIVER ABOVE MCKAY CREEK, NEAR PENDLETON, OREG.

LOCATION.—Water-stage recorder in sec. 8, T. 2 N., R. 32 E., a quarter of a mile above mouth of McKay Creek and 2 miles west of Pendleton. Gage datum raised 2.00 feet Oct. 1, 1930; lowered 1.94 feet Apr. 6, 1931.

RECORDS AVAILABLE.—May, 1921, to September, 1931. Comparable records at Pendleton February, 1891, to July, 1892, May, 1903, to March, 1906.

EXTREMES.—Maximum discharge during year (estimated), 13,500 second-feet Apr. 1 (gage height, about 8.8 feet); minimum, 9 second-feet Aug. 18.

1891-92, 1903-1906, 1921-1931: Maximum discharge, that of Apr. 1, 1931; minimum, 7 second-feet Aug. 14, 1924 (gage height, 1.87 feet).

REMARKS.—Records good except those for Apr. 1-5, which are fair. Small diversions for irrigation above station. Considerable regulation at low stages caused by operation of mills at Pendleton. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	54	68	172	120	743	338	} *3, 850	754	113	54	14	17
2.....	53	67	190	114	629	344		790	103	50	14	18
3.....	50	69	228	116	540	379		850	96	50	12	19
4.....	47	68	255	116	485	485		790	88	48	12	16
5.....	48	67	262	116	440	581		700	82	48	14	16
6.....	53	68	252	114	413	545	1, 540	645	78	48	16	18
7.....	158	65	237	110	379	485	1, 780	618	75	41	16	22
8.....	128	65	218	110	341	436	1, 660	535	73	35	18	26
9.....	103	68	200	108	320	404	1, 400	460	73	32	17	28
10.....	90	70	190	105	306	379	1, 290	450	73	28	14	28
11.....	83	68	198	255	296	375	1, 220	390	70	26	12	28
12.....	78	70	225	218	288	501	1, 080	367	67	26	12	29
13.....	74	82	283	243	285	724	1, 120	381	68	28	12	30
14.....	69	88	384	249	285	821	1, 040	376	68	25	14	31
15.....	70	94	366	246	288	840	978	367	72	25	15	30
16.....	70	118	330	269	302	1, 000	912	363	86	26	15	29
17.....	70	130	294	380	302	1, 040	978	363	138	26	13	29
18.....	70	132	272	388	302	1, 120	978	332	162	24	11	34
19.....	67	128	252	344	408	1, 800	880	286	158	23	12	36
20.....	65	130	237	306	465	1, 970	820	253	132	23	13	38
21.....	65	136	222	276	460	2, 090	748	231	110	21	13	37
22.....	63	170	210	366	426	2, 400	712	220	100	21	14	36
23.....	62	195	192	1, 260	418	1, 850	678	202	94	15	14	34
24.....	62	202	180	1, 460	400	1, 410	640	195	80	15	12	33
25.....	63	198	175	970	375	1, 260	650	184	75	14	12	34
26.....	70	190	162	795	375	1, 120	667	165	70	15	12	32
27.....	72	185	152	782	367	1, 010	700	158	68	16	17	32
28.....	68	182	142	847	352	923	742	149	78	17	20	32
29.....	68	178	130	938	-----	1, 042	760	135	59	16	20	32
30.....	70	172	124	923	-----	1, 040	790	123	49	17	18	33
31.....	69	-----	120	840	-----	5, 300	-----	126	-----	17	19	-----
Month						Maximum	Minimum	Mean	Run-off in acre-feet			
October.....						158	47	72.0	4, 420			
November.....						202	65	117	6, 960			
December.....						384	120	221	13, 600			
January.....						1, 460	103	435	26, 700			
February.....						743	285	392	21, 800			
March.....						5, 300	338	1, 090	67, 000			
April.....						-----	640	1, 470	87, 500			
May.....						850	123	386	23, 700			
June.....						162	49	88.6	5, 270			
July.....						54	14	28.1	1, 730			
August.....						20	11	14.4	885			
September.....						38	16	28.6	1, 700			
The year.....						-----	11	361	261, 000			

* Estimated.

UMATILLA RIVER ABOVE FURNISH RESERVOIR, NEAR YOAKUM, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 17, T. 2 N., R. 31 E., at Oregon-Washington Railroad & Navigation Co.'s bridge a quarter of a mile above Campbell and 5 miles above Yoakum.

RECORDS AVAILABLE.—June, 1915, to September, 1931.

EXTREMES.—Maximum discharge during year (estimated), 14,500 second-feet Apr. 1 (gage height, 11.3 feet); minimum, 30 second-feet Sept. 18 (gage height, -0.46 foot).

1915-1931: Maximum discharge, that of Apr. 1, 1931; minimum, 14 second-feet Aug. 17, 1926 (gage height, 1.17 feet).

REMARKS.—Records good except those estimated, which are fair. Diversions for irrigation above station. Flow regulated to some extent by storage in McKay Reservoir. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	55	78	176	131	790	356	*4,400	830	292	261	199	132
2-----	52	78	188	128	682	361		880	321	257	208	130
3-----	48	80	222	120	604	392		955	331	255	210	130
4-----	47	78	251	120	540	490		905	328	183	208	128
5-----	47	70	258	120	501	616		895	331	171	210	126
6-----	50	72	* 246	120	468	574	*1,550	712	344	164	208	128
7-----		70	* 234	117	424	518		668	331	188	210	132
8-----		70	222	117	382	468		600	318	190	212	120
9-----		72	212	114	351	440		560	289	197	210	42
10-----		74	198	114	326	413		500	221	210	206	39
11-----	78	72	205	240	303	403	*1,550	463	213	229	* 176	36
12-----		74	233	233	294	512		413	212	244	* 132	36
13-----		76	80	282	262	298		384	210	241	130	35
14-----		74	103	377	265	303		384	235	239	* 132	36
15-----		74	103	371	265	307		384	204	239	134	34
16-----	76	128	336	282	311	1,080	1,130	370	324	239	* 136	32
17-----	76	134	298	377	307	1,150		384	344	235	138	32
18-----	76	147	282	392	303	1,180		344	311	223	151	33
19-----	76	156	262	361	413	1,820		1,060	306	294	197	151
20-----	72	169	244	326	490	2,040		955	275	289	194	154
21-----	74	182	226	294	484	2,140	930	250	266	192	151	39
22-----	72	195	212	356	452	2,620	855	246	255	190	150	38
23-----	72	205	198	1,080	446	2,040	758	261	255	188	151	37
24-----	74	208	188	1,470	435	1,520	712	284	248	186	148	35
25-----	72	202	179	1,010	403	1,340	690	292	250	186	148	34
26-----	78	195	169	850	397	1,180	668	384	241	215	150	34
27-----	80	185	160	820	392	1,080	712	287	237	208	153	33
28-----	83	182	150	880	377	975	780	306	237	208	154	33
29-----	80	179	137	975	-----	940	830	314	219	206	154	33
30-----	80	172	131	940	-----	1,120	855	306	237	204	146	34
31-----	80	-----	131	880	-----	*5,700	-----	299	-----	204	132	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October-----	-----	47	78.1	4,800
November-----	208	70	127	7,560
December-----	377	131	225	13,800
January-----	1,470	114	444	27,300
February-----	790	294	421	23,400
March-----	5,700	356	1,160	71,300
April-----	-----	668	1,720	102,000
May-----	955	246	463	28,500
June-----	344	210	276	16,400
July-----	261	164	211	13,000
August-----	212	130	166	10,200
September-----	132	32	60.3	3,590
The year-----	-----	32	445	322,000

* Estimated.

UMATILLA RIVER NEAR UMATILLA, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 21, T. 5 N., R. 28 E., $1\frac{1}{2}$ miles below West Division Main Canal of Umatilla project and 2 miles above Umatilla and mouth of river. Staff gage at same site used prior to Jan. 26, 1931.

DRAINAGE AREA.—2,130 square miles.

RECORDS AVAILABLE.—October, 1903, to September, 1931.

EXTREMES.—Maximum discharge during year, 15,000 second-feet Apr. 2 (gage height, 9.60 feet); no flow June 9–15.

1903–1931: Maximum discharge, 19,600 second-feet May 31, 1906 (gage height, 11.0 feet); no flow at times.

REMARKS.—Records good except those estimated and those for May to September, which are fair. Gage read about three or four times a week Oct. 1 to Jan. 25. Several diversions for irrigation above station; Brownell Canal diverts below. Flow regulated by storage in McKay, Furnish, and Cold Springs Reservoirs. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	* 23	36	105	* 95	641	165	7,070	* 45	17	16	12	10
2.....	23	* 32	* 105	85	623	105	10,500	49	20	16	9	8
3.....	28	28	105	* 78	605	77	4,800	95	26	16	9	8
4.....	32	* 26	* 98	72	557	105	3,040	165	22	16	10	8
5.....	* 34	25	* 92	* 76	472	192	2,410	* 135	24	16	11	9
6.....	36	* 25	85	* 80	328	240	2,050	* 104	17	16	12	8
7.....	* 38	* 25	* 92	85	271	215	2,210	* 73	* 15	16	11	8
8.....	40	25	* 98	* 85	230	192	2,320	* 42	* 15	16	14	7
9.....	* 49	* 23	105	* 85	196	161	2,050	11	6	15	12	8
10.....	58	21	* 105	85	183	105	1,810	8	0	15	16	10
11.....	85	* 21	105	* 85	157	85	1,520	8	0	14	13	11
12.....	* 72	* 21	* 105	85	149	101	1,260	9	0	13	13	10
13.....	58	21	105	* 85	141	188	1,170	10	0	13	13	15
14.....	* 52	* 21	* 105	* 85	137	293	1,110	13	0	13	12	11
15.....	* 46	21	105	85	133	354	940	14	11	13	13	11
16.....	40	* 21	* 115	* 105	133	394	849	13	156	13	14	12
17.....	36	* 21	125	125	133	436	798	14	160	13	13	15
18.....	36	44	* 135	* 152	133	597	836	12	40	13	14	11
19.....	* 34	125	145	178	129	1,160	686	20	78	13	12	11
20.....	32	* 115	* 125	188	206	1,620	695	11	55	13	14	12
21.....	* 32	105	105	* 150	235	1,880	641	12	36	14	12	12
22.....	32	* 105	* 105	565	225	2,140	565	17	19	14	13	11
23.....	* 32	105	105	* 950	201	2,140	677	16	17	13	13	11
24.....	* 32	* 105	* 98	* 1,200	188	1,620	650	24	19	14	15	11
25.....	32	* 105	* 92	* 950	174	1,300	288	19	17	14	13	11
26.....	* 32	105	85	650	153	1,160	* 160	19	* 17	14	14	11
27.....	32	* 98	* 85	632	188	940	31	19	* 16	14	12	12
28.....	* 36	* 92	* 85	632	174	875	* 35	17	16	14	10	11
29.....	40	85	85	623	-----	810	* 38	20	17	14	11	13
30.....	* 39	* 95	* 95	632	-----	810	* 42	22	16	13	15	78
31.....	* 37	-----	105	677	-----	1,540	-----	17	-----	13	8	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	85	23	39.6	2,430
November.....	125	21	56.6	3,370
December.....	145	85	103	6,330
January.....	1,200	72	312	19,200
February.....	641	129	253	14,100
March.....	2,140	77	710	43,700
April.....	10,500	31	1,710	102,000
May.....	165	8	34.0	2,080
June.....	160	0	28.4	1,690
July.....	16	13	14.2	873
August.....	16	8	12.4	762
September.....	78	7	12.8	782
The year.....	10,500	0	272	197,000

* Estimated.

McKAY CREEK NEAR PILOT ROCK, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 23, T. 1 N., R. 32 E., 1 mile above backwater from McKay Dam and 6 miles (previously in error) northeast of Pilot Rock.

RECORDS AVAILABLE.—May to August, 1921; October, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,000 second-feet Apr. 1 (gage height, 10.4 feet); no flow at times.

1921, 1926-1931: Maximum discharge, that of Apr. 1, 1931; no flow at times during summer.

REMARKS.—Records good except those estimated, those for Oct. 18 to Dec. 15, and those for discharges above 400 second-feet, which are fair. Numerous small diversions for irrigation above station; none between station and McKay Reservoir. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	* 5	8	15	* 15	150	69	2,840	* 54		
2	* 5	8	15	* 14	132	79	1,120	49		
3	5	8	16	14	114	91	710	48		
4		8	19	14	98	108	513	46		
5		8	21	14	89	110	427	44		* 8
6		8	21	14	80	104	413	42		
7		8	21	14	69	98	409	39		
8		8	21	14	60	93	378	37	* 1.0	* 6
9		8	21	14	54	87	333	36		
10		8	19	35	50	82	303			
11		8	22	72	46	80	274			
12		8	25	121	41	108	232			
13		8	29	119	40	135	232	* 20		* 3
14		8	32	104	39	145	218			
15		8	33	93	39	158	196			
16		9	37	89	40	223	183	5.0	1.2	
17		15	36	112	40	212	173	5.0		
18	8	15	36	123	40	237	169	4.0		
19	8	15	35	100	60	276	* 155	4.0		
20	8	16	34	85	64	306	* 141	3.0		
21	8	18	34	79	64	319	* 127	3.0		
22	8	22	33	91	60	351	* 113	3.0		
23	8	25	31	346	63	297	99	3.0		
24	8	25	29	342	62	260	* 90	3.0	* 1.0	* 0
25	8	23	28	241	60	234	82	2.0		
26	8	22	25	212	60	212	74	2.0		
27	8	20	24	226	64	198	* 70	2.0		
28	8	18	* 22	237	66	181	* 66	1.7		
29	8	16	* 20	234	-----	185	* 62	1.5		
30	8	16	* 18	205	-----	481	* 58	1.2		
31	9	-----	* 16	172	-----	1,540	-----	* 1.0	-----	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October			7.7	473
November	25	8	13.2	786
December	37	15	25.4	1,560
January	346	14	115	7,070
February	150	39	65.9	3,660
March	1,540	69	228	14,000
April	2,840	58	342	20,400
May	54	1.0	18.0	1,110
June			1.01	60
July		0	.27	17
The year	2,840	0	67.8	49,100

* Estimated.

NOTE.—No flow during August and September.

McKAY RESERVOIR NEAR PENDLETON, OREG.

LOCATION.—Staff gage at reservoir dam in SE. $\frac{1}{4}$ sec. 34, T. 2 N., R. 32 E., 4 miles south of Pendleton. Gage readings are elevations above mean sea level.

RECORDS AVAILABLE.—October, 1930, to September, 1931.

EXTREMES.—Maximum contents during year, 53,060 acre-feet May 8-15 (elevation, 1,303.4 feet); minimum contents recorded, 3,427 acre-feet Oct. 1 (elevation, 1,219.0 feet).

REMARKS.—Records excellent except those for October to February, which are fair. Summer flow above reservoir entirely diverted for irrigation. Gates in dam closed Sept. 8, 1931. McKay Reservoir, completed in 1927 by the United States Bureau of Reclamation, has a capacity of 67,700 acre-feet at elevation 1,317.0 feet and stores water for irrigation of lands along Umatilla River near Echo, Stanfield, and Hermiston. Records furnished by State engineer.

Monthly elevation and contents of McKay Reservoir near Pendleton, Oreg., 1930-31

Date	Elevation (feet)	Contents (acre-feet)	Change in con- tents (acre-feet)	Date	Elevation (feet)	Contents (acre-feet)	Change in con- tents (acre-feet)
Sept. 30.....	-----	* 3,427	-----	May 31.....	1,299.6	49,460	-3,220
Oct. 31.....	-----	* 3,485	+58	June 30.....	1,286.1	38,040	-11,420
Nov. 30.....	-----	* 4,940	+1,455	July 31.....	1,268.8	26,080	-11,960
Dec. 31.....	1,229.0	6,747	+1,807	Aug. 31.....	-----	* 16,000	-10,080
Jan. 31.....	1,243.0	12,350	+5,603	Sept. 30.....	-----	* 13,920	-2,080
Feb. 28.....	1,253.5	17,360	+5,010				
Mar. 31.....	1,273.1	28,850	+11,490				
Apr. 30.....	1,303.0	52,680	+23,830	The year.....	-----	-----	+10,493

* Estimated.

McKAY CREEK NEAR PENDLETON, OREG.

LOCATION.—Water-stage recorder in sec. 34, T. 2 N., R. 32 E., just above irrigation diversion dam, a quarter of a mile below McKay Dam, and 4 miles (previously in error) south of Pendleton.

RECORDS AVAILABLE.—November, 1918, to September, 1923; October, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 449 second-feet May 26 (gage height, 1.59 feet); no flow Oct. 1 to May 16, Sept. 9–30.

1918–1931: Maximum discharge, 3,250 second-feet Feb. 10, 1921; no flow at times.

REMARKS.—Records excellent except those for discharges below 60 second-feet, which are good. Discharge records include flow diverted by irrigation canal at gage. Diversions for irrigation above McKay Reservoir use total summer flow. Flow completely regulated since 1927 by storage in McKay Reservoir. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930–31

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1	0	225	225	210	122	16	29	236	225	129	0
2	0	268	229	225	119	17	31	221	225	135	0
3	0	268	214	225	117	18	14	89	199	147	0
4	0	258	124	221	117	19	14	152	179	147	0
5	0	258	119	225	117	20	14	166	179	147	0
6	0	273	126	221	115	21	23	152	179	147	0
7	0	268	164	221	115	22	70	152	179	147	0
8	0	268	172	221	59	23	95	150	179	147	0
9	0	189	189	221	0	24	126	161	179	144	0
10	0	136	210	217	0	25	172	169	189	142	0
11	0	136	225	158	0	26	214	172	233	142	0
12	0	139	225	129	0	27	161	172	214	142	0
13	0	139	225	129	0	28	192	172	214	144	0
14	0	206	225	129	0	29	203	172	214	144	0
15	0	249	225	129	0	30	206	199	210	134	0
						31	206		210	122	
Month						Maximum	Minimum	Mean	Run-off in acre-feet		
May						214	0	57.1	3,510		
June						273	89	194	11,560		
July						233	119	197	12,100		
August						225	122	166	10,200		
September						122	0	29.4	1,750		
The year						273	0	54.0	39,100		

NOTE.—No flow during months omitted.

BIRCH CREEK AT RIETH, OREG.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 13, T. 2 N., R. 31 E., a quarter of a mile above mouth and 1 mile southwest of Rieth.

RECORDS AVAILABLE.—May, 1921, to September, 1923; April, 1927, to September, 1931; incomplete.

EXTREMES.—Maximum discharge during year, 920 second-feet Apr. 1 (gage height, 5.15 feet); no flow at times.

1921–1923, 1927–1931: Maximum discharge, 1,640 second-feet Jan. 29, 1928 (gage height, 6.00 feet); no flow at times.

REMARKS.—Records good except those estimated and those for discharges below 10 second-feet, which are fair. Diversions for irrigation above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930–31

Day	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1.		7.6	7.9	35	13	920	11	0.1
2.			7.9	35	12	390	11	.1
3.	* 3.0		8.5	29	13	275	11	.1
4.			8.5	29	13	365	11	.1
5.		* 7.6	8.2	29	15	365	9.0	.1
6.		4.0	8.5	27	15	365	8.0	.1
7.		* 4.1	8.9	25	15	365	7.0	.1
8.		* 4.2	7.6	25	15	319	3.0	.1
9.		* 4.3	8.5	23	15	264	2.0	.1
10.		4.4	9.2	22	15	242	1.6	.2
11.			* 8.8	13	21	15	242	1.6
12.				24	19	15	242	1.5
13.				25	18	15	182	.4
14.				24	16	15	164	.6
15.		* 5.6		15	17	100	.8	.1
16.			10	21	15			
17.		* 10	21	15	21	114	.6	.2
18.		6.9	10	19	14	26	.6	1.2
19.			* 10	19	14	30	.6	4.0
20.			* 10	19	14	57	.2	4.0
21.			* 10	19	15	60	.1	2.0
22.		* 7.2					2.0	2.0
23.			10	21	15	66	.3	0
24.			10	21	15	133	.1	0
25.			9.2	31	14	101	.1	0
26.		7.6	10	45	15	88	.1	0
27.			9.5	42	14	82	.1	0
28.			9.2	39	14	68	.1	0
29.			8.5	41	13	65	.1	0
30.			8.2	41	13	51	.1	0
31.			7.2	39		59	.1	0
			6.6	39		57	.1	0
			6.9	39		237	.1	
Month	Maximum		Minimum		Mean		Run-off in acre-feet	
November					* 5.76		343	
December			6.6		8.68		534	
January	45		7.9		22.2		1,360	
February	35		13		19.7		1,090	
March	237		12		46.1		2,830	
April	920		11		185		11,000	
May	11		.1		2.75		169	
June	4		0		.43		26	
The year	920		0		24.0		17,400	

* Estimated.

NOTE.—No flow during months omitted.

DIVERSIONS FROM UMATILLA RIVER BETWEEN FURNISH RESERVOIR AND UMATILLA, OREG.

Furnish Canal diverts from right bank of Umatilla River in sec. 36, T. 3 N., R. 29 E. Crayne-Lisle Canal diverts from left bank of Furnish Canal half a mile below Furnish Canal head gate but above gage on Furnish Canal. Slusher and Taylor Ditches divert from left bank of Umatilla River near Nolin. Wilson-Ramos Ditches divert from right bank of Umatilla River half a mile above intake of Umatilla project feed canal, which diverts water from right bank of Umatilla River in SW. ¼ sec. 22, T. 3 N., R. 29 E. to feed Cold Springs Reservoir of United States Bureau of Reclamation. Western Land & Irrigation Co.'s canal diverts from left bank of Umatilla River in NE. ¼ sec. 21, T. 3 N., R. 29 E.; gage 1 mile below intake. Allen Canal diverts from right bank of Western Land & Irrigation Co.'s canal half a mile below head gate of latter canal. Dillon Canal diverts from left bank of Umatilla River in sec. 5, T. 3 N., R. 29 E. Maxwell Canal diverts from right bank of Umatilla River in SW. ¼ sec. 28, T. 4 N., R. 28 E. West Division Main Canal diverts from left bank of Umatilla River in SW. ¼ sec. 28, T. 5 N., R. 28 E. Brownell Canal diverts from right bank of Umatilla River 2 miles below West Division Main Canal diversion and 1½ miles above mouth of Umatilla River.

Water diverted by these canals is used for irrigation of lands on both sides of Umatilla River below Furnish Reservoir, except that diverted by West Division Main Canal, which is applied to lands along Columbia River in vicinity of Irigon.

Records are available from March, 1926, to September, 1931; records for some of the canals published separately prior to 1926. Records furnished by State engineer.

Monthly diversions, in acre-feet, 1930-31

Month	Furnish Canal	Crayne-Lisle Canal	Slusher and Taylor ditches	Wilson-Ramos ditches *	Umatilla project feed canal	Western Land & Irrigation Co.'s canal	Allen Canal	Dillon Canal	Maxwell Canal	West Division Main Canal	Brownell Canal	Total
October.....	0	0	0	0	0	0	0	0	5,970	357	0	6,327
November.....	0	0	0	0	5,530	0	0	0	3,240	0	0	8,770
December.....	0	0	0	0	12,400	0	0	0	0	0	0	12,400
January.....	0	0	0	0	13,200	0	0	0	0	0	0	13,200
February.....	0	0	0	0	15,300	0	0	0	0	0	0	15,300
March.....	25	36	25	60	10,600	2,620	217	0	5,070	0	0	18,523
April.....	1,150	167	0	15	6,490	5,940	399	0	7,380	518	22,800	35,584
May.....	5,440	488	86	408	5,930	11,900	1,130	374	2,900	7,990	1,090	37,700
June.....	5,270	80	389	67	95	9,460	857	477	1,440	7,380	948	26,400
July.....	2,520	0	301	0	18	9,040	824	264	806	8,060	885	22,760
August.....	1,750	0	0	5	0	7,320	676	9	1,170	8,181	842	20,000
September.....	0	0	137	0	0	2,110	863	0	815	5,740	541	10,206
The period.....	16,200	735	918	555	69,600	48,400	4,970	1,120	7,880	59,000	5,180	124,823

* No record for Ramos Ditch and probably no flow.

† Incomplete; total monthly flow probably greater.

• Partly estimated because record is incomplete.

NOTE.—Little or no flow in canals for months for which no record is given.

WILLOW CREEK BASIN

WILLOW CREEK NEAR MORGAN, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 27, T. 1 N., R. 23 E., $1\frac{1}{2}$ miles south of Morgan.

RECORDS AVAILABLE.—January to June, 1921; October, 1928, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 157 second-feet May 2 (gage height, 1.8 feet); no flow Oct. 1–17, June 1 to Sept. 30.

1921, 1928–1931: Maximum discharge, 2,000 second-feet Feb. 1, 1930.

REMARKS.—Records fair. Gage read about every other day; mean monthly discharge is mean of discharges on days gage was read, except January and May, for which discharges were interpolated for days of no gage-height record.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1		0.3		0.3	1.2	0.2	18	*5.0
2	0			*.3	.8		62	80
3		.3	0.3	.3		.3	24	13
4	0			.3	.8		15	5.7
5	0	.3	.3	*.3		.3	12	3.1
6				*.3	.8	.2	8.0	1.7
7				.3	.8		16	*1.1
8	0	.3	.3	*.4	.8	.2	21	.5
9				*.4			18	.3
10	0	.3	.3	.5	.8	.2	13	*.3
11				.5	.2		9.0	.3
12	0	.3	.3	*.6		.3	15	.5
13				.8	.1		16	.5
14			.3	*1.3	.1	.2	15	*.4
15	0	.3		*1.7	.1		18	.3
16				2.2	.1	.2	20	.2
17	0	.3	.3	2.2			16	*.2
18				*2.0		.3	19	.2
19		.3	.3	1.7	.2	.2	19	*.2
20	.3			*2.0		.2	15	.2
21	.3	.3	.3	2.2	.3	.2	9.7	*.2
22			.3	2.8	.3	.2	6.4	*.2
23	.3	.3		3.5			11	.2
24			.3	29	.3	.2	5.4	.2
25	.3	.3		16			5.4	.2
26	.3		.3	7.2	.2	.2	1.6	*.2
27				2.2			1.4	*.1
28	.3	.3	.3	1.4	.2	.2	1.4	.1
29				*1.4		.2	.5	*.1
30	.3	.3	.3	1.4			.5	.1
31				1.4		.3		.1

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	0.3	0	0.14	9
November	.3	.3	.30	18
December	.3	.3	.30	18
January	29	.3	2.80	172
February	1.2	.1	.45	25
March	.3	.2	.23	14
April	62	.5	13.7	815
May	80	.1	3.72	229
The year	80	0	1.80	1,300

* Interpolated.

NOTE.—No flow during months omitted.

JOHN DAY RIVER BASIN

JOHN DAY RIVER AT PRAIRIE CITY, OREG.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 10, T. 13 S., R. 33 E., above outlet of Prairie power canal at power plant three-quarters of a mile southwest of Prairie City.

RECORDS AVAILABLE.—October, 1926, to September, 1931. At station below outlet of Prairie power canal, October, 1916, to September, 1917; March, 1925, to September, 1926.

EXTREMES.—Maximum discharge during year, 487 second-feet Jan. 23 (gage height, 2.60 feet); minimum, 2.6 second-feet Aug. 8, 11–13, 16, 21–25, Sept. 3, 4 (gage height, 0.08 foot).

1926–1931: Maximum daily discharge (estimated), 900 second-feet June 9, 1927; minimum, that of August, September, 1931.

REMARKS.—Records good except those estimated, Dec. 21–31, Jan. 7–9, 18–20, which are fair. Diversions above station for irrigation and power. See page 28 for record of Prairie power canal.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	10	10	8	10	16	12	196	26	34	7.1	4.4	3.4
2.....	10	10	9	12	13	13	149	24	23	5.6	4.4	3.8
3.....	9	10	8	12	15	14	104	30	18	5.3	3.6	3.4
4.....	8	10	9	11	15	14	85	31	18	4.8	3.2	3
5.....	8	9	9	11	16	13	82	27	16	4.0	3.2	3.2
6.....	9	8	8	10	14	12	96	24	12	3.6	3.8	3.4
7.....	15	8	8	20	12	11	102	20	10	3.8	3.4	3.8
8.....	19	7	8	30	14	10	95	16	10	4.4	2.8	4.0
9.....	13	8	8	40	12	14	84	16	11	4.2	3.0	4.0
10.....	10	8	8	10	12	13	84	16	11	4.6	3.0	4.4
11.....	10	8	9	13	11	14	82	17	11	4.4	2.8	4.4
12.....	10	8	8	12	10	18	75	16	9	5.0	2.8	4.2
13.....	10	8	9	9	10	17	96	16	8	5.9	2.8	4.0
14.....	10	8	9	10	10	16	89	29	10	5.2	3.2	1.0
15.....	10	8	8	9	11	16	75	55	15	7.7	3.2	4.4
16.....	9	8	9	10	10	22	67	59	57	7.4	3.0	4.4
17.....	9	8	9	9	11	22	69	59	85	8	3.2	3.6
18.....	9	8	8	25	12	30	66	57	57	8	3.4	4.2
19.....	10	7	8	35	17	34	59	48	41	8	3.4	4.6
20.....	10	8	8	25	12	39	56	41	30	8	3.4	4.4
21.....	9	8	9	9	12	36	57	34	27	6.2	3.0	4.4
22.....	10	8	8	25	12	56	58	30	28	6.8	3.0	4.4
23.....	10	8	8	379	13	39	51	28	25	7.7	3.0	4.4
24.....	10	8	8	100	11	34	48	24	22	9	2.8	4.6
25.....	10	6	8	29	12	38	40	22	17	7.1	2.8	5.6
26.....	10	8	35	24	11	31	36	19	16	6.5	3.2	5.3
27.....	10	7	8	26	12	28	35	18	14	5.6	4.0	4.6
28.....	10	8	8	24	12	28	35	16	11	5.9	4.4	5.0
29.....	10	8	8	22	-----	29	35	14	10	5.0	4.0	5.6
30.....	10	8	8	20	-----	57	32	12	8	5.0	3.6	5.9
31.....	10	-----	7	18	-----	149	-----	14	-----	4.4	-----	-----

Month	River only				River and Prairie power canal			
	Maximum	Minimum	Mean	Run-off in acre-feet	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	19	8	10.2	627	80	60	64.7	3,980
November.....	10	6	8.1	432	69	58	62.2	3,700
December.....	7	7	16.9	1,040	70	-----	63.5	3,900
January.....	379	9	32.2	1,980	444	57	64.8	5,210
February.....	17	10	12.4	689	75	64	68.7	3,820
March.....	149	10	28.4	1,750	210	65	87.5	5,380
April.....	196	32	74.3	4,420	257	93	136	8,090
May.....	59	12	27.7	1,700	128	42	79.3	4,880
June.....	85	8	22.1	1,320	143	27	54.7	3,250
July.....	9	3.6	5.97	367	38.1	11.2	22.5	1,380
August.....	4.4	2.8	3.33	205	35.4	11.8	20.3	1,250
September.....	5.9	3.0	4.29	255	42.6	19.0	29.4	1,750
The year.....	379	2.8	20.5	14,800	444	11.2	64.4	46,600

JOHN DAY RIVER AT PICTURE GORGE, NEAR DAYVILLE, OREG.

LOCATION.—Water-stage recorder in sec. 20, T. 12 S., R. 26 E., on John Day highway seven-tenths of a mile above Rock Creek Bridge and 7 miles north-west of Dayville.

RECORDS AVAILABLE.—April, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,780 second-feet Apr. 1 (gage height, 7.50 feet); minimum discharge, 1.4 second-feet Aug. 31, Sept. 1; minimum gage height, 1.52 feet Oct. 1.

1926-1931: Maximum discharge, 3,000 second-feet June 9, 1927 (gage height, 10.75 feet, present datum); minimum, 1 second-foot several days in August, September, 1930.

REMARKS.—Records good except those estimated, which are fair. Numerous diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	28	109	* 134	* 130	204	171	1,570	224	38	55	1.9	1.5
2.....	40	110		188	194	176	1,390	232	29	46	1.9	1.7
3.....	45	110		173	192	190	990	249	21	38	2.2	1.8
4.....	46	115		157	192	212	790	258	16	30	2.2	1.8
5.....	51	118		152	190	206	680	258	16	21	2.2	1.6
6.....	56	114	* 134	150	188	192	672	232	19	20	2.5	1.7
7.....	71	117		139	176	180	785	224	20	13	2.3	2.2
8.....	91	117		123	124	171	745	224	17	10	2.2	2.5
9.....	97	117		133	128	173	672	208	20	8.8	2.3	2.9
10.....	91	119		146	171	195	638	184	21	7.0	2.2	3.0
11.....	95	120	154	163	171	201	602	167	24	5.4	1.9	3.0
12.....	97	123	154	169	168	268	570	142	29	3.8	1.9	3.0
13.....	100	127	156	156	163	324	602	125	27	3.6	2.0	2.9
14.....	102	132	158	148	159	290	620	123	28	3.8	2.0	3.0
15.....	103	132	154	145	168	279	540	147	40	4.2	1.9	3.0
16.....	103	145	152	146	171	290	495	166	60	3.8	1.7	3.0
17.....	102	150	151	150	170	302	465	178	162	3.5	1.7	2.9
18.....	101	144	151	148	171	438	452	184	224	3.0	1.8	3.3
19.....	102	139	148	136	204	490	428	170	232	3.0	1.6	4.0
20.....	100	133	148	127	203	451	402	159	200	3.2	1.5	4.5
21.....	101	139	138	144	185	451	346	157	173	3.3	1.5	4.2
22.....	103	140	104	225	173	516	325	151	160	3.3	1.8	4.5
23.....	106	139	113	680	173	477	325	144	155	3.0	1.7	6.6
24.....	106	136	126	698	175	438	315	124	138	2.5	1.6	7.6
25.....	104	132	130	324	168	* 412	296	111	110	2.2	1.6	7.9
26.....	106	126	126	258	173	* 386	276	96	92	2.0	1.5	9.4
27.....	103	130	114	253	173	360	258	82	80	2.2	1.6	9.4
28.....	106	133	107	233	173	360	232	76	71	2.2	1.6	8.8
29.....	107	134	* 95	223	-----	360	224	67	67	2.0	1.7	10
30.....	106	136	* 90	219	-----	373	224	56	60	1.9	1.6	11
31.....	106	-----	* 90	210	-----	1,160	-----	47	-----	1.9	1.5	-----
Month						Maximum	Minimum	Mean	Run-off in acre-feet			
October.....						107	28	89.5	5,509			
November.....						150	109	128	7,620			
December.....						158	90	132	8,120			
January.....						698	124	207	12,700			
February.....						204	159	178	9,890			
March.....						1,160	171	339	20,800			
April.....						1,570	224	564	33,600			
May.....						258	47	160	9,840			
June.....						232	16	78.3	4,660			
July.....						55	1.9	10.1	621			
August.....						2.5	1.5	1.85	114			
September.....						11	1.5	4.42	263			
The year.....						1,570	1.5	157	114,000			

* Estimated or interpolated.

JOHN DAY RIVER AT SERVICE CREEK, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 18, T. 9 S., R. 23 E., a quarter of a mile below Service Creek and three-quarters of a mile southwest of Service Creek post office.

RECORDS AVAILABLE.—October, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 14,600 second-feet Apr. 1 (gage height, 12.26 feet); minimum, 20 second-feet Sept. 6 (gage height, 0.28 foot).
1929-1931: Maximum and minimum discharges, those of Apr. 1 and Sept. 6, 1931.

REMARKS.—Records excellent. Many diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	103	207	258	212	520	475	11,500	2,880	542	250	43	23
2.....	135	209	263	290	498	520	9,160	2,980	498	233	32	23
3.....	136	212	296	324	459	632	5,500	3,380	451	212	30	22
4.....	140	212	305	314	467	768	4,260	3,380	411	191	30	22
5.....	133	214	299	311	459	815	3,820	3,080	375	176	30	21
6.....	128	214	285	296	467	745	4,040	2,880	341	157	30	21
7.....	140	214	243	296	447	655	4,900	2,780	317	144	30	22
8.....	163	212	212	263	427	588	4,710	2,580	293	128	29	24
9.....	288	212	226	258	411	610	4,150	2,220	271	118	28	25
10.....	355	219	226	271	407	655	3,820	2,000	266	106	28	26
11.....	274	224	253	287	427	722	3,820	1,790	276	100	28	28
12.....	243	233	285	320	427	890	3,600	1,670	305	97	28	29
13.....	226	233	317	407	427	1,560	3,490	1,670	271	92	27	34
14.....	219	248	320	344	403	1,490	3,930	1,710	253	84	26	40
15.....	212	282	314	320	387	1,460	3,490	1,790	248	80	26	40
16.....	209	302	330	314	447	1,910	3,190	1,830	268	78	26	40
17.....	212	266	314	314	463	2,220	3,180	1,750	451	74	25	40
18.....	207	258	302	299	498	2,180	3,280	1,600	768	72	25	40
19.....	202	302	305	279	664	3,710	3,080	1,380	790	68	24	41
20.....	205	266	302	285	968	3,080	2,780	1,230	768	64	24	48
21.....	205	248	282	279	745	2,880	2,680	1,110	655	59	24	53
22.....	205	279	136	363	610	3,490	2,580	1,050	565	57	24	51
23.....	205	308	171	1,170	542	3,380	2,580	968	520	56	23	59
24.....	207	285	202	2,180	542	2,780	2,310	915	520	53	23	60
25.....	209	258	189	1,140	520	2,490	2,180	865	467	40	23	54
26.....	209	221	202	722	498	2,220	2,040	840	387	40	24	58
27.....	214	187	198	678	498	1,910	2,080	790	341	38	24	51
28.....	221	165	191	655	475	1,670	2,310	722	314	37	24	51
29.....	214	182	182	610	-----	1,600	2,580	678	279	37	24	51
30.....	216	214	165	565	-----	1,560	2,780	610	263	38	23	51
31.....	214	-----	165	542	-----	3,870	-----	665	-----	36	23	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	355	103	202	12,400
November.....	308	165	236	14,000
December.....	330	136	250	15,400
January.....	2,180	212	479	29,500
February.....	968	387	504	28,000
March.....	3,870	475	1,730	108,000
April.....	11,500	2,040	3,800	226,000
May.....	3,380	565	1,730	108,000
June.....	790	248	416	24,800
July.....	250	36	97.3	5,980
August.....	43	23	26.7	1,640
September.....	60	21	38.1	2,270
The year.....	11,500	21	790	572,000

JOHN DAY RIVER AT McDONALD FERRY, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 11, T. 1 N., R. 19 E., at McDonald ferry, half a mile below mouth of Rock Creek. Zero of gage is 392.02 feet above mean sea level.

DRAINAGE AREA.—7,800 square miles.

RECORDS AVAILABLE.—December, 1904, to September, 1931.

EXTREMES.—Maximum discharge during year, 11,800 second-feet Apr. 2 (gage height, 6.84 feet); minimum, 4 second-feet Aug. 31 (gage height, 0.68 foot).

1904-1931: Maximum discharge, 22,800 second-feet Feb. 6, 1907 (gage height, 10.38 feet); minimum, that of Aug. 31, 1931.

Maximum stage known, 12.8 feet probably in 1894 (discharge, estimated, 33,000 second-feet).

REMARKS.—Records good except those estimated Dec. 10-13, Dec. 28 to Jan. 3, Apr. 5, 14-18, 20-26, which are fair. Diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	225	185	190	590	509	3,370	2,800	642	333	36	8
2	68	225	185	210	565	501	10,700	3,050	590	291	30	8
3	70	225	210	380	533	485	8,610	2,880	549	280	32	7
4	81	215	274	432	525	509	6,060	3,140	517	268	28	6
5	90	215	280	410	470	599	4,500	3,320	501	252	30	7
6	119	220	315	440	485	749	3,940	3,050	470	220	36	9
7	160	220	321	418	470	812	3,940	2,880	418	195	84	9
8	144	220	315	345	470	740	4,870	2,800	378	176	36	12
9	136	225	297	333	462	668	4,740	2,710	358	160	34	14
10	136	225	280	432	432	608	4,160	2,380	345	140	27	15
11	144	225	230	258	425	633	3,830	2,140	315	130	22	16
12	252	225	225	315	410	685	3,720	1,910	297	116	21	15
13	345	230	303	303	425	758	3,720	1,770	297	105	20	18
14	285	230	274	515	432	1,060		1,720	327	96	20	20
15	252	240	303	371	440	1,580		1,720	352	90	20	20
16	241	268	339	371	425	1,510	3,500	1,720	321	90	18	20
17	230	280	339	364	410	1,640		1,840	297	87	20	22
18	225	333	333	339	432	2,300		1,720	321	84	20	22
19	220	309	345	333	462	2,140	3,320	1,720	364	78	16	24
20	225	280	327	333	485	3,520		1,500	767	72	14	24
21	225	268	315	315	642	3,050		1,340	785	70	14	34
22	220	309	315	309	806	2,800		1,220	776	68	13	38
23	215	274	315	339	749	3,320	2,650	1,140	668	65	12	38
24	215	258	268	410	624	3,420		1,050	590	60	12	38
25	215	297	185	1,640	549	2,800		978	541	58	12	40
26	215	315	172	1,590	557	2,540		916	541	52	11	42
27	215	297	215	946	541	2,300	2,140	868	541	48	11	52
28	210	274	200	749	525	1,980	2,140	849	470	44	10	52
29	210	241	240	704		1,770	2,300	803	404	46	9	62
30	220	215	230	668		1,640	2,540	767	364	42	7	62
31	225		210	633		1,640		704		42	5	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	345	68	190	11,700
November	333	215	253	15,100
December	345	172	265	16,300
January	1,640	190	485	29,800
February	896	410	515	28,600
March	3,520	485	1,590	97,800
April	10,700		3,820	227,000
May	3,320	704	1,850	114,000
June	785	297	470	28,000
July	333	42	124	7,620
August	36	5	20.3	1,250
September	62	6	25.1	1,490
The year	10,700	5	800	579,000

¹Formerly published as "John Day River at McDonald, Oreg."

STRAWBERRY CREEK ABOVE SOUTH FORK, NEAR PRAIRIE CITY, OREG.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 20, T. 14 S., R. 34 E., 100 feet above mouth of South Fork of Strawberry Creek and $8\frac{1}{2}$ miles south of Prairie City.

RECORDS AVAILABLE.—October, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year, 51 second-feet May 14 (gage height, 2.03 feet); minimum, 1.4 second-feet Jan. 8, 19 (gage height, 1.00 foot).

REMARKS.—Records good except those estimated, which are fair. No diversions above station. Some natural regulation by Strawberry Lake.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	*2.3	1.7	1.8	1.7	*1.8		5.1	15	32	11	4.8	1.7
2.....	*2.2	1.7	1.8	1.7	*1.8		4.9	16	31	10	4.6	1.7
3.....	*2.0	1.7	1.8	1.6	*1.7		4.9	17	29	10	4.6	1.7
4.....	*2.0	1.7	1.8	1.6	*1.7		4.6	18	28	9.9	4.4	1.6
5.....	*2.0	1.6	1.9	1.5	1.7		4.6	20	26	9.9	4.2	1.6
6.....	*2.0	1.6	1.9	1.5	1.7	*1.6	5.3	22	26	9.6	4.0	1.6
7.....	*3.5	1.6	2.0	1.5	1.7		6.2	24	25	8.9	4.2	1.6
8.....	*2.9	1.6	1.9	1.5	1.7		6.2	27	23	8.9	4.0	1.6
9.....	2.4	1.7	1.9	1.5			6.2	28	22	8.9	4.0	1.6
10.....	2.4	1.7	1.9	1.5			6.2	30	20	8.6	4.0	1.6
11.....	2.4	1.7	1.9	1.5			6.5	33	20	8.3	3.8	1.6
12.....	2.4	1.8	1.8	1.5			6.5	36	18	8.3	3.8	1.6
13.....	2.4	1.8	1.8	1.5		1.6	6.8	39	17	8.0	3.6	1.6
14.....	2.4	1.6	1.7	1.5			6.8	47	16	8.0	3.4	1.6
15.....	2.2	1.7	1.7	1.5			6.5	49	17	7.7	3.4	1.6
16.....	2.2	1.8	1.7	1.5	*1.8		6.2	50	16	7.4	3.2	1.5
17.....	2.2	1.8	1.8	1.5			6.5	*50	16	7.1	3.0	1.5
18.....	2.2	1.8	1.8	1.5		*2.0	*50	*50	16	7.1	3.0	1.6
19.....	2.2	1.8	1.8	1.5			*40	*40	16	6.8	2.9	1.6
20.....	2.1	1.8	1.9	1.6			35	35	15	6.5	2.8	1.6
21.....	2.1	1.8	*1.9	1.5				32	15	6.5	2.6	1.6
22.....	2.0	1.9	1.9	1.5				30	14	6.5	2.6	1.6
23.....	2.0	1.9	1.9	2.8		2.6		29	14	6.3	2.5	1.6
24.....		1.9	1.8		1.7	2.6		30	13	6.0	2.2	1.6
25.....		1.9	1.7		1.7	2.5		31	12	6.0	2.2	1.6
26.....	*1.9	1.9		*2.0	1.7	2.4	7.9	31	12	5.8	2.1	1.6
27.....		1.9			1.7	2.4	8.4	32	12	5.8	2.0	1.6
28.....		1.9	*1.7		1.7	2.2	9.8	33	11	5.5	1.9	1.6
29.....		1.9				2.2	12	33	11	5.5	1.8	1.6
30.....		1.8				2.4	13	33	11	5.3	1.7	1.5
31.....	1.8					3.8		32		5.1	1.7	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	3.5	1.8	2.18	134
November.....	1.9	1.6	1.77	105
December.....	2.0		1.81	111
January.....		1.5	1.69	104
February.....			1.76	98
March.....	3.8		2.00	123
April.....	15	4.6	6.96	414
May.....	50	15	32.0	1,970
June.....	32	11	18.5	1,100
July.....	11	5.1	7.69	467
August.....	4.8	1.7	3.19	196
September.....	1.7	1.5	1.60	95
The year.....	50		6.79	4,920

* Estimated.

PRAIRIE POWER CANAL AT PRAIRIE CITY, OREG.

LOCATION.—Staff gage in sec. 11, T. 13 S., R. 33 E., 240 feet above county road bridge over canal and 1 mile south of Prairie City. Prior to May 31, 1931, gage was 200 feet downstream.

RECORDS AVAILABLE.—May, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 69 second-feet May 15, 16, 18; minimum, 7 second-feet July 8–13, 15.

1925–1931: Maximum discharge, 71 second-feet Dec. 10, 1929; no flow at times.

REMARKS.—Records good. 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 gaging station on John Day River at Prairie City.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	51	54	61	58	54	61	61	48	15	31	16
2	58	51	58	58	54	58	54	54	34	14	31	16
3	54	51	61	58	54	58	54	54	31	14	28	17
4	58	54	58	58	58	54	61	54	34	14	28	16
5	54	51	58	58	58	58	61	61	28	14	22	18
6	54	54	54	54	58	54	61	61	25	12	18	18
7	65	54	54	38	54	54	61	61	22	8	19	18
8	61	54	58	27	54	61	61	54	24	7	18	19
9	58	54	61	24	58	58	61	54	24	7	18	20
10	61	54	58	61	61	58	61	36	22	7	18	21
11	58	51	61	61	58	54	61	40	22	7	16	22
12	54	54	58	54	54	61	61	46	18	7	14	22
13	54	58	58	58	54	58	65	46	19	7	14	22
14	54	54	58	54	54	61	65	54	18	8	14	22
15	54	54	54	54	58	61	61	69	19	7	14	24
16	51	61	54	58	54	61	65	69	55	12	14	24
17	51	58	58	54	58	61	61	65	58	10	13	18
18	54	54	54	34	58	61	65	69	58	10	12	24
19	51	51	54	27	58	61	65	61	65	12	13	28
20	51	54	54	38	54	58	61	58	46	16	14	28
21	51	58	21	58	54	61	61	58	46	16	14	26
22	54	54	24	61	58	66	61	54	42	24	14	31
23	51	58	26	65	58	54	61	46	40	25	14	38
24	54	54	24	58	54	61	61	43	31	26	14	38
25	54	54	24	58	54	61	65	46	32	31	9	36
26	54	54	24	54	54	65	61	43	30	31	12	34
27	54	51	24	58	58	58	61	38	28	31	14	34
28	54	54	27	58	58	61	65	38	20	31	16	34
29	51	54	27	58	-----	61	61	36	25	31	17	36
30	51	54	27	54	-----	61	61	30	22	28	16	34
31	51	-----	58	58	-----	61	-----	42	-----	31	16	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	65	51	54.5	3,350
November	61	51	54.1	3,220
December	61	21	46.5	2,860
January	65	24	52.5	3,230
February	61	54	56.3	3,130
March	65	54	59.1	3,630
April	66	54	61.5	3,660
May	69	30	51.6	3,170
June	58	18	32.5	1,930
July	31	7	16.5	1,010
August	31	9	16.9	1,040
September	38	16	25.1	1,490
The year	69	7	43.8	31,700

NORTH FORK OF JOHN DAY RIVER NEAR DALE, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 35, T. 6 S., R. 31 E., three-eighths of a mile below Desolation Creek and $1\frac{1}{2}$ miles northeast of Dale.

RECORDS AVAILABLE.—October, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,800 second-feet May 3 (gauge height, 5.63 feet); minimum, 20 second-feet Sept. 1 (gauge height, 1.72 feet).

1929-1931: Maximum discharge, that of May 3, 1931; minimum, 11 second-feet Nov. 13, 1929.

REMARKS.—Records good except those estimated, which are fair. Some small diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	64	54			175	1,030	1,420	321	119	32	21
2.....	55	51			152	780	1,600	286	109	32	25
3.....	50	50			152	566	1,700	262	101	31	25
4.....	47	50			147	505	1,580	241	95	25	25
5.....	44	51			126	470	1,420	223	88	26	24
6.....	46	49			97	692	1,420	208	80	28	25
7.....	117	49			93	840	1,390	198	79	29	26
8.....	195	51	* 84		105	750	1,130	188	75	30	25
9.....		55			95	692	998	188	70	30	32
10.....		51		* 134	82	720	900	214	67	27	35
11.....	* 80	52			93	720	870	195	64	24	36
12.....		54			117	698	900	168	62	27	35
13.....		54			117	780	900	156	62	27	33
14.....	55	55			109	720	965	154	56	28	33
15.....	58	39	90		130	654	1,030	178	61	28	27
16.....	56	62			152	698	965	332	58	28	31
17.....	56	91			152	870	870	332	55	28	31
18.....	56	69			202	810	720	304	50	25	34
19.....	59	62		382	217	780	626	296	47	29	40
20.....	56	89		324	200	750	572	238	46	28	49
21.....	54	89		290	241	780	515	214	43	28	45
22.....	52	62		288	307	840	470	211	43	28	39
23.....	52	50	* 53	282	256	750	456	214	42	28	38
24.....	52			226	253	704	455	190	40	25	37
25.....	59			217	220	682	470	168	40	23	38
26.....	61	* 39		229	190	750	455	154	40	27	37
27.....	56			241	163	965	410	141	37	29	36
28.....	65			205	168	1,130	378	136	35	30	34
29.....	52				161	1,320	360	130	35	30	30
30.....	51				168	1,360	346	121	34	27	33
31.....	54				432		332		34	26	---

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	195	44	65.2	4,010
November.....	91		54.7	3,250
December.....			68.2	4,190
January.....			* 128	7,870
February.....	382		181	10,100
March.....	432	82	170	10,500
April.....	1,360	470	794	47,200
May.....	1,700	332	858	52,800
June.....	332	121	212	12,600
July.....	119	34	60.2	3,700
August.....	32	23	27.8	1,710
September.....	49	21	32.6	1,940
The year.....	1,700	21	221	160,000

* Estimated.

NORTH FORK OF JOHN DAY RIVER AT MONUMENT, OREG.

LOCATION.—Water-stage recorder in E. ½ sec. 1, T. 9 S., R. 27 E., just below entrance to canyon and three-quarters of a mile west of Monument.

RECORDS AVAILABLE.—March, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 10,500 second-feet Apr. 1 (gage height, 10.48 feet); minimum, 16 second-feet Nov. 26-28 (gage height, 0.9 foot).

1925-1931: Maximum discharge, that of Apr. 1, 1931; minimum, that of Nov. 26-28, 1930.

REMARKS.—Records good except those estimated, Dec. 21-31, Jan. 1-9, 18-19; June 28-30, July 1-13, Aug. 1-5, which are fair. Several small diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	135	111	140		259	296	8,900	2,530	431			29
2.....	117	117	166		238	363	5,670	2,770	411			26
3.....	111	113	169		241	466	3,890	3,160	375		47	24
4.....	100	113	169		235	560	3,160	3,020	348			30
5.....	92	109	148	123	244	494	2,900	2,710	327			30
6.....	92	111	138		241	427	3,750	2,590	302			32
7.....	117	111	143		226	371	4,290	2,470	285	136	41	32
8.....	238	109	181		223	363	3,750	2,140	272		36	34
9.....	292	115	94		214	391	3,160	1,860	266		35	40
10.....	208	119	85	140	229	458	3,090	1,650	275		35	41
11.....	163	122	133	161	235	480	2,960	1,550	299		36	55
12.....	143	122	150	266	238	965	2,650	1,550	275		41	58
13.....	181	128	180	200	226	1,200	3,020	1,550	259		46	57
14.....	124	156	180	183	214	1,120	3,020	1,550	253	102	38	55
15.....	117	128	174	172	241	1,290	2,590	1,700	253	94	38	52
16.....	122	106	163	172	259	1,860	2,470	1,550	306	94	38	49
17.....	117	117	148	169	282	1,700	2,650	1,500	498	92	38	47
18.....	115	177	153	165	306	2,590	2,530	1,270	520	88	36	58
19.....	119	126	156	160	714	2,830	2,360	1,060	484	85	35	70
20.....	119	115	153	153	512	2,300	2,140	965	444	81	36	70
21.....	117	163		148	375	2,360	2,080	864	363	77	32	81
22.....	113	177		344	310	3,220	2,080	784	338	70	29	83
23.....	113	148		992	324	2,360	1,980	728	341	68	29	72
24.....	113	122		661	302	1,980	1,760	694	334	67	32	66
25.....	117	77		352	292	1,810	1,650	661	296	63	32	68
26.....	122	36	80	348	275	1,500	1,650	648	266	60	30	66
27.....	128	35		334	275	1,250	1,860	599	256	57	28	66
28.....	122	44		334	275	1,130	2,080	540	245	52	29	66
29.....	126	113		299		1,090	2,360	507	232	50	30	65
30.....	117	140		282		1,210	2,470	471	220	52	32	62
31.....	113			269		4,940		448		52	30	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	292	92	131	8,060
November.....	177	35	116	6,900
December.....	180		124	7,620
January.....	992		239	14,700
February.....	714	214	256	15,900
March.....	4,940	296	1,400	58,100
April.....	8,900	1,650	2,960	178,000
May.....	3,160	448	1,490	91,600
June.....	520	220	326	19,400
July.....		50	99.1	6,090
August.....		28	36.6	2,250
September.....	83	24	53.1	3,160
The year.....	8,900	24	605	438,000

MIDDLE FORK OF JOHN DAY RIVER AT RITTER, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 8, T. 8 S., R. 30 E., at bridge half a mile south of Ritter.

RECORDS AVAILABLE.—October, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,430 second-feet Apr. 1 (gage height, 5.75 feet); minimum, 2.9 second-feet Aug. 20, 24, 25.

1929-1931: Maximum discharge, that of Apr. 1, 1931; minimum, that of Aug. 20, 24, 25, 1931.

REMARKS.—Records good except those for period of ice effect, Dec. 23 to Jan. 9, which are fair. A few small diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	34	33	34		57	68	1,340	488	96	46	9.5	4.6
2.....	32	32	36		64	94	1,000	527	89	40	9.5	5.6
3.....	29	32	45		60	103	725	548	84	38	9.0	4.6
4.....	28	32	43		60	121	634	527	79	34	8.5	6.0
5.....	27	32	37	50	62	108	590	508	72	32	8.5	4.3
6.....	27	32	32		64	94	725	508	67	31	8.0	4.6
7.....	45	32	30		72	87	795	508	62	29	7.5	6.3
8.....	96	32	8		60	84	748	434	60	28	6.7	8.5
9.....	58	33	18		59	92	656	408	58	26	6.3	11
10.....	47	35	30	62	57	90	634	382	67	24	6.0	14
11.....	37	35	41	62	62	103	611	336	64	20	6.0	14
12.....	36	36	45	64	72	166	568	366	57	20	6.0	14
13.....	35	38	48	64	63	208	634	359	53	18	6.0	13
14.....	34	38	45	64	66	236	634	382	55	17	6.0	12
15.....	33	21	46	63	60	263	568	426	63	16	4.6	12
16.....	33	28	39	59	72	343	527	385	110	14	3.9	11
17.....	32	46	39	57	65	323	548	349	146	13	4.6	12
18.....	32	43	42	55	72	406	527	299	142	14	4.6	15
19.....	32	28	42	54	87	508	488	263	148	13	4.6	17
20.....	32	37	39	45	74	440	451	239	113	13	3.2	23
21.....	32	45	34	45	64	470	434	214	97	13	3.4	22
22.....	31	37	27	52	62	560	437	198	92	13	3.4	18
23.....	31	34		112	70	470	409	186	96	12	3.2	18
24.....	32	30		103	63	409	372	175	82	10	3.2	18
25.....	34	30		73	63	389	349	164	72	10	3.2	19
26.....	38	11	22	70	54	333	339	152	64	10	3.4	18
27.....	36	20		76	60	296	375	140	57	10	3.6	18
28.....	36	29		78	62	269	416	128	57	9.5	3.2	18
29.....	34	40		90		257	451	115	54	9.0	3.6	17
30.....	32	41		73		311	470	106	52	8.5	3.6	21
31.....	32			67		795		101		9.5	4.3	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	96	27	36.4	2,240
November.....	46	11	33.1	1,970
December.....	48	8	32.2	1,980
January.....	112		62.5	3,840
February.....	87	54	64.4	3,580
March.....	795	68	275	16,900
April.....	1,340	339	582	34,600
May.....	548	101	320	19,700
June.....	148	52	80.3	4,780
July.....	46	8.5	19.4	1,190
August.....	9.5	3.2	5.39	331
September.....	23	4.3	13.3	791
The year.....	1,340	3.2	127	91,900

FOX CREEK AT GORGE NEAR FOX, OREG.¹

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 17, T. 11 S., R. 29 E., at head of gorge, 6 miles southwest of Fox.

RECORDS AVAILABLE.—October, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year, 188 second-feet Mar. 31 (gage height, 2.44 feet); no flow at times.

RECORDS.—Records good except those estimated, which are poor. Several diversions for irrigation in valley above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1.....	0	0	0			* 8.0	121	17	0.1
2.....	0	0	0			* 10	64	21	.1
3.....	0	0	0			18	38	22	.1
4.....	0	0	0		3	14	30	21	.1
5.....	0	0	0			7.0	28	17	.1
6.....	0	0	0			8.0	46	14	.1
7.....	0	0	* 0			5.8	54	11	.1
8.....	0	0	* .1			5.0	45	9.8	.1
9.....	0	.1	* .1			4.0	36	8.3	.1
10.....	0	.1	.1			5.8	34	6.7	.1
11.....	0	.1	0			10	35	5.8	.1
12.....	0	.1	0			12	34	5.2	.1
13.....	0	.1	0			9.0	45	4.6	0
14.....	0	0	0			7.6	42	4.2	.2
15.....	0	.1	0			7.0	35	4.0	.3
16.....	0	.1	0	* 9.0		9.4	29	3.1	.3
17.....	0	.1	0			6.1	28	2.5	.3
18.....	0	.2	0			18	31	2.0	.2
19.....	0	.1	0			22	27	1.2	.2
20.....	0	.1	0			14	25	1.4	.2
21.....	0	.1	0			16	23	1.2	.1
22.....	0	.1	0			16	21	1.0	.1
23.....	0	0				14	22	.9	.1
24.....	0	.1				11	21	.7	.1
25.....	0	* .1				11	18	.7	.1
26.....	.1	* .1	* .1			12	16	.5	0
27.....	0	* 0				10	16	.3	0
28.....	0	0				16	16	.3	.1
29.....	0	0				16	16	.2	0
30.....	0	0				66	16	.2	0
31.....	0					150		.2	
Month	Maximum			Minimum		Mean		Run-off in acre-feet	
October.....	0.1			0		0		0	
November.....	.2			0		.06		4	
December.....						.04		2	
January.....						* 9.0		553	
February.....						* 5.1		283	
March.....	150			4.0		17.4		1,070	
April.....	121			16		33.7		2,010	
May.....	22			.2		6.07		373	
June.....	.3			0		.12		7	
The year.....	150			0		5.94		4,300	

* Estimated.

NOTE.—Practically no flow during July, August, September.

² The lower portion of this stream is named Cottonwood Creek.

COTTONWOOD CREEK NEAR MONUMENT, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 30, T. 9 S., R. 28 E., 300 feet above private irrigation diversion dam 4 miles south of Monument.

RECORDS AVAILABLE.—March, 1925, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 375 second-feet Apr. 1 (gage height, 2.0 feet, determined from high-water mark); minimum, 0.6 second-foot July 16-25.

1925-1931: Maximum discharge, 585 second-feet Mar. 28, 1929; minimum, 0.2 second-foot Aug. 13-15, 27, 28, 1925.

REMARKS.—Records fair except those for periods Dec. 3 to Jan. 24, Sept. 20-30, which are poor. Gage read on alternate days; mean monthly discharge, except for December, January, August, September, is mean of days on which gage was read. Several small diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		7	* 7								1.0	2.1
2	5	7			12		84	27	1.7	2.3		* 1.9
3						22						1.7
4	5	7			12		63		1.4	2.3		* 1.7
5								25				1.7
6	5	8				11			1.4			* 1.9
7					13	11		17		1.7		2.1
8	5	8			13		60					* 2.1
9					11			17	1.7	1.7		2.1
10	5	11				12	47					* 2.6
11							46		2.3	1.4		3.2
12	5	13		* 13		35		11				* 3.2
13					17				1.7			3.2
14	6	16			13	27	57	8		1.0		* 3.2
15												3.2
16	5	20	* 4.4				42	7	3.9	.6		* 2.8
17					11	22						2.5
18	5	16					35		9	.6		* 3.6
19						45		6				4.6
20	6	11			17			6				
21												
22	6	10			13	35	33	4.2		.6		
23							31	4.2	4.6	.6		
24	7	10			6				3.9			
25				60		29	27		3.9	.6		* 3.0
26												
27	7	8		* 49	6	27		2.5				
28				* 38					3.2			
29	7	8		* 27	11	23	25	2.5		1.0		
30				16								
31	7	8		* 14		205	23	2.3	2.5	1.0		
				13								
Month				Maximum		Minimum		Mean		Run-off in acre-feet		
October				7		5		5.73		352		
November				20		7		10.5		625		
December								4.57		281		
January								20.9		1,290		
February				17		6		11.9		661		
March				205		11		38.8		2,390		
April				84		23		44.1		2,620		
May				27		2.3		10.3		633		
June				9		1.4		3.37		201		
July				2.3		.6		1.18		73		
August								* 1.5		92		
September				4.6		1.7		2.75		164		
The year				205		.6		13.0		9,380		

* Estimated.

DESCHUTES RIVER BASIN

CRANE PRAIRIE RESERVOIR NEAR LAPINE, OREG.

LOCATION.—Staff gage at reservoir dam in NW. $\frac{1}{4}$ sec. 16, T. 21 S., R. 8 E., 15 miles northwest of Lapine. Gage readings are elevation above mean sea level.

RECORDS AVAILABLE.—November, 1922, to September, 1931.

EXTREMES.—Maximum contents during year, 22,960 acre-feet May 14, 16, 17 (elevation, 4,437.56 feet); no storage Oct. 1 to Nov. 25, Aug. 22 to Sept. 30, when gates were open and natural flow was passing through reservoir (elevation, below 4,428.40 feet).

1922-1931: Maximum contents, 50,830 acre-feet Jan. 10-13, 1924 (elevation, 4,444.10 feet); no storage at times.

REMARKS.—Records good. Reservoir completed by North Canal Co. in 1922; gates first closed Nov. 4, 1922. Capacity of reservoir is 55,200 acre-feet at spillway crest at elevation 4,445 feet. Stored water is used for irrigation of lands near Bend and Redmond. Records furnished by State engineer.

Monthly elevation and contents of Crane Prairie Reservoir, 1930-31

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	^a 4,427.00	0	-----	May 31.....	4,436.86	20,390	-1,160
Oct. 31.....	^a 4,427.00	0	0	June 30.....	4,434.28	11,630	-8,710
Nov. 30.....	4,429.50	659	+659	July 31.....	4,431.40	3,925	-7,755
Dec. 31.....	4,432.14	5,665	+5,006	Aug. 31.....	^a 4,427.50	0	-3,925
Jan. 31.....	4,434.12	11,190	+5,525	Sept. 30.....	^a 4,427.50	0	0
Feb. 28.....	4,435.20	14,640	+3,450	The year.....	-----	-----	0
Mar. 31.....	-----	^b 18,500	+3,860				
Apr. 30.....	4,437.18	21,550	+3,050				

^a Water below gage; elevation estimated.

^b Interpolated.

DESCHUTES RIVER AT CRANE PRAIRIE, NEAR LAPINE, OREG.

LOCATION.—Staff gage in NW. ¼ sec. 16, T. 21 S., R. 8 E., 200 yards below Crane Prairie Dam and 15 miles northwest of Lapine.

RECORDS AVAILABLE.—January, 1914, to June, 1917; February, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 283 second-feet July 5-13 (gage height, 1.70 feet); minimum, 17 second-feet Nov. 25 to Dec. 6 (gage height, 0.40 foot).

1914-1917, 1922-1931: Maximum discharge, 604 second-feet Apr. 18, 1924 (gage height, 2.40 feet); minimum, 2.5 second-feet Apr. 24, 1923, caused by closing of dam (gage height, 0.05 foot).

REMARKS.—Records good. Discharge interpolated because of ice effect Nov. 16-19 and because of no gage-height record Dec. 17-25, Mar. 6-8, 26-31. Some regulation caused by operations at Crane Prairie Dam since Nov. 4, 1922. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	154	145	17	25	32	37	34	30	236	161	251	131
2	154	145	17	25	32	37	34	30	236	159	251	131
3	154	145	17	25	32	37	34	30	236	181	251	131
4	154	145	17	27	32	37	33	30	236	236	251	131
5	150	145	17	27	32	37	33	30	251	267	251	129
6	150	145	17	27	32	37	33	30	267	283	251	129
7	150	145	18	27	32	37	33	30	267	283	251	129
8	150	145	19	27	32	37	33	50	267	283	251	129
9	150	141	19	27	32	37	33	90	267	283	251	129
10	150	141	19	27	32	37	33	94	267	283	251	129
11	150	141	19	28	33	37	33	94	267	283	251	129
12	145	141	19	28	34	37	33	94	267	283	208	129
13	145	141	19	28	34	37	33	94	267	236	208	129
14	145	141	21	28	34	37	33	98	267	193	208	129
15	145	141	21	28	34	37	33	100	267	193	208	129
16	145	141	22	28	34	37	33	107	267	193	193	129
17	145			28	34	37	33	115	267	193	193	129
18	145			28	34	37	33	120	267	193	193	129
19	145			28	35	37	32	120	267	236	193	129
20	145	141	22	28	36	37	32	120	267	236	193	126
21	145	141		28	36	37	32	143	267	236	193	126
22	145	141		28	36	37	32	173	267	236	193	126
23	145	141		28	36	37	32	206	267	236	159	126
24	145	141	100	28	36	37	31	236	267	236	146	126
25	145	100		30	36	37	30	236	267	236	141	126
26	145	17		30	36	36	30	236	267	236	136	126
27	145	17		23	30		36	30	236	222	236	136	126
28	145	17	23	30	37		30	236	159	236	136	126
29	145	17	23	30	30		30	236	159	251	131	126
30	145	17	23	30	30		30	236	159	251	131	126
31	145	23	23	30	236		236	251	131	131	126	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	154	145	147	9,040
November	145	17	120	7,140
December	23	17	20.5	1,260
January	30	25	27.9	1,720
February	37	32	34.0	1,890
March	37	30	36.8	2,260
April	34		32.3	1,920
May	236	30	126	7,750
June	267	159	250	14,900
July	283	159	235	14,400
August	251	131	200	12,300
September	131	126	128	7,620
The year	283	17	114	82,200

DESCHUTES RIVER ABOVE DAVIS CREEK, NEAR LAPINE, OREG.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 3, T. 22 S., R. 8 E., at wagon bridge at Graft ranch, half a mile above Davis Creek and 12 miles west of Lapine.

RECORDS AVAILABLE.—July, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 564 second-feet July 6-9 (gage height, 1.20 feet); minimum, 292 second-feet Dec. 28, 29 (gage height, 0.12 foot).

1925-1931: Maximum discharge, 806 second-feet Aug. 13, 14, Aug. 16 to Sept. 16, 1925 (gage height, 2.0 feet); minimum, that of Dec. 28, 29, 1930.

REMARKS.—Records good. Discharge interpolated Nov. 21, 22, Dec. 31. No diversions above station. Flow regulated to small extent by storage in Crane Prairie Reservoir. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	427	406	304	304	310	310	317	310	506	428	519	384
2.....	427	406	304	304	310	310	315	310	506	428	519	384
3.....	421	403	304	304	310	310	314	310	500	428	519	384
4.....	421	403	304	304	310	310	314	310	500	506	513	384
5.....	421	403	304	304	310	310	314	310	500	506	513	384
6.....	421	403	304	304	310	312	314	310	497	564	513	384
7.....	421	403	302	304	309	312	314	310	538	564	513	384
8.....	427	403	301	304	309	314	314	310	542	564	510	452
9.....	421	403	304	304	309	314	314	310	545	564	506	389
10.....	418	403	304	304	309	314	314	356	538	561	506	384
11.....	415	403	307	306	310	315	314	356	538	558	506	384
12.....	415	409	307	304	310	315	314	356	538	558	510	384
13.....	415	398	307	304	310	314	314	356	538	558	513	384
14.....	415	398	306	304	310	314	314	356	545	482	513	384
15.....	415	409	304	304	310	314	314	356	545	470	464	384
16.....	415	421	304	304	310	314	314	370	538	470	458	384
17.....	415	421	304	304	312	315	314	370	538	470	452	384
18.....	415	418	304	307	312	317	314	370	538	470	449	392
19.....	415	415	304	304	312	315	314	370	538	482	449	384
20.....	415	415	302	301	312	314	312	374	538	500	443	384
21.....	415	406	301	301	312	314	310	428	538	500	440	384
22.....	412	396	300	307	310	314	309	434	538	500	437	384
23.....	412	386	300	307	310	314	307	434	538	500	428	384
24.....	412	386	301	304	310	314	307	500	538	500	405	384
25.....	415	386	302	306	310	314	307	500	542	513	397	384
26.....	415	375	300	307	310	314	307	506	545	513	394	384
27.....	412	304	292	309	310	314	309	506	564	510	394	384
28.....	409	304	292	310	310	314	309	506	434	506	394	384
29.....	409	304	301	309	-----	314	310	506	431	519	384	384
30.....	409	304	295	309	-----	315	310	506	428	519	384	384
31.....	409	-----	300	309	-----	317	-----	506	-----	519	384	-----
Month					Maximum		Minimum		Mean		Run-off in acre-feet	
October.....					427		409		416		25,600	
November.....					421		304		390		23,200	
December.....					307		292		302		18,600	
January.....					310		301		305		18,800	
February.....					312		309		310		17,200	
March.....					317		310		314		19,300	
April.....					317		307		312		18,600	
May.....					506		310		391		24,000	
June.....					564		428		522		31,100	
July.....					564		428		507		31,200	
August.....					519		384		462		28,400	
September.....					452		384		387		23,000	
The year.....					564		292		385		279,000	

DESCHUTES RIVER AT PRINGLE FALLS, NEAR LAPINE, OREG.

LOCATION.—Water-stage recorder in SW. ¼ sec. 23. T. 21 S., R. 9 E., half a mile above bridge at Pringle Falls, 7 miles northwest of Lapine.

RECORDS AVAILABLE.—December, 1915, to June, 1917; June, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 765 second-feet June 27 (gage height, 1.99 feet); minimum, 415 second-feet Mar. 29 (gage height, 1.10 feet).

1915-1917, 1922-1931: Maximum discharge, 1,170 second-feet June 21-27, 29, 30, 1917; minimum, that of Mar. 29, 1931.

REMARKS.—Records good. No diversions. Flow regulated to small extent since 1922 by storage in Crane Prairie Reservoir. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	575	575	467	455	443	451	459	450	670	580	670	530
2	575	575	467	455	443	451	455	446	670	580	692	526
3	575	575	471	455	447	451	451	443	670	580	692	526
4	575	575	471	447	447	451	455	440	670	625	692	522
5	575	575	471	451	451	447	459	440	670	670	692	522
6	598	575	471	451	451	447	463	440	670	670	692	517
7	598	575	471	455	447	447	459	443	692	715	692	522
8	598	575	471	451	447	451	455	436	692	715	692	544
9	598	598	479	451	451	459	455	490	692	715	692	535
10	598	598	483	455	455	459	455	504	692	715	715	530
11	598	575	487	451	459	463	455	508	692	715	715	530
12	598	598	483	451	459	467	455	504	692	715	715	530
13	598	598	487	451	467	459	455	512	692	715	692	530
14	598	575	483	451	471	451	455	522	715	648	670	526
15	598	598	479	455	471	455	455	522	715	625	670	530
16	598	598	483	455	475	451	451	522	692	625	648	530
17	598	598	479	451	467	451	447	576	692	625	648	530
18	575	598	479	447	467	463	447	526	692	625	648	544
19	575	598	479	447	463	455	447	535	692	648	648	548
20	575	598	475	447	463	451	443	535	692	670	648	544
21	575	575	471	447	463	447	443	540	715	670	648	544
22	575	575	467	451	459	443	432	602	715	670	625	535
23	575	575	467	451	463	435	426	602	715	670	602	535
24	575	575	463	447	459	435	429	648	715	648	580	535
25	575	575	459	447	455	435	432	670	715	670	576	535
26	575	508	459	443	455	431	432	670	715	670	566	540
27	598	467	459	443	455	423	436	670	740	670	558	540
28	575	463	467	443	451	427	436	670	625	648	548	535
29	575	463	463	439	-----	423	443	670	602	670	548	535
30	575	463	455	439	-----	435	446	670	602	670	540	535
31	575	-----	455	439	-----	439	-----	692	-----	670	540	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	598	575	585	36,000
November	598	463	565	33,600
December	487	455	472	29,000
January	455	439	449	27,000
February	475	443	457	25,400
March	467	423	447	27,500
April	463	426	448	26,700
May	692	436	545	33,500
June	740	602	667	40,900
July	715	580	641	40,600
August	715	540	644	39,600
September	548	517	533	31,700
The year	740	423	542	392,000

DESCHUTES RIVER AT BENHAM FALLS, NEAR BEND, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 9, T. 19 S., R. 11 E., 50 yards above head of Benham Falls, $1\frac{1}{2}$ miles below dam site for proposed Benham Falls Reservoir, and 10 miles southwest of Bend.

RECORDS AVAILABLE.—March, 1909, to September, 1914; August, 1920, to September, 1921; February, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,120 second-feet July 12 (gage height, 1.06 feet); minimum, 840 second-feet Sept. 29, 30.

1909–1913, 1920–21, 1924–1931: Maximum discharge (estimated), 5,000 second-feet Nov. 27, 1909 (gage height not determined); minimum, 836 second-feet about Jan. 22, 1927 (gage height, 0.24 foot).

REMARKS.—Records good except those estimated, which are fair. Minor diversions for irrigation above station. Some regulation since 1922 caused by storage in Crane Prairie and Crescent Lake Reservoirs. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	956	946	854		840	844	932	872	1,030	956	1,010	884
2.....	953	942	860		840	848	952	876	1,020	948	1,010	881
3.....	953	942	863		844	854	1,040	882	1,020	936	1,000	851
4.....	953	942	860		844	858	1,060	890	1,020	936	992	848
5.....	956	942	860		840	858	1,030	896	1,010	972	988	844
6.....	956	939	860	a 830	840	854	1,000	893	1,010	988	980	844
7.....	968	939	857		844	851	984	890	1,020	992	980	844
8.....	972	936	854		844	851	980	886	1,030	1,020	976	854
9.....	968	936	854		844	854	976	886	1,030	1,020	972	876
10.....	964	939	857		844	851	968	932	1,030	1,030	972	866
11.....	964	936	869		844	858	964	940	1,040	1,080	964	862
12.....	964	942	872	830	844	876	952	928	1,050	1,110	960	858
13.....	964	950	875	830	844	876	948	924	1,050	1,120	960	868
14.....	964	950	875	830	844	876	944	928	1,070	1,110	948	858
15.....	964	960	866	830	844	876	932	932	1,070	1,060	928	858
16.....	960	968	869	830	844	879	924	940	1,060	1,050	924	854
17.....	960	964	878	830	844	886	912	940	1,060	1,050	924	854
18.....	960	968	872	830	851	893	896	936	1,060	1,040	920	858
19.....	960		866	830	858	908	890	932	1,060	1,040	912	868
20.....	960			830	851	924	882	932	1,050	1,050	904	868
21.....	956	a 962	a 852	830	844	928	879	932	1,050	1,050	904	865
22.....	953			834	848	940	865	932	1,050	1,060	904	854
23.....	950			834	858	952	868	960	1,050	1,050	900	854
24.....	946	956	837	834	854	956	879	964	1,040	1,050	898	854
25.....	946	960		834	854	952	882	1,000	1,040	1,040	879	861
26.....	946	936		830	858	928	890	1,010	1,030	1,040	872	851
27.....	942	869	a 835	830	854	912	890	1,020	1,060	1,030	865	848
28.....	946	866		834	848	908	886	1,020	1,060	1,020	862	844
29.....	946	863		834		893	879	1,020	980	1,020	858	840
30.....	946	857		837		908	872	1,020	960	1,020	858	840
31.....	946			837		920		1,030		1,020	858	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	972	942	956	58,800
November.....		857	939	55,900
December.....			856	52,600
January.....			831	51,100
February.....	858	840	847	47,000
March.....	956	844	889	54,700
April.....	1,060	865	932	55,500
May.....	1,030	872	940	57,800
June.....	1,070	960	1,040	61,900
July.....	1,120	936	1,030	63,800
August.....	1,010	858	932	57,300
September.....	876	840	854	50,800
The year.....	1,120	-----	921	667,000

a Estimated.

DESCHUTES RIVER BASIN

39

DESCHUTES RIVER BELOW LAVA ISLAND, NEAR BEND, OREG.

LOCATION.—Water-stage recorder in SW. ¼ sec. 23, T. 18 S., R. 11 E., three-quarters of a mile below Lava Island, 1 mile below intake of Arnold Canal, and 6 miles southwest of Bend.

RECORDS AVAILABLE.—March, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,030 second-feet Apr. 4; maximum gage height, 0.87 foot July 13; minimum, 685 second-feet Dec. 27 (gage height, 0.24 foot).

1926-1931: Maximum discharge, 1,780 second-feet Jan. 3, 1928 (gage height, 1.55 feet); minimum, that of Dec. 27, 1930.

REMARKS.—Records good except those estimated Dec. 28 to Jan. 9, Sep. 2-14, which are fair. Arnold Canal diverts water for irrigation above station. Flow regulated by storage in Crescent Lake and Crane Prairie Reservoirs. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	838	887	800	750	793	755	845	736	892	885	885	732
2	832	887	800		793	780	915	738	885	878	885	
3	832	894	793		793	812	938	746	870	864	885	
4	832	866	780		793	819	1,010	750	870	867	878	
5	832	845	786		793	819	990	756	878	864	870	
6	832	852	780	745	793	812	960	761	870	857	864	
7	845	859	793		793	812	945	756	885	857	864	
8	845	873	806		793	812	930	756	892	878	857	738
9	838	887	800		793	812	930	750	892	878	850	
10	838	894	806		740	793	812	922	778	908	857	
11	832	894	819	819	800	812	908	788	915	938	944	
12	838	894	819	800	800	826	894	788	922	970	938	
13	832	901	819	780	800	832	880	783	922	996	931	
14	832	901	819	780	800	826	880	794	938	996	931	
15	832	922	806	780	806	826	873	794	938	930	857	741
16	832	930	806	780	806	832	859	800	922	915	850	741
17	826	922	812	780	800	832	845	805	915	908	850	741
18	832	922	800	775	806	845	832	805	922	900	838	746
19	852	938	793	760	819	859	812	805	922	892	831	746
20	887	930	780	786	812	866	800	805	915	900	824	746
21	887	930	760	786	806	880	805	800	922	908	778	741
22	887	930	775	780	806	887	800	800	922	908	772	736
23	894	915	750	793	819	908	772	878	915	900	766	736
24	894	915	793	793	819	908	772	878	938	900	761	732
25	894	908	755	775	819	908	772	864	915	892	750	732
26	901	894	706	755	793	887	778	885	908	892	741	736
27	894	832	735	780	775	873	778	892	930	885	736	736
28	894	812	780	780	760	859	756	892	938	885	736	736
29	894	806	750	760		838	736	892	922	885	736	736
30	894	806		760		812	732	892	892	885	732	736
31	887			775		838		892		885	732	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	901	826	857	52,700
November	938	806	888	52,800
December	819	706	785	48,300
January	819		770	47,300
February	819	760	799	44,400
March	908	755	839	51,600
April	1,010	732	856	50,900
May	892	736	808	49,700
June	938	870	909	54,100
July	996	857	899	55,300
August	885	732	817	50,200
September	746	732	738	48,900
The year	1,010	706	831	601,000

DESCRUTES RIVER BELOW BEND, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 20, T. 17 S., R. 12 E., half a mile below North Canal Dam and 2 miles north of Bend.

RECORDS AVAILABLE.—November, 1914, to September, 1931.

EXTREMES.—Maximum discharge during year, 926 second-feet Nov. 25 (gage height, 1.74 feet); minimum recorded, 3 second-feet Aug. 22–25, Sept. 13–23 (gage height, –0.50 foot).

1914–1931: Maximum discharge, 2,500 second-feet Dec. 7, 1921 (gage height, 2.90 feet); minimum, 1 second-foot Aug. 25, 1930.

Maximum discharge of river in this vicinity since 1905, 4,820 second-feet Nov. 27, 1909.

REMARKS.—Records excellent except those for discharges below 150 second-feet, which are good, and those estimated for Nov. 29, 30, Dec. 1, Mar. 9, 10, Sept. 15–24, which are fair. Six large canals divert above station. Flow regulated by hydroelectric plant at Bend and since 1922 by storage in Crescent Lake and Crane Prairie Reservoirs. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	133	500	600	736	768	675	784	136	119	102	4	5
2	133	720	535	474	760	705	784	143	84	92	4	6
3	133	720	521	369	760	744	768	143	328	89	4	6
4	130	698	494	369	752	752	854	154	107	80	6	6
5	136	675	578	399	752	752	863	158	89	92	18	6
6	119	682	705	744	768	768	668	161	92	71	14	6
7	146	690	521	760	760	776	358	143	105	75	13	6
8	139	690	556	736	752	768	251	165	113	102	17	6
9	133	720	630	712	744	773	237	150	105	116	16	8
10	136	720	660	705	744	778	218	165	110	110	49	9
11	133	736	645	760	752	784	214	158	107	122	34	6
12	154	728	652	800	760	809	223	146	107	97	17	6
13	265	736	712	760	768	818	210	143	102	92	13	5
14	393	744	744	784	760	800	180	143	116	97	11	4
15	323	752	792	776	768	768	172	146	113	100	16	
16	116	827	784	776	768	728	158	143	97	102	14	
17	119	881	784	768	768	712	154	146	97	97	11	
18	139	899	809	752	760	705	112	150	89	73	9	
19	136	908	792	736	784	645	102	154	116	16	9	4
20	184	908	792	760	521	448	82	146	105	51	9	
21	180	908	752	744	454	448	107	143	94	75	4	
22	210	899	776	682	312	461	139	136	92	84	4	
23	242	890	760	399	329	468	130	133	84	84	3	27
24	246	899	809	334	334	334	154	119	102	69	3	116
25	223	899	784	334	340	514	154	77	89	7	4	124
26	223	890	698	393	387	514	154	84	92	4	5	133
27	223	827	736	728	712	487	154	100	110	4	6	136
28	210	836	776	760	690	521	143	102	122	4	8	130
29	205	800	728	712	-----	720	119	102	116	4	5	133
30	201	758	736	728	-----	660	113	102	84	4	5	124
31	205	-----	728	736	-----	690	-----	100	-----	4	6	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	393	116	183	11,300
November	908	500	785	48,700
December	809	494	696	42,800
January	800	334	652	40,100
February	784	312	662	36,800
March	818	391	664	40,800
April	863	82	292	17,400
May	165	77	135	8,800
June	328	84	110	6,550
July	122	4	68.4	4,210
August	49	3	11.0	676
September	136	-----	34.7	2,060
The year	908	3	356	258,000

DESCHUTES RIVER NEAR MADRAS, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 19, T. 10 S., R. 13 E., at proposed Pelton dam site, 5 miles above mouth of Shitike Creek and 9 miles northwest of Madras.

RECORDS AVAILABLE.—December, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,600 second-feet Apr. 2 (gage height, 3.42 feet); minimum, 2,960 second-feet Aug. 15 (gage height, 0.24 foot).

1923-1931: Maximum discharge, 10,700 second-feet Feb. 6, 1925 (gage height, 6.54 feet); minimum, that of Aug. 15, 1931.

REMARKS.—Records excellent except those estimated June 16 to July 26, Aug. 18, which are good. Diversions for irrigation in upper river basin. Gage-height record furnished by Columbia Valley Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,320	3,380	3,960	3,960	4,020	3,960	5,940	3,530	3,300		3,020	3,030
2	3,320	3,700	3,810	3,910	4,080	3,960	6,340	3,580	3,310		3,010	3,030
3	3,310	3,860	3,710	3,660	4,020	3,960	6,080	3,530	3,260		3,000	3,080
4	3,300	3,860	3,710	3,610	4,020	4,020	5,320	3,580	3,430		3,030	3,020
5	3,290	3,810	3,660	3,610	4,020	4,060	5,200	3,580	3,320		3,000	3,080
6	3,340	3,810	3,840	3,750	4,020	4,060	5,070	3,640	3,230		3,030	3,050
7	3,490	3,810	3,780	3,960	3,960	4,060	4,830	3,640	3,230		3,020	3,010
8	3,370	3,810	3,710	3,910	3,960	4,020	4,710	3,430	3,290		3,080	3,000
9	3,320	3,860	3,760	3,910	3,910	4,020	4,470	3,380	3,280		3,080	3,000
10	3,300	3,860	3,910	3,910	3,960	4,020	4,240	3,380	3,260		3,020	3,000
11	3,300	3,910	3,910	3,960	3,960	4,020	4,130	3,430	3,220		3,010	3,000
12	3,300	3,960	3,910	4,020	3,910	4,020	4,080	3,480	3,220		3,020	3,010
13	3,300	3,960	3,960	3,960	3,910	4,020	4,020	3,530	3,230		3,020	3,010
14	3,420	3,910	3,960	3,960	3,960	4,020	3,910	3,690	3,290	3,100	3,010	3,010
15	3,520	3,960	4,020	3,960	4,020	4,060	3,910	3,580	3,290		3,000	3,010
16	3,450	4,130	4,020	3,960	4,020	4,060	3,800	3,580			3,000	3,000
17	3,320	4,080	3,960	3,960	4,020	4,060	3,690	3,480			3,000	3,000
18	3,290	4,080	4,020	3,960	4,020	4,130	3,640	3,380			3,000	3,030
19	3,310	4,080	4,020	3,960	4,020	4,130	3,580	3,340			3,010	3,010
20	3,300	4,080	3,910	3,910	4,020	4,460	3,530	3,370			3,030	2,990
21	3,340	4,080	3,910	3,960	3,760	4,300	3,530	3,340			3,080	2,990
22	3,380	4,080	3,910	4,020	3,810	4,300	3,430	3,320			3,020	3,000
23	3,410	4,080	3,960	3,910	3,710	4,460	3,480	3,290	3,200		3,020	2,990
24	3,430	4,080	3,960	3,610	3,710	4,400	3,430	3,260			3,020	2,990
25	3,400	4,080	3,960	3,610	3,710	4,180	3,430	3,330			3,010	2,990
26	3,380	4,080	3,910	3,710	3,710	4,130	3,430	3,320			3,010	3,040
27	3,420	4,130	3,910	3,820	3,840	4,080	3,430	3,300		3,050	3,000	3,100
28	3,390	4,020	3,860	4,080	4,020	4,020	3,480	3,270		3,040	3,010	3,100
29	3,380	4,020	3,910	4,020		4,130	3,480	3,260		3,040	3,010	3,080
30	3,380	4,020	3,910	4,020		4,240	3,480	3,260		3,030	3,020	3,080
31	3,380		3,910	4,020		4,700		3,280		3,020	3,020	
Month					Maximum		Minimum		Mean		Run-off in acre-feet	
October					3,520		3,290		3,360		207,000	
November					4,130		3,380		3,950		235,000	
December					4,020		3,660		3,890		239,000	
January					4,080		3,610		3,890		239,000	
February					4,060		3,710		3,930		218,000	
March					4,700		3,960		4,130		254,000	
April					6,340		3,430		4,170		248,000	
May					3,690		3,260		3,430		211,000	
June					3,430				3,240		193,000	
July							3,020		3,090		190,000	
August					3,080		3,000		3,010		185,000	
September					3,400		2,990		3,020		180,000	
The year					6,340		2,990		3,590		2,600,000	

DESCHUTES RIVER AT SHERARS BRIDGE, OREG.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 3, T. 4 S., R. 14 E., half a mile above Sherars Bridge and 44 miles above mouth of river.

RECORDS AVAILABLE.—February, 1912, to September, 1914 (stage only); June, 1923, to September, 1931; incomplete prior to 1926.

EXTREMES.—Maximum discharge during year, 13,300 second-feet Apr. 1 (gage height, 4.60 feet); minimum, 3,450 second-feet Sept. 11, 12 (gage height, 0.38 foot).

1923-1931: Maximum discharge (estimated), 32,000 second-feet Feb. 21, 1927; minimum, that of Sept. 11, 12, 1931.

REMARKS.—Records good. Diversions for irrigation in upper river basin. Gage-height record furnished by Deschutes Falls Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	3,610	3,730	4,450	4,320	4,590	4,450	12,900	5,130	3,940	3,730	3,510	3,470
2.....	3,610	3,730	4,380	4,520	4,590	4,450	10,600	5,130	3,900	3,730	3,530	3,480
3.....	3,610	4,200	4,200	4,200	4,590	4,450	9,270	5,340	3,860	3,690	3,510	3,470
4.....	3,610	4,200	4,090	3,940	4,520	4,520	7,750	5,030	3,900	3,690	3,500	3,470
5.....	3,610	4,200	4,090	3,990	4,520	4,590	7,460	4,930	3,900	3,650	3,480	3,460
6.....	3,640	4,200	4,090	4,090	4,450	4,590	6,880	5,030	3,860	3,620	3,480	3,500
7.....	3,730	4,200	4,380	4,380	4,520	4,590	6,600	5,030	3,810	3,620	3,480	3,460
8.....	3,860	4,200	4,090	4,380	4,590	4,590	6,600	4,840	3,860	3,620	3,470	3,460
9.....	3,730	4,200	4,140	4,260	4,450	4,520	6,330	4,670	3,900	3,620	3,500	3,500
10.....	3,650	4,320	4,320	4,380	4,450	4,450	5,810	4,520	3,860	3,640	3,510	3,460
11.....	3,640	4,260	4,380	4,380	4,450	4,590	5,810	4,590	3,770	3,620	3,480	3,450
12.....	3,640	4,260	4,260	4,450	4,450	4,590	5,570	4,670	3,770	3,640	3,480	3,450
13.....	3,640	4,590	4,380	4,450	4,380	4,590	5,570	4,670	3,860	3,650	3,500	3,460
14.....	3,650	4,380	4,380	4,380	4,450	4,590	5,340	4,840	3,940	3,620	3,500	3,480
15.....	3,860	4,380	4,380	4,450	4,450	4,590	5,240	4,750	4,040	3,610	3,480	3,470
16.....	3,770	4,750	4,450	4,450	4,520	4,590	4,930	4,670	3,990	3,620	3,480	3,460
17.....	3,770	4,520	4,450	4,380	4,520	4,590	4,930	4,590	3,900	3,620	3,480	3,460
18.....	3,640	4,520	4,380	4,380	4,520	4,750	4,930	4,380	3,900	3,610	3,480	3,520
19.....	3,610	4,520	4,380	4,320	4,590	4,930	4,440	4,260	3,810	3,610	3,500	3,480
20.....	3,650	4,520	4,320	4,380	4,590	5,570	4,750	4,200	3,770	3,610	3,480	3,480
21.....	3,650	4,520	4,320	4,450	4,320	5,570	4,670	4,090	3,770	3,570	3,500	3,480
22.....	3,690	4,450	4,320	4,350	4,380	5,520	4,590	4,090	3,810	3,570	3,470	3,500
23.....	3,730	4,450	4,320	4,590	4,200	5,570	4,590	4,090	3,810	3,580	3,500	3,460
24.....	3,770	4,450	4,380	4,200	4,140	5,340	4,590	4,090	3,770	3,580	3,500	3,460
25.....	3,770	4,450	4,450	4,040	4,140	5,030	4,670	4,200	3,690	3,570	3,480	3,460
26.....	3,730	4,450	4,380	4,380	4,140	5,030	4,670	4,140	3,810	3,580	3,470	3,510
27.....	3,730	4,450	4,320	4,320	4,090	4,930	4,590	4,090	3,770	3,560	3,470	3,540
28.....	3,770	4,450	4,260	4,750	4,450	4,750	4,840	3,940	3,730	3,530	3,480	3,560
29.....	3,730	4,450	4,320	4,670	-----	4,670	4,930	3,940	3,730	3,520	3,470	3,530
30.....	3,730	4,450	4,320	4,590	-----	4,930	5,030	3,990	3,730	3,530	3,480	3,560
31.....	3,730	-----	4,320	4,520	-----	7,460	-----	3,990	-----	3,530	3,470	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	3,860	3,610	3,700	228,000
November.....	4,750	3,730	4,350	259,000
December.....	4,450	4,090	4,310	265,000
January.....	4,750	3,940	4,370	269,000
February.....	4,590	4,000	4,430	246,000
March.....	7,460	4,450	4,880	300,000
April.....	12,900	4,590	5,980	356,000
May.....	5,340	3,940	4,510	277,000
June.....	4,040	3,690	3,840	228,000
July.....	3,730	3,520	3,610	222,000
August.....	3,590	3,470	3,490	215,000
September.....	3,560	3,450	3,480	207,000
The year.....	12,900	3,450	4,240	3,070,000

DESCHUTES RIVER AT MOODY, NEAR BIGGS, OREG.

LOCATION.—Water-stage recorder in SE. ¼ sec. 26, T. 2 N., R. 15 E., at Moody, 1½ miles above mouth and 5 miles southwest of Biggs. Zero of gage is 167.12 feet above mean sea level.

DRAINAGE AREA.—10,200 square miles (revised).

RECORDS AVAILABLE.—July, 1906, to September, 1931. October, 1897, to December, 1899, at station near Moro, 10 miles above mouth.

EXTREMES.—Maximum discharge during year, 15,700 second-feet Apr. 1 (gage height, 5.26 feet); minimum, 3,380 second-feet Sept. 16-19 (gage height, 2.06 feet).

1906-1931: Maximum discharge, 43,600 second-feet Jan. 7, 1923 (gage height, 10.2 feet); minimum, 3,510 second-feet Aug. 23-28, 1920 (gage height, 1.9 feet).

REMARKS.—Records excellent. Diversions for irrigation in upper river basin. Gage-height record furnished by Eastern Oregon Land Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	3,610	3,730	4,300	4,160	4,430	4,300	14,200	5,160	3,910	3,680	3,480	3,400
2.....	3,610	3,730	4,300	4,300	4,570	4,300	12,400	5,160	3,890	3,660	3,480	3,400
3.....	3,610	4,090	4,160	4,160	4,430	4,300	10,600	5,160	3,860	3,660	3,480	3,400
4.....	3,610	4,160	4,090	3,980	4,430	4,300	8,600	5,010	3,820	3,660	3,460	3,400
5.....	3,690	4,160	4,040	3,910	4,430	4,430	7,620	5,010	3,960	3,660	3,460	3,400
6.....	3,640	4,140	4,040	3,940	4,430	4,430	7,280	5,010	3,800	3,640	3,460	3,400
7.....	3,730	4,140	4,160	4,110	4,430	4,430	6,860	5,010	3,750	3,610	3,460	3,400
8.....	3,860	4,140	4,060	4,300	4,430	4,430	6,670	4,860	3,770	3,590	3,460	3,400
9.....	3,730	4,140	3,960	4,160	4,300	4,430	6,490	4,680	3,800	3,590	3,440	3,400
10.....	3,660	4,160	4,110	4,160	4,300	4,430	6,140	4,510	3,800	3,590	3,440	3,400
11.....	3,640	4,160	4,300	4,300	4,300	4,430	5,800	4,430	3,750	3,590	3,440	3,400
12.....	3,610	4,160	4,300	4,300	4,300	4,430	5,640	4,430	3,730	3,590	3,440	3,400
13.....	3,610	4,430	4,300	4,300	4,300	4,430	5,480	4,570	3,750	3,590	3,420	3,400
14.....	3,640	4,430	4,300	4,300	4,300	4,430	5,320	4,570	3,980	3,590	3,420	3,400
15.....	3,750	4,300	4,300	4,300	4,300	4,430	5,160	4,710	4,160	3,590	3,420	3,400
16.....	3,820	4,430	4,300	4,300	4,300	4,570	5,160	4,570	3,980	3,570	3,400	3,380
17.....	3,770	4,570	4,300	4,300	4,300	4,570	5,010	4,430	3,910	3,570	3,400	3,380
18.....	3,640	4,430	4,300	4,300	4,430	4,570	4,860	4,430	3,860	3,570	3,420	3,380
19.....	3,610	4,430	4,300	4,300	4,430	4,710	4,710	4,160	3,820	3,550	3,420	3,380
20.....	3,640	4,430	4,300	4,300	4,430	5,010	4,710	4,110	3,770	3,550	3,420	3,400
21.....	3,660	4,430	4,300	4,300	4,430	5,320	4,570	4,040	3,750	3,550	3,420	3,400
22.....	3,680	4,430	4,160	4,430	4,140	5,320	4,570	4,010	3,750	3,530	3,420	3,400
23.....	3,730	4,430	4,160	4,430	4,110	5,320	4,570	4,010	3,750	3,500	3,420	3,400
24.....	3,750	4,430	4,300	4,300	4,060	5,320	4,570	3,980	3,770	3,500	3,420	3,400
25.....	3,770	4,430	4,300	4,010	4,040	5,160	4,570	3,980	3,730	3,500	3,420	3,400
26.....	3,750	4,430	4,300	4,060	4,040	5,010	4,570	4,040	3,700	3,500	3,420	3,400
27.....	3,730	4,430	4,160	4,300	4,010	4,860	4,570	4,010	3,750	3,500	3,420	3,400
28.....	3,770	4,430	4,140	4,430	4,300	4,710	4,860	3,940	3,770	3,500	3,420	3,420
29.....	3,750	4,300	4,140	4,570	-----	4,570	4,860	3,890	3,730	3,480	3,420	3,440
30.....	3,730	4,300	4,160	4,570	-----	4,710	5,010	3,890	3,680	3,480	3,420	3,460
31.....	3,730	-----	4,110	4,570	-----	6,200	-----	3,910	-----	3,480	3,420	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	3,860	3,590	3,690	227,000
November.....	4,570	3,730	4,280	255,000
December.....	4,300	3,960	4,210	289,000
January.....	4,570	3,910	4,260	262,000
February.....	4,570	4,010	4,310	289,000
March.....	6,200	4,300	4,710	260,000
April.....	14,200	4,570	6,180	368,000
May.....	5,160	3,890	4,440	273,000
June.....	4,160	3,680	3,820	227,000
July.....	3,680	3,480	3,570	220,000
August.....	3,480	3,400	3,430	211,000
September.....	3,460	3,380	3,400	202,000
The year.....	14,200	3,380	4,190	3,080,000

LITTLE DESCHUTES RIVER NEAR LAPINE, OREG.

LOCATION.—Water-stage recorder in sec. 2, T. 22 S., R. 10 E., at bridge at former town of Rosland, $1\frac{1}{2}$ miles north of Lapine.

RECORDS AVAILABLE.—September, 1910, to October, 1913, incomplete; June to November, 1918; August to October, 1920; May, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 307 second-feet Apr. 2, 3 (gage height, 2.45 feet); minimum, 8 second-feet Sept. 2, 3 (gage height, -0.29 foot).

1910-13, 1918, 1920, 1924-1931: Maximum discharge, 760 second-feet about June 12, 1912; maximum gage height, 4.98 feet May 21, 1927; minimum discharge, that of Sept. 2, 3, 1931.

REMARKS.—Records fair except those for July to September, which are good. Small diversions for irrigation above station. Flow regulated by storage in Crescent Lake Reservoir. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	34	32			60	191	106	70	55	80	10
2.....	34	43			64	267	119	68	52	76	9
3.....	35	44			71	286	134	63	48	71	9
4.....	35	43			77	237	137	62	42	68	9
5.....	36	42			74	214	138	59	41	64	9
6.....	36	41			73	197	136	52	37	61	9
7.....	37	42			71	202	135	48	34	59	10
8.....	37	40			63	202	136	46	32	54	11
9.....	38	48			68	197	139	64	89	36	15
10.....	38	48			66	185	134	86	132	27	17
11.....	37	51			66	173	124	88	147	24	17
12.....	34	55			80	167	116	77	150	21	16
13.....	32	56			90	173	110	65	145	18	15
14.....	31	60			95	161	115	66	138	18	13
15.....	30				95	156	134	75	139	18	12
16.....	30				97	144	135	75	135	18	12
17.....	29				96	136	132	75	126	18	12
18.....	29				108	130	128	72	118	17	12
19.....	30				132	127	126	69	114	16	12
20.....	29				139	125	121	64	108	16	13
21.....	29				156	122	112	61	104	16	13
22.....	28				185	120	103	58	101	15	13
23.....	27				191	118	96	55	97	15	12
24.....	27				173	121	90	51	93	15	11
25.....	27			76	156	128	84	47	88	14	10
26.....	27			64	136	127	82	42	86	14	10
27.....	27			58	120	120	77	48	86	13	10
28.....	30			60	118	113	75	62	86	12	10
29.....	28	49			115	106	74	66	85	12	10
30.....	28	49			114	105	73	62	84	12	10
31.....	27				122		72		82	11	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	38	27	31.5	1,940
November.....		32	48.6	2,890
December.....			42.0	2,580
January.....			40.0	2,460
February.....	76		49.5	2,750
March.....	191	60	106	6,520
April.....	286	105	162	9,640
May.....	139	72	113	6,950
June.....	88	42	63.2	3,760
July.....	150	32	92.7	5,700
August.....	80	11	30.0	1,840
September.....	17	9	11.7	666
The year.....	286	9	65.8	47,700

• Estimated.

CRESCENT LAKE RESERVOIR NEAR CRESCENT, OREG.

LOCATION—Staff gage at reservoir dam in sec. 11, T. 24 S., R. 6 E., 14 miles west of Crescent. Zero of gage is 4,826.0 feet above mean sea level; published water-surface elevations refer to mean sea level datum.

RECORDS AVAILABLE—August, 1922, to September, 1931.

EXTREMES—Maximum contents recorded during year, 21,960 acre-feet May 31 to June 6 (elevation, 4,832.60 feet); minimum, 9,926 acre-feet Sept. 30 (elevation, 4,829.02 feet).

1922-1931: Maximum contents, 67,760 acre-feet July 15, 1923 (elevation, 4,845.55 feet); minimum, that of Sept. 30, 1931.

REMARKS—Records good. Water stored in Crescent Lake Reservoir, completed in 1922, is used by Deschutes County municipal improvement district through its canal diverting from Deschutes River at Bend for irrigation of lands near Tumalo. Capacity of reservoir is 80,350 acre-feet at spillway crest at elevation 4,849.0 feet. Records furnished by State engineer.

Monthly elevation and contents of Crescent Lake Reservoir near Crescent, Oreg., 1930-31

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....		* 15,740		May 31.....	4,832.60	21,960	+3,310
Oct. 31.....		* 15,730	-10	June 30.....		* 21,530	-430
Nov. 30.....		* 16,660	+930	July 31.....		* 14,340	-7,190
Dec. 31.....		* 16,410	-250	Aug. 31.....		* 11,450	-2,890
Jan. 31.....	4,831.00	16,540	+130	Sept. 30.....	4,829.02	9,926	-1,524
Feb. 29.....	4,830.80	* 15,880	-660				
Mar. 31.....		* 16,620	+740	The year.....			-5,814
Apr. 30.....		* 18,650	+2,030				

* Estimated from discharge of Crescent Creek, or by interpolation, from gage readings usually made about once a week.

CRESCENT CREEK AT CRESCENT LAKE, NEAR CRESCENT, OREG.

LOCATION—Water-stage recorder in sec. 11, T. 24 S., R. 6 E., 100 yards below dam at outlet of Crescent Lake and 14 miles west of Crescent.

RECORDS AVAILABLE—January, 1911, to July, 1915; July, 1927, to September, 1928, incomplete; October, 1928, to September, 1931.

EXTREMES—Maximum discharge during year, 159 second-feet July 8 (gage height, 1.92 feet); no flow most of year.

1911-1915, 1927-1931: Maximum discharge, 313 second-feet July 9, 1929; no flow at times.

REMARKS—Records excellent. Flow regulated by storage in Crescent Lake Reservoir, this storage being released July 7 to Aug. 6 for Deschutes County Municipal Improvement District Canal near Bend. Records furnished by State engineer.

*Daily and monthly discharge, in second-feet, of Crescent Creek at Crescent Lake,
near Crescent, Oreg., 1930-31*

Day	July	Aug.	Day	July	Aug.	Day	July	Aug.
1	0	66	11	145	0	21	95	0
2	0	63	12	145	0	22	89	0
3	0	59	13	138	0	23	85	0
4	0	55	14	130	0	24	80	0
5	0	50	15	123	0	25	84	0
6	0	43	16	117	0	26	85	0
7	83	0	17	112	0	27	83	0
8	144	0	18	107	0	28	80	0
9	150	0	19	103	0	29	77	0
10	150	0	20	98	0	30	69	0
						31	69	0

Month	Maximum	Minimum	Mean	Run-off in acre-feet
July	150	0	85.2	5,240
August	66	0	10.8	664
The year	150	0	8.2	5,900

NOTE.—No flow during months omitted.

DIVERSIONS FROM DESCHUTES RIVER NEAR BEND, OREG.

The following canals divert from Deschutes River between gaging station at Benham Falls and station below Bend: Arnold Canal diverts from right bank of Deschutes River at head of Lava Island, in SW. $\frac{1}{4}$ sec. 27, T. 18 S., R. 11 E.; water used for irrigation of lands southeast of Bend. Central Oregon Canal diverts on right bank in NE. $\frac{1}{4}$ sec. 13, T. 18 S., R. 11 E.; water used for irrigation of lands east of Bend. Pilot Butte Canal diverts in NE. $\frac{1}{4}$ sec. 17, T. 18 S., R. 12 E., from Central Oregon Canal above Central Oregon Canal gage; water used for irrigation of lands east and northeast of Bend. 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 of lands near Tumalo; water stored at Crescent Lake Reservoir is diverted by this canal. North and Swalley Canals divert from right bank in NE. $\frac{1}{4}$ sec. 29, T. 17 S., R. 12 E.; water used to irrigate lands north of Bend, mostly near Redmond. No other diversions between gaging stations at Benham Falls and below Bend.

Records are available from October, 1926, to September, 1931; records for all of these canals published separately prior to 1926. Records furnished by State engineer.

Monthly diversions, in acre-feet, 1930-31

Month	Arnold Canal	Central Oregon Canal	Pilot Butte Canal	Deschutes County Municipal Improvement District Canal	North Canal	Swalley Canal	Total
October	2,440	14,400	395	3,380	18,000	3,350	41,945
November	333	48	2	4,140	411	1,670	6,604
December	289	2,380	90	0	1,970	209	4,938
January	486	2,670	141	0	2,890	228	6,415
February	194	2,080	94	0	2,540	378	5,286
March	314	2,590	92	4,320	1,970	560	9,846
April	988	11,800	449	4,660	13,700	1,320	32,917
May	3,330	17,500	990	0	18,300	3,520	43,640
June	3,340	20,000	910	0	20,600	4,220	49,070
July	3,130	19,600	744	3,620	21,200	5,130	53,424
August	2,720	20,500	633	959	21,900	4,540	51,252
September	3,000	16,600	472	3,250	17,600	3,180	44,102
The year	20,564	130,168	5,012	24,309	141,081	28,305	349,439

TUMALO CREEK NEAR BEND, OREG.

LOCATION.—Water-stage recorder in SE. ¼ sec. 23, T. 17 S., R. 11 E., a quarter of a mile above diversion dam of feed canal of Tumalo project, 4 miles above mouth, and 4 miles northwest of Bend.

DRAINAGE AREA.—57 square miles.

RECORDS AVAILABLE.—November, 1913, to September, 1931; also during winters from October, 1906, to April, 1913, except 1909 and 1910.

EXTREMES.—Maximum discharge during year, 384 second-feet May 13; minimum, 22 second-feet Mar. 10 (gage height, 0.99 foot).

1906-1908, 1911-1931: Maximum discharge, 1,420 second-feet about Jan. 6, 1923 (gage height, 4.55 feet); minimum, 4.0 second-feet Oct. 28, 1922 (gage height, 0.55 foot).

REMARKS.—Records good except those estimated, which are fair. Columbia Southern Canal diverts above station. Records furnished by State engineer.

Daily discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.	36	40	51	} 46	46	45	113	195	166	59	50	46
2.	37	49	53		46	46	77	195	133	60	50	45
3.	51	48	51		46	46	63	180	111	61	49	46
4.	47	48	51		45	47	60	189	105	61	47	46
5.	41	49	49	51	45	46	59	198	115	63	45	46
6.	51	49	49	} 50	44	46	69	226	117	64	45	46
7.	77	49	49		44	35	72	183	126	60	45	46
8.	59	49	48		44	32	61	147	124	61	45	48
9.	53	47	47		44	25	60	142	115	61	46	48
10.	44	37	47		43	28	60	155	113	61	47	48
11.	42	35	47		43	46	61	169	95	59	47	47
12.	33	47	47	46	42	57	195	90	60	47	45	
13.	36	42	48	} 46	42	46	55	220	93	61	48	45
14.	36	35	46		43	45	53	234	113	60	49	44
15.	36	39	47		44	46	50	186	99	55	49	44
16.	36	40	47		42	38	60	198	91	54	48	45
17.	36	40	46	49	47	30	86	155	86	57	48	46
18.	41	40	} 50	50	46	35	81	130	75	59	48	53
19.	51	42		51	46	79	160	69	60	48	50	
20.	51	43	50	43	46	81	163	64	60	47	49	
21.	51	47	} 45	49	45	49	84	163	64	60	49	46
22.	53	50		49	44	49	95	163	75	51	47	47
23.	53	51		49	45	44	86	163	74	53	49	46
24.	50	51		42	49	44	81	180	63	50	49	45
25.	37	49	} 37	49	45	37	81	189	66	49	48	43
26.	37	52		49	45	37	95	172	79	49	50	44
27.	39	55		48	44	34	122	153	109	48	49	44
28.	37	53		46	45	33	160	150	77	46	48	45
29.	35	50		45	-----	33	189	145	66	49	49	44
30.	35	50		46	-----	56	195	155	61	49	48	44
31.	35	-----	46	-----	75	-----	166	-----	50	46	-----	

Monthly discharge of Tumalo Creek and Columbia Southern Canal near Bend, Oreg., 1930-31

Month	Tumalo Creek				Columbia Southern Canal (run-off in acre- feet)	Com- bined run-off in acre- feet
	Discharge in second-feet			Run-off in acre- feet		
	Maximum	Minimum	Mean			
October	77	33	43.7	2,690	461	3,151
November	55	35	45.9	2,730	321	3,051
December	53		45.0	2,770	0	2,770
January			48.1	2,960	0	2,960
February	47	42	44.4	2,470	0	2,470
March	75	25	41.9	2,580	0	2,580
April	195	50	84.8	5,050	806	5,856
May	234	130	175	10,800	756	11,556
June	166	61	94.5	5,620	0	5,620
July	64	46	56.5	3,470	0	3,470
August	50	45	47.7	2,930	0	2,930
September	53	43	46.0	2,740	0	2,740
The year	234	25	64.6	46,810	2,344	49,154

• Estimated.

SQUAW CREEK NEAR SISTERS, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 32, T. 15 S., R. 10 E., immediately above intake of McCallister Ditch and 4 miles south of Sisters.

DRAINAGE AREA.—63 square miles.

RECORDS AVAILABLE.—Irrigation seasons 1913, 1914, 1916 to 1925; October, 1925, to September, 1931. From July, 1906, to May, 1913, at station below intake of McCallister Ditch and 700 feet downstream.

EXTREMES.—Maximum discharge during year, 451 second-feet May 13 (gage height, 2.09 feet); minimum, about 28 second-feet Jan. 29 to Feb. 3.

1906-1914, 1916-1931: Maximum discharge (estimated), 1,940 second-feet Nov. 22, 1909 (gage height, 7.5 feet at old station); minimum, 19 second-feet Dec. 6, 1922.

REMARKS.—Records good except those estimated, which are fair. Pole Creek, a tributary above station, has been entirely diverted from its natural channel near mouth through a canal for irrigation of lands near Sisters. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....		41			28	32		205	200	89	* 96	97
2.....					28	33		219	176	100	* 101	106
3.....	* 54					34		226	151	106	* 97	111
4.....						* 34	* 146	229	145	113	* 89	109
5.....						* 34		256	148	123	* 83	104
6.....		93			* 35	34		277	151	109	82	74
7.....		140				34		219	186	118	82	57
8.....						33	93	188	193	129	86	52
9.....				* 38		34	88	196	164	132	97	46
10.....						32	88	212	145	116	95	44
11.....	* 55				45	32	88	243	132	123	87	40
12.....		* 40			41	34	81	270	132	129	86	47
13.....					41	34	79	306	148	129	82	53
14.....			* 40		42	33	73	313	160	113	89	54
15.....		41			39	33	72	228	154	113	89	52
16.....		41			44	33	77	228	137	* 116	89	50
17.....				* 36	41	33	81	167	113	118	106	50
18.....				* 37	48	34	77	140	102	116	100	60
19.....				* 38	39	42	73	132	89	121	89	46
20.....					40	49	73	132	91	132	91	42
21.....					36	62	79	134	102	126	80	42
22.....				* 32	38	79	81	134	91	129	80	41
23.....		38			36	65	75	145	91	126	87	38
24.....	* 41				36	52	72	167	86	129	82	35
25.....					34	48	77	186	102	134	82	41
26.....				35	32	43	91	170	113	132	84	59
27.....		* 38		40	32	32	41	119	160	100	126	80
28.....				30	32	38	149	160	91	123	86	40
29.....				* 40	29		183	157	84	123	95	45
30.....				* 40	29		192	176	80	123	91	53
31.....				* 40	28			203		121	89	
Month	Maximum		Minimum		Mean		Run-off in acre-feet					
October.....	140				51.1		3,140					
November.....					39.5		2,350					
December.....					40.0		2,460					
January.....			28		35.3		2,170					
February.....	48				36.9		2,060					
March.....			32		44.7		2,750					
April.....			72		106		6,310					
May.....	313		132		199		12,200					
June.....	200		80		129		7,680					
July.....	134		89		121		7,440					
August.....	106		80		88.8		5,460					
September.....	111		35		57.5		3,420					
The year.....	200		28		79.3		57,400					

* Estimated.

DESCHUTES RIVER BASIN

49

CROOKED RIVER NEAR CULVER, OREG.

LOCATION.—Staff gage in SW. ¼ sec. 11, T. 12 S., R. 12 E., just below Cove power plant and 3 miles northwest of Culver.

RECORDS AVAILABLE.—October, 1917, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,980 second-feet Apr. 2 (gage height, 2.76 feet); minimum, 1,130 second-feet Aug. 20 (gage height, 0.36 foot).

1917-1931: Maximum discharge, 7,320 second-feet Feb. 6, 1925 (gage height, 5.6 feet); minimum, 970 second-feet July 12 to Sept. 5, 1921.

REMARKS.—Records good. Flow regulated slightly by storage in Ochoco Reservoir. Summer flow above Prineville diverted for irrigation. Springs increase flow about 1,000 second-feet in a few miles above station. Gage-height record furnished by Pacific Power & Light Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	1, 170	1, 170	1, 170	1, 170	1, 250	1, 280	1, 700	1, 250	1, 140	1, 140	1, 140	1, 140
2-----	1, 170	1, 170	1, 170	1, 170	1, 250	1, 280	2, 870	1, 250	1, 140	1, 140	1, 140	1, 140
3-----	1, 170	1, 170	1, 170	1, 170	1, 250	1, 280	2, 670	1, 250	1, 140	1, 140	1, 140	1, 140
4-----	1, 170	1, 170	1, 170	1, 170	1, 250	1, 280	2, 220	1, 240	1, 140	1, 140	1, 140	1, 140
5-----	1, 170	1, 170	1, 170	1, 170	1, 250	1, 280	1, 910	1, 240	1, 140	1, 140	1, 140	1, 140
6-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 280	1, 770	1, 220	1, 140	1, 140	1, 140	1, 140
7-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 280	1, 770	1, 220	1, 140	1, 140	1, 140	1, 140
8-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 280	2, 140	1, 210	1, 140	1, 140	1, 140	1, 140
9-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 280	1, 980	1, 210	1, 140	1, 140	1, 140	1, 140
10-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 250	1, 840	1, 190	1, 140	1, 140	1, 140	1, 140
11-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 250	1, 700	1, 180	1, 140	1, 140	1, 140	1, 140
12-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 240	1, 700	1, 180	1, 140	1, 140	1, 140	1, 140
13-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 240	1, 630	1, 180	1, 140	1, 140	1, 140	1, 140
14-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 240	1, 660	1, 180	1, 140	1, 140	1, 140	1, 140
15-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 370	1, 560	1, 180	1, 140	1, 140	1, 140	1, 140
16-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 400	1, 560	1, 180	1, 140	1, 140	1, 140	1, 140
17-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 370	1, 490	1, 150	1, 140	1, 140	1, 140	1, 140
18-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 430	1, 490	1, 150	1, 140	1, 140	1, 140	1, 140
19-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 430	1, 460	1, 140	1, 140	1, 140	1, 140	1, 140
20-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 910	1, 460	1, 140	1, 140	1, 140	1, 140	1, 140
21-----	1, 170	1, 170	1, 170	1, 170	1, 230	1, 840	1, 460	1, 140	1, 140	1, 140	1, 140	1, 140
22-----	1, 170	1, 170	1, 170	1, 170	1, 340	1, 840	1, 460	1, 140	1, 140	1, 140	1, 140	1, 140
23-----	1, 170	1, 170	1, 170	1, 170	1, 310	2, 140	1, 400	1, 140	1, 140	1, 140	1, 140	1, 140
24-----	1, 170	1, 170	1, 170	1, 170	1, 370	1, 980	1, 370	1, 140	1, 140	1, 140	1, 140	1, 140
25-----	1, 170	1, 170	1, 170	1, 170	1, 340	1, 770	1, 370	1, 140	1, 140	1, 140	1, 140	1, 140
26-----	1, 170	1, 170	1, 170	1, 340	1, 340	1, 630	1, 310	1, 140	1, 140	1, 140	1, 140	1, 140
27-----	1, 170	1, 170	1, 170	1, 310	1, 310	1, 560	1, 280	1, 140	1, 140	1, 140	1, 140	1, 140
28-----	1, 170	1, 170	1, 170	1, 310	1, 310	1, 490	1, 250	1, 140	1, 140	1, 140	1, 140	1, 140
29-----	1, 170	1, 170	1, 170	1, 250	-----	1, 490	1, 250	1, 140	1, 140	1, 140	1, 140	1, 140
30-----	1, 170	1, 170	1, 170	1, 240	-----	1, 460	1, 250	1, 140	1, 140	1, 140	1, 140	1, 140
31-----	1, 170	-----	1, 170	1, 250	-----	1, 460	-----	1, 140	-----	1, 140	-----	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October-----	1, 170	1, 170	1, 170	71, 900
November-----	1, 170	1, 170	1, 170	69, 600
December-----	1, 170	1, 170	1, 170	71, 900
January-----	1, 340	1, 170	1, 190	73, 200
February-----	1, 340	1, 230	1, 260	70, 000
March-----	2, 140	1, 240	1, 460	89, 800
April-----	2, 870	1, 250	1, 660	98, 800
May-----	1, 250	1, 140	1, 180	72, 600
June-----	1, 140	1, 140	1, 140	67, 800
July-----	1, 140	1, 140	1, 140	70, 100
August-----	1, 140	1, 140	1, 140	70, 100
September-----	1, 140	1, 140	1, 140	67, 800
The year-----	2, 870	1, 140	1, 230	894, 000

METOLIUS RIVER NEAR GRANDVIEW, OREG.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 19, T. 11 S., R. 11 E., at Montgomery ranch, 8 miles northwest of Grandview.

RECORDS AVAILABLE.—October, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,930 second-feet Apr. 1 (gage height, 1.56 feet); minimum, 1,110 second-feet Sept. 10-30 (gage height, 0.16 foot).

1921-1931: Maximum discharge, about 5,780 second-feet Jan. 7, 1923 (gage height, 3.32 feet); minimum, that of Sept. 10, 1931.

REMARKS.—Records good. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	1,230	1,210	1,210	1,170	1,210	1,210	2,930	1,350	1,290	1,200	1,160	1,130
2.....	1,230	1,210	1,210	1,210	1,210	1,210	1,780	1,350	1,290	1,200	1,180	1,130
3.....	1,230	1,210	1,210	1,210	1,210	1,210	1,610	1,350	1,270	1,200	1,180	1,130
4.....	1,230	1,210	1,210	1,210	1,210	1,210	1,560	1,350	1,260	1,200	1,160	1,140
5.....	1,230	1,210	1,210	1,210	1,210	1,210	1,500	1,400	1,260	1,200	1,150	1,130
6.....	1,300	1,210	1,210	1,210	1,190	1,210	1,600	1,400	1,260	1,200	1,130	1,150
7.....	1,560	1,210	1,210	1,190	1,190	1,210	1,450	1,350	1,270	1,200	1,130	1,150
8.....	1,250	1,210	1,210	1,190	1,190	1,210	1,450	1,350	1,270	1,200	1,130	1,130
9.....	1,250	1,210	1,210	1,190	1,190	1,210	1,450	1,300	1,270	1,200	1,130	1,130
10.....	1,230	1,210	1,210	1,190	1,190	1,190	1,400	1,300	1,260	1,200	1,130	1,110
11.....	1,230	1,210	1,210	1,190	1,190	1,190	1,400	1,300	1,220	1,180	1,130	1,110
12.....	1,230	1,210	1,210	1,190	1,190	1,210	1,400	1,350	1,220	1,180	1,130	1,110
13.....	1,230	1,210	1,210	1,190	1,190	1,210	1,350	1,350	1,220	1,180	1,130	1,110
14.....	1,210	1,210	1,210	1,170	1,190	1,210	1,350	1,450	1,290	1,180	1,130	1,110
15.....	1,210	1,280	1,210	1,170	1,190	1,210	1,300	1,400	1,290	1,180	1,130	1,110
16.....	1,210	1,280	1,210	1,170	1,190	1,210	1,290	1,350	1,260	1,160	1,130	1,110
17.....	1,210	1,250	1,210	1,170	1,210	1,210	1,290	1,350	1,260	1,160	1,130	1,110
18.....	1,210	1,230	1,190	1,170	1,210	1,210	1,270	1,290	1,260	1,160	1,130	1,110
19.....	1,210	1,230	1,190	1,170	1,210	1,230	1,270	1,290	1,240	1,160	1,130	1,110
20.....	1,210	1,210	1,190	1,170	1,210	1,260	1,270	1,270	1,240	1,160	1,130	1,110
21.....	1,210	1,210	1,190	1,170	1,210	1,400	1,270	1,270	1,220	1,160	1,130	1,110
22.....	1,210	1,210	1,190	1,170	1,190	1,300	1,270	1,260	1,220	1,180	1,130	1,110
23.....	1,210	1,210	1,190	1,210	1,190	1,280	1,260	1,260	1,220	1,160	1,130	1,110
24.....	1,210	1,210	1,190	1,190	1,190	1,260	1,260	1,260	1,200	1,160	1,130	1,110
25.....	1,210	1,210	1,190	1,190	1,190	1,250	1,260	1,270	1,200	1,160	1,130	1,110
26.....	1,210	1,210	1,170	1,250	1,190	1,250	1,260	1,290	1,220	1,160	1,130	1,110
27.....	1,210	1,210	1,170	1,230	1,210	1,250	1,270	1,290	1,220	1,160	1,130	1,110
28.....	1,210	1,210	1,170	1,230	1,210	1,250	1,290	1,290	1,220	1,160	1,130	1,110
29.....	1,210	1,210	1,170	1,210	-----	1,250	1,290	1,290	1,220	1,160	1,130	1,110
30.....	1,210	1,210	1,170	1,210	-----	1,350	1,350	1,290	1,200	1,160	1,130	1,110
31.....	1,210	-----	1,170	1,210	-----	2,070	-----	1,290	-----	1,160	1,130	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	1,560	1,210	1,230	75,600
November.....	1,280	1,210	1,220	72,600
December.....	1,210	1,170	1,200	73,800
January.....	1,250	1,170	1,190	73,200
February.....	1,210	1,190	1,200	66,600
March.....	2,070	1,190	1,260	77,500
April.....	2,930	1,260	1,420	84,500
May.....	1,450	1,260	1,320	81,200
June.....	1,290	1,200	1,240	73,800
July.....	1,200	1,160	1,180	72,600
August.....	1,180	1,130	1,140	70,100
September.....	1,150	1,110	1,120	66,600
The year.....	2,930	1,110	1,230	888,000

* Interpolated.

LAKE CREEK NEAR SISTERS, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 24, T. 13 S., R. 8 E., a quarter of a mile below Suttle Lake, 6 miles from mouth of creek, and 13 miles northwest of Sisters.

DRAINAGE AREA.—20.5 square miles.

RECORDS AVAILABLE.—April, 1915, to September, 1931. Occasional readings during summers of 1911 to 1913.

EXTREMES.—Maximum discharge during year, 168 second-feet Apr. 4 (gage height, 2.60 feet); minimum, 21 second-feet Oct. 6, Aug. 25.
1911-1913, 1915-1931: Maximum discharge, 302 second-feet Jan. 10, 1923 (gage height, 2.58 feet); minimum, 20 second-feet Oct. 18, 1916 (gage height, 0.31 foot).

REMARKS.—Records good except those for discharges above 40 second-feet, which are fair. No diversions above station. No regulation except by natural storage in Suttle Lake. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.	25	23	24	25	• 26	30	108	• 69	35	26	23	22
2.	24	23	25	28		30	133	• 67	34	26	23	22
3.	24	23	25	31		27	159	• 66	32	25	23	22
4.	23	23	24	30		26	166	• 65	32	26	22	22
5.	22	24	24	30		24	163	64	32	25	22	22
6.	21	24	24	30	24	24	160	64	32	25	22	22
7.	31	24	23	30		24	156	65	31	25	22	22
8.	32	24	23	29		25	152	65	30	25	22	22
9.	31	26	23	28		27	148	64	30	25	22	23
10.	29	26	24	28		29	141	63	30	24	22	23
11.	27	26	28	28	24	30	134	61	28	24	22	23
12.	26	32	29	28	24	32	126	60	28	24	22	22
13.	22	31	32	28	24	31	120	58	28	24	22	22
14.	23	30	30	30	24	30	114	57	30	24	22	22
15.	24	31	29	30	25	29	109	56	30	24	22	22
16.	25	47	28	34	26	29	103	54	30	24	22	22
17.	25	60	27	34	28	30	98	54	29	24	22	22
18.	25	44	26	33	31	33	95	54	28	24	22	23
19.	25	38	26	32	34	37	91	53	28	24	22	23
20.	25	36	26	33	33	39	88	52	28	25	22	23
21.	25	33	25	35	31	43	85	51	27	24	22	• 22
22.	25	30	24	33	30	46	80	50	27	24	22	
23.	25	28	24	31	30	49	78	47	28	24	22	
24.	26	26	24	30	30	56	77	45	27	24	22	
25.	26	26	24		29	62	• 73	43	27	24	22	
26.	25	25	24	• 29	30	64		41	27	23	22	
27.	24	25	24		33	70		39	27	23	22	
28.	24	24	24		32	74		38	27	23	22	
29.	24	24	23		80	72		37	26	23	22	
30.	24	24	23	23		80		36	26	23	22	
31.	23	23	23			90		36	23	22		
Month						Maximum	Minimum	Mean		Run-off in acre-feet		
October						32	21	25.2	1,550			
November						50	23	29.0	1,730			
December						32	23	25.2	1,550			
January						35	25	30.0	1,840			
February						34		27.7	1,540			
March						90	24	41.7	2,560			
April						166		111	6,000			
May						69	36	54.0	3,320			
June						35	26	29.1	1,730			
July						26	23	24.2	1,490			
August						23	22	22.1	1,360			
September						23	22	22.2	1,320			
The year						166	21	36.7	26,600			

• Estimated.

WHITE RIVER BELOW TYGH VALLEY, OREG.

LOCATION.—Water-stage recorder 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 below Tygh Valley. Datum lowered 0.23 foot July 28, 1931.

RECORDS AVAILABLE.—November, 1917, to September, 1931.

EXTREMES.—Maximum discharge during year, 9,480 second-feet Apr. 1 (gage height, 10.3 feet); minimum, 10 second-feet Aug. 9 (gage height, 0.25 foot). 1917–1931: Maximum discharge, 13,300 second-feet Jan. 6, 1923 (gage height, about 13.3 feet referred to present site); minimum, 10 second-feet Dec. 11–14, 1919, Aug. 9, 1931.

REMARKS.—Records fair. Diversions for irrigation above station. Low-water flow regulated to some extent by operation of power plant. Gage-height record furnished by Pacific Power & Light Co.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	105	119	135	125	259	214	5,740	790	238	175	110	85
2.....	104	118	135	124	252	221	3,780	815	236	169	107	86
3.....	105	117	135	130	238	218	1,830	790	231	166	100	88
4.....	105	117	136	126	229	218	1,440	740	229	163	100	85
5.....	108	114	136	128	216	216	1,220	692	225	169	96	83
6.....	108	115	135	124	208	204	1,160	715	216	160	96	86
7.....	163	114	139	123	200	208	1,160	670	210	158	96	86
8.....	146	119	140	121	210	221	930	612	200	157	96	84
9.....	139	124	142	124	206	221	842	575	204	154	93	91
10.....	124	140	144	126	193	208	815	540	204	154	99	90
11.....	114	133	149	149	189	225	790	557	198	149	113	86
12.....	113	149	185	185	184	245	740	575	193	148	125	85
13.....	113	245	178	163	180	257	715	557	202	148	127	86
14.....	116	190	188	152	180	257	790	557	227	155	125	94
15.....	124	165	171	152	185	252	740	593	254	155	131	93
16.....	122	171	159	149	185	266	740	472	266	150	123	93
17.....	124	161	150	148	184	271	666	492	252	148	118	93
18.....	125	157	143	139	212	327	593	449	229	144	117	100
19.....	130	150	136	136	254	423	575	407	214	142	114	124
20.....	130	148	130	135	234	593	540	385	210	139	107	104
21.....	130	148	130	135	221	692	540	360	202	132	104	104
22.....	122	149	128	144	227	692	575	354	202	132	99	104
23.....	122	150	128	215	229	593	540	348	210	132	96	104
24.....	130	146	132	215	214	523	513	339	204	132	92	104
25.....	135	142	132	215	214	476	540	333	197	140	90	104
26.....	135	138	136	262	208	423	575	308	193	126	89	104
27.....	135	132	139	308	212	391	715	279	195	113	91	100
28.....	135	130	134	302	197	397	740	259	184	114	90	102
29.....	135	135	126	302	-----	355	765	254	182	114	89	103
30.....	126	135	126	313	-----	417	765	252	180	114	88	105
31.....	126	-----	125	281	-----	3,390	-----	250	-----	110	84	-----
Month	Maximum					Minimum		Mean		Run-off in acre-feet		
October.....	163					104		124		7,620		
November.....	245					114		142		8,450		
December.....	188					125		142		8,730		
January.....	313					121		176		10,800		
February.....	259					180		211		11,700		
March.....	3,390					204		439		27,000		
April.....	5,740					513		1,070		63,700		
May.....	815					250		491		30,200		
June.....	266					180		213		12,700		
July.....	175					110		144		8,850		
August.....	131					84		103		6,330		
September.....	124					83		95.2		5,660		
The year.....	5,740					83		279		202,000		

* Interpolated.

KLICKITAT RIVER BASIN

KLICKITAT RIVER NEAR GLENWOOD, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 14, T. 7 N., R. 12 E., half a mile below Dairy Creek, 3 miles below Big Muddy Creek, and 5 miles north of Glenwood.

DRAINAGE AREA.—356 square miles.

RECORDS AVAILABLE.—December, 1910, to September, 1931; incomplete. October, 1909, to December, 1910, at a point 1 mile upstream.

EXTREMES.—Maximum discharge during year, 2,200 second-feet May 2 (gage height, 3.77 feet); minimum, 279 second-feet Oct. 13-16.

1909-1931: Maximum discharge, 6,250 second-feet Nov. 24, 1909 (gage height, 5.20 feet on original gage); minimum, 244 second-feet Jan. 7, 1930.

REMARKS.—Records good except those for period November to March, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	302	292	324	348	488	355	1,430	1,970	948	490	435	375
2.....	313	288	338	348	461	360	1,100	2,150	884	490	427	383
3.....	316	288	320	344	445	364	972	2,060	808	495	415	375
4.....	320	285	350	338	430	360	884	2,020	764	520	407	375
5.....	324	285	320	334	425	352	868	1,970	750	530	391	375
6.....	456	282	327	327	400	352	908	2,020	750	520	363	302
7.....	516	282	320	316	373	352	1,000	1,790	771	505	359	296
8.....	386	282	306	306	382	344	972	1,520	792	510	379	292
9.....	327	285	334	320	368	360	900	1,340	750	525	383	292
10.....	306	299	344	327	378	352	876	1,300	680	490	391	292
11.....	292	296	344	348	364	373	890	1,380	621	466	379	292
12.....	285	344	344	355	352	373	838	1,560	597	490	379	302
13.....	279	360	341	344	338	360	808	1,660	680	500	375	324
14.....	279	316	334	338	344	352	785	1,790	852	448	383	320
15.....	279	310	330	327	368	355	750	1,660	884	453	375	316
16.....	279	327	338	330	341	364	764	1,520	860	453	379	313
17.....	292	330	334	327	364	378	815	1,340	729	462	367	313
18.....	302	296	330	320	478	466	771	1,220	652	476	407	355
19.....	306	327	350	310	532	510	757	1,100	621	480	375	320
20.....	302	316	316	313	456	516	736	1,000	609	495	383	320
21.....	299	313	310	330	425	614	750	948	603	490	375	302
22.....	296	310	285	306	420	646	800	802	585	480	379	296
23.....	296	320	320	372	405	596	771	900	552	480	383	292
24.....	302	310	320	483	386	572	876	948	530	471	379	306
25.....	310	296	296	456	382	544	1,060	1,010	558	462	367	310
26.....	306	292	313	500	378	510	1,180	1,020	750	458	371	310
27.....	313	292	299	527	368	488	1,340	972	609	448	363	302
28.....	310	316	292	602	355	478	1,560	940	541	440	363	288
29.....	302	324	316	620	-----	461	1,790	916	520	435	375	285
30.....	296	313	296	578	-----	478	1,920	924	500	431	363	306
31.....	296	-----	334	544	-----	1,220	-----	948	-----	427	359	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	516	279	316	0.888	1.02	19,400
November.....	360	282	306	.860	.96	18,200
December.....	344	285	322	.904	1.04	19,800
January.....	620	306	394	1.11	1.28	24,200
February.....	632	338	400	1.12	1.17	22,200
March.....	1,220	344	458	1.29	1.49	28,200
April.....	1,920	736	995	2.79	3.11	59,200
May.....	2,150	892	1,380	3.88	4.47	84,800
June.....	948	500	692	1.94	2.16	41,200
July.....	630	427	478	1.34	1.54	29,400
August.....	435	359	382	1.07	1.23	23,500
September.....	383	285	318	.893	1.00	18,900
The year.....	2,150	279	537	1.51	20.47	389,000

KLIKITAT RIVER AT PITT, WASH.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 32, T. 4 N., R. 13 E., at Pitt, 3 miles southwest of Klickitat and 10½ miles above mouth.

DRAINAGE AREA.—1,160 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931. Comparable records at former stations at Klickitat and near Lyle, May, 1907, to December, 1912.

EXTREMES.—Maximum discharge during year, 13,600 second-feet Mar. 31 (gage height, 10.3 feet); minimum, 485 second-feet Dec. 28–31 (gage height, 0.88 foot).

1907–1912, 1928–1931: Maximum discharge, that of Mar. 31, 1931; minimum, that of Dec. 28–31, 1930.

REMARKS.—Records good below and fair above 4,000 second-feet. Minor diversions for irrigation above station; no regulation.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	545	545	550	535	870	692	8,600	2,650	1,240	725	636	606
2.....	545	545	545	556	795	725	4,540	2,890	1,190	725	618	624
3.....	545	525	530	572	760	692	3,250	2,650	1,110	725	618	612
4.....	567	540	525	594	725	692	2,210	2,540	1,070	725	612	606
5.....	562	535	520	600	725	692	1,670	2,540	1,030	760	606	606
6.....	795	535	530	572	725	692	1,800	2,540	1,070	725	584	572
7.....	624	530	520	545	660	692	2,500	2,320	1,030	725	589	567
8.....	545	530	510	520	684	660	2,100	1,770	1,070	760	594	546
9.....	535	525	505	525	624	692	1,990	1,880	1,030	725	618	540
10.....	535	525	520	525	648	660	2,210	1,670	960	725	612	540
11.....	535	535	562	612	606	760	1,880	1,770	910	692	594	540
12.....	535	550	535	594	600	795	1,770	1,880	832	660	612	520
13.....	535	600	535	594	589	760	1,670	1,880	910	725	600	535
14.....	530	594	525	594	594	795	1,670	2,210	1,110	660	600	535
15.....	530	606	515	572	624	795	1,470	2,100	1,190	660	539	545
16.....	530	600	525	545	618	725	1,470	1,990	1,150	660	589	556
17.....	540	594	520	545	725	760	1,470	1,990	1,030	654	612	567
18.....	545	567	510	540	760	1,030	1,470	1,670	910	660	612	594
19.....	540	589	510	530	1,030	1,030	1,280	1,470	870	632	612	606
20.....	545	584	510	530	870	1,280	1,280	1,370	870	660	594	594
21.....	540	578	510	530	832	1,470	1,280	1,280	870	660	594	562
22.....	540	572	495	572	832	1,470	1,370	1,240	832	660	589	550
23.....	540	562	495	910	795	1,370	1,280	1,240	795	660	600	545
24.....	545	545	534	870	725	1,190	1,370	1,240	795	660	606	545
25.....	594	550	572	795	725	1,190	1,570	1,280	795	654	600	556
26.....	545	540	535	990	725	1,110	1,670	1,280	990	660	584	567
27.....	567	520	495	870	725	1,030	1,880	1,280	870	660	567	540
28.....	573	515	490	1,070	692	990	2,100	1,280	795	642	572	556
29.....	545	510	490	1,030	-----	950	2,210	1,240	795	642	578	556
30.....	540	545	490	1,030	-----	1,030	2,430	1,240	795	660	572	540
31.....	540	-----	490	870	-----	5,700	-----	1,190	-----	642	578	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	795	530	556	0.479	0.55	34,200
November.....	660	510	555	.478	.53	33,000
December.....	584	490	521	.449	.52	32,000
January.....	1,070	520	669	.577	.67	41,100
February.....	1,030	539	723	.623	.65	40,200
March.....	5,700	660	1,070	.922	1.06	65,800
April.....	8,600	1,280	2,120	1.83	2.04	126,000
May.....	2,890	1,190	1,790	1.54	1.78	110,000
June.....	1,240	760	963	.830	.93	57,300
July.....	760	642	685	.591	.68	42,100
August.....	636	567	598	.516	.59	36,800
September.....	624	520	564	.486	.54	33,600
The year.....	8,600	490	900	.776	10.54	652,000

• Estimated.

HOOD RIVER BASIN

HOOD RIVER NEAR HOOD RIVER, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 36, T. 3 N., R. 10 E., at Powerdale, a quarter of a mile above Pacific Power & Light Co.'s plant and three-quarters of a mile south of Hood River. Zero of gage is 105.91 feet above mean sea level.

RECORDS AVAILABLE.—March, 1913, to September, 1931.

EXTREMES.—Maximum discharge during year, 18,600 second-feet Mar. 31 (gage height, 10.2 feet); minimum, 13 second-feet on several days July 26 to Sept. 14 (gage height, about 1.6 feet).

1913-1931: Maximum discharge, 34,000 second-feet Jan. 6, 1923 (gage height, 11.1 feet, referred to datum used since 1924); minimum, 3 second-feet Aug. 9, 1926 (gage height, 1.45 feet).

REMARKS.—Records good except those estimated May 31, June 1, 2, 13, 14, July 1-24, which are fair. Diversions for irrigation above station. Pacific Power & Light Co.'s conduit diverts water around gage. Low-water flow regulated by pondage at sawmill at Dee. Gage-height record furnished by Pacific Power & Light Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	19	28	41	542	254	10,800	1,100	146		20	19
2	38	14	350	50	446	232	4,410	1,100	150		20	19
3	32	19	112	75	380	345	2,940	1,220	155		24	58
4	36	32	55	55	330	350	2,290	930	119		22	50
5	35	25	57	119	308	308	2,020	790	115		28	26
6	77	19	41	116	262	258	1,960	902	115		22	161
7	724	16	188	44	225	232	1,900	882	117		23	150
8	114	15	41	44	192	211	1,630	928	124		20	18
9	67	59	44	40	176	245	1,450	555	139		16	20
10	55	77	41	32	151	304	1,320	534	122		16	16
11	24	17	73	182	146	474	1,220	583	103		20	16
12	19	304	128	214	133	600	1,080	650	96	60	18	19
13	19	299	308	160	128	592	1,150	745	100		17	20
14	23	107	258	162	119	478	1,050	940	600		17	20
15	32	144	195	270	119	435	990	650	436		16	19
16	19	440	204	304	116	425	882	721	413		29	19
17	14	326	208	360	264	452	864	768	336		20	19
18	22	171	162	322	774	933	745	590	233		25	40
19	35	131	157	262	960	1,200	721	441	145		23	77
20	24	126	114	214	734	1,620	606	392	122		16	36
21	35	162	226	182	555	2,120	576	345	124		19	32
22	32	149	119	278	430	1,900	569	302	193		16	28
23	61	114	75	522	370	1,250	555	266	193		24	56
24	73	79	65	622	312	1,000	520	280	150		18	39
25	128	57	65	592	278	915	534	316	124	16	22	34
26	54	41	73	1,250	274	766	598	257	217	15	18	29
27	176	32	52	1,100	274	710	721	210	217	17	20	39
28	41	21	50	1,050	246	630	902	161	137	17	28	39
29	38	17	34	915	-----	686	1,010	145	129	16	24	34
30	19	48	75	814	-----	1,210	1,150	137	127	16	18	36
31	25	-----	44	670	-----	13,000	-----	142	-----	16	22	-----
Month	Maximum					Minimum		Mean		Run-off in acre-feet		
October	724					14		68.7		4,220		
November	440					14		103		6,130		
December	350					28		117		7,190		
January	1,250					32		357		22,000		
February	960					116		331		18,400		
March	13,000					211		1,100		67,600		
April	10,800					520		1,570		93,400		
May	1,220					137		570		35,000		
June	-----					96		183		10,900		
July	-----					15		50.1		3,080		
August	29					16		20.7		1,270		
September	161					16		39.6		2,360		
The year	13,000					14		376		272,000		

Combined daily and monthly discharge, in second-feet, of Hood River and Pacific Power & Light Co.'s conduit near Hood River, Oreg., 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	303	403	455	446	1,000	714	11,000	1,510	616	-----	302	279
2.....	328	388	797	472	906	742	4,710	1,510	620	-----	307	305
3.....	323	382	592	536	840	805	3,300	1,470	620	-----	283	356
4.....	322	361	535	511	790	810	2,660	1,350	581	-----	250	345
5.....	317	362	524	589	768	768	2,120	1,250	577	-----	261	283
6.....	421	359	498	586	722	712	2,340	1,360	583	-----	241	230
7.....	1,170	360	515	512	685	682	2,320	1,340	585	-----	239	244
8.....	580	356	461	482	652	661	2,100	1,090	594	-----	228	218
9.....	518	435	471	471	636	696	1,880	1,020	609	-----	243	215
10.....	460	499	472	482	605	754	1,720	1,000	592	-----	266	218
11.....	397	424	526	662	590	924	1,620	1,050	565	-----	255	206
12.....	378	666	590	704	577	1,050	1,470	1,120	540	-----	249	221
13.....	365	713	788	650	573	1,040	1,480	1,200	556	-----	247	223
14.....	372	565	738	652	565	929	1,440	1,290	804	-----	260	260
15.....	394	594	675	760	561	857	1,370	1,200	906	-----	258	253
16.....	371	879	684	794	571	875	1,280	1,190	883	-----	237	255
17.....	389	783	688	850	737	962	1,270	1,230	806	-----	238	269
18.....	387	643	642	812	1,230	1,380	1,160	1,060	708	-----	284	367
19.....	360	584	637	752	1,410	1,640	1,110	911	615	-----	277	457
20.....	370	606	593	704	1,180	2,020	1,040	862	592	-----	269	371
21.....	370	642	522	672	957	2,510	1,010	815	594	-----	278	333
22.....	353	621	583	768	887	2,150	999	772	658	-----	266	333
23.....	376	599	555	988	830	1,680	977	736	663	-----	269	366
24.....	496	569	534	1,090	772	1,460	940	749	620	-----	277	337
25.....	558	547	512	1,020	738	1,380	954	786	594	297	232	336
26.....	463	516	506	1,730	734	1,240	1,010	707	687	253	300	345
27.....	636	512	469	1,540	734	1,180	1,140	680	689	277	279	349
28.....	471	501	460	1,490	706	1,100	1,320	631	906	277	305	329
29.....	443	488	435	1,330	-----	1,140	1,420	615	589	283	293	341
30.....	423	405	459	1,159	-----	1,670	1,560	607	590	289	285	349
31.....	420	-----	436	1,130	-----	13,200	-----	612	-----	292	250	-----

Month	Maximum	Minimum	* Mean	Run-off in acre-feet
October.....	1,170	303	437	26,900
November.....	879	356	525	31,200
December.....	797	435	560	34,460
January.....	1,730	446	817	50,200
February.....	1,410	561	784	43,500
March.....	13,200	661	1,540	94,700
April.....	11,000	940	1,960	117,000
May.....	1,510	607	1,020	62,700
June.....	906	540	641	38,100
July.....	-----	253	378	23,200
August.....	307	228	268	16,500
September.....	457	206	300	17,900
The year.....	13,200	206	768	556,000

PACIFIC POWER & LIGHT CO.'S CONDUIT NEAR HOOD RIVER, OREG.

LOCATION.—Venturi meter in NE. $\frac{1}{4}$ sec. 36, T. 3 N., R. 10 E., at Pacific Power & Light Co.'s plant on Hood River, half a mile southeast of Hood River.

RECORDS AVAILABLE.—May, 1923, to September, 1931. At station on tailrace of old plant October, 1913, to September, 1914; January, 1916, to July, 1922.

EXTREMES.—Maximum discharge during year, 490 second-feet on several days: No flow when power plant was occasionally shut down.

1913-14, 1916-1931: Maximum discharge, 500 second-feet Sept. 10, 1927.

REMARKS.—Records good. Discharge determined from hourly readings of Venturi meter checked by occasional current-meter measurements. Pacific Power & Light Co.'s conduit diverts from Hood River in SE. $\frac{1}{4}$ sec. 11, T. 2 N., R. 10 E., immediately below the mouth of Neal Creek. Water is returned to river in NE. $\frac{1}{4}$ sec. 36, T. 3 N., R. 10 E., being diverted around the gage on Hood River near Hood River. Meter readings furnished by Pacific Power & Light Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	265	384	427	405	460	460	223	410	470	435	282	260
2	290	374	447	422	460	460	297	410	470	410	287	286
3	291	363	480	461	460	460	358	253	465	398	259	298
4	286	329	480	456	460	460	395	422	462	402	228	295
5	282	337	467	470	460	460	99	460	462	406	233	257
6	344	340	457	470	460	454	376	460	468	387	219	69
7	442	344	327	468	460	450	420	460	468	362	216	94
8	466	341	420	438	460	450	420	460	470	362	208	200
9	451	376	427	431	460	450	420	470	470	357	327	195
10	405	422	431	450	454	450	404	470	470	356	250	202
11	373	407	453	480	444	450	402	470	462	312	235	190
12	359	362	462	490	444	450	390	470	444	341	231	202
13	346	414	480	490	445	450	332	159	456	359	230	203
14	349	458	480	490	446	450	407	362	204	337	233	240
15	362	450	480	490	442	422	410	470	470	307	242	284
16	352	439	480	490	455	450	396	470	470	296	208	236
17	375	457	480	490	453	450	410	470	470	302	268	250
18	865	472	480	490	459	444	410	470	470	315	259	327
19	325	453	480	490	448	435	392	470	470	314	254	380
20	346	480	479	490	450	404	440	470	470	333	253	335
21	335	480	296	490	402	888	437	470	470	312	259	301
22	321	472	464	490	457	254	430	470	465	298	250	305
23	315	485	480	466	460	431	422	470	470	302	245	310
24	423	490	469	470	460	460	420	469	470	294	259	298
25	430	490	447	424	460	467	420	470	470	281	260	302
26	409	475	433	481	460	470	413	450	470	238	282	316
27	460	480	417	437	460	470	420	470	472	260	259	310
28	430	480	410	440	460	470	417	470	469	260	277	290
29	405	471	401	417	-----	455	410	470	460	267	269	307
30	404	357	384	338	-----	460	410	470	463	273	267	313
31	395	-----	392	458	-----	203	-----	470	-----	276	228	-----
Month	Maximum					Minimum			Mean		Run-off in acre-feet	
October	466					265			368		22,600	
November	490					329			423		25,200	
December	480					296			442		27,200	
January	490					338			460		28,300	
February	460					402			454		25,200	
March	470					203			435		26,700	
April	440					99			387		23,000	
May	470					253			451		27,700	
June	472					204			458		27,300	
July	435					238			327		20,100	
August	287					208			248		15,200	
September	380					69			260		15,500	
The year	490					69			392		284,000	

• Estimated.

WHITE SALMON RIVER BASIN

WHITE SALMON RIVER NEAR TROUT LAKE, WASH.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 24, T. 6 N., R. 10 E., a quarter of a mile below mouth of Trout Creek and 2 miles southeast of Trout Lake.

RECORDS AVAILABLE.—July to September, 1918; October, 1928, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 3,000 second-feet Apr. 1 (gage height, 5.2 feet); minimum, 35 second-feet Aug. 26 (gage height, -0.06 foot).

1918, 1928-1931: Extremes recorded, those of 1931.

REMARKS.—Records good. Diversions for irrigation above. No regulation.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	70	110	110	103	265	210	2,800	1,040	265	140	62	47
2-----	69	110	120	110	250	210	1,720	1,110	236	129	57	57
3-----	68	108	120	120	223	223	1,320	1,110	210	120	58	44
4-----	69	107	120	110	210	223	1,110	1,040	197	120	55	47
5-----	77	108	110	108	197	210	1,040	915	197	120	54	47
6-----	140	107	110	110	197	210	1,040	975	185	107	52	47
7-----	150	110	110	110	185	197	1,110	915	197	103	50	43
8-----	129	105	108	105	173	197	1,110	740	185	98	50	42
9-----	110	129	107	100	173	223	975	685	185	98	49	42
10-----	107	140	110	110	162	236	855	610	173	92	44	45
11-----	102	129	120	140	162	265	795	635	162	82	42	45
12-----	98	173	129	140	162	295	740	635	140	84	40	50
13-----	96	173	129	129	150	295	685	685	173	86	40	50
14-----	100	140	120	129	150	280	635	740	250	77	39	49
15-----	100	140	120	120	150	280	635	685	310	77	39	49
16-----	98	129	120	120	150	295	610	585	378	77	42	46
17-----	108	129	120	120	173	310	610	585	280	77	42	46
18-----	110	120	110	110	310	495	585	562	236	86	41	90
19-----	103	120	110	108	518	610	562	475	223	88	40	81
20-----	100	120	108	110	415	635	540	415	185	88	42	80
21-----	100	129	108	108	328	795	562	380	185	81	44	77
22-----	98	129	103	162	295	915	562	345	173	73	44	75
23-----	100	120	105	280	265	740	562	378	185	73	39	74
24-----	120	170	105	280	250	635	562	345	173	70	38	73
25-----	120	120	103	250	236	585	585	345	162	66	36	73
26-----	120	120	95	295	236	518	635	378	223	70	36	70
27-----	129	110	108	345	210	455	685	310	197	72	36	75
28-----	129	110	93	435	210	435	795	295	173	66	38	81
29-----	120	110	93	362	-----	398	855	280	162	64	44	86
30-----	120	110	92	328	-----	435	975	265	140	63	44	84
31-----	110	-----	96	295	-----	1,400	-----	265	-----	60	49	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October-----	150	68	105	6,460
November-----	173	105	123	7,320
December-----	129	92	110	6,760
January-----	435	100	176	10,800
February-----	518	150	229	12,700
March-----	1,400	197	426	26,200
April-----	2,800	540	875	52,100
May-----	1,110	265	601	37,000
June-----	328	140	203	12,100
July-----	140	60	87.3	5,370
August-----	62	36	44.7	2,750
September-----	90	42	60.5	3,660
The year-----	2,800	36	253	183,000

WHITE SALMON RIVER AT HUSUM, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 30, T. 4 N., R. 11 E., 500 feet above mouth of Rattlesnake Creek at Husum.

RECORDS AVAILABLE.—September, 1909, to October, 1919; October, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 4,720 second-feet Apr. 1 (gage height, 7.1 feet); minimum, 340 second-feet Dec. 30 (gage height, 0.64 foot).

1909-1919, 1929-1931: Maximum discharge, 7,500 second-feet Dec. 29, 1917 (gage height, 10.0 feet at old gage); minimum, that of Dec. 30, 1930.

REMARKS.—Records good. Numerous diversions for irrigation near Trout Lake. Springs increase flow by a large amount in a few miles above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	402	383	373	360	574	475	4,220	1,460	795	638	454	408
2.....	402	381	376	364	486	475	2,670	1,460	775	602	454	408
3.....	402	380	376	361	475	486	1,950	1,460	735	585	454	406
4.....	404	378	374	370	461	486	1,650	1,460	735	585	454	401
5.....	402	377	373	384	454	475	1,520	1,340	715	569	454	399
6.....	444	376	371	388	454	475	1,460	1,340	735	553	444	399
7.....	475	371	369	393	444	475	1,520	1,280	715	553	414	399
8.....	454	370	367	392	430	464	1,460	1,200	715	538	444	398
9.....	430	376	366	386	425	475	1,340	1,130	715	524	444	398
10.....	423	393	366	386	420	498	1,280	1,080	695	524	134	401
11.....	418	387	371	396	413	553	1,200	1,100	675	511	434	401
12.....	411	401	377	406	409	602	1,160	1,100	675	524	434	399
13.....	406	430	380	404	404	620	1,130	1,130	695	511	432	396
14.....	406	411	377	399	401	585	1,080	1,160	815	511	429	396
15.....	408	401	374	396	401	569	1,030	1,160	895	498	425	396
16.....	406	396	373	402	398	585	1,030	1,100	962	498	420	393
17.....	411	394	371	408	421	602	1,030	1,100	895	498	418	394
18.....	411	392	371	409	524	795	1,010	1,080	855	498	416	402
19.....	404	398	370	404	775	962	1,010	1,030	815	486	416	408
20.....	398	393	367	404	715	1,060	985	985	795	486	418	409
21.....	394	394	365	399	602	1,160	965	940	775	475	420	413
22.....	393	394	362	421	553	1,200	1,010	895	755	475	418	425
23.....	393	390	360	524	524	1,130	1,010	895	755	475	418	423
24.....	404	387	361	538	511	1,030	1,030	895	755	475	416	421
25.....	408	384	357	511	498	940	1,060	895	715	475	414	420
26.....	401	380	354	553	498	875	1,080	875	755	475	409	414
27.....	404	376	355	602	486	815	1,160	895	775	464	409	420
28.....	399	377	352	695	475	775	1,230	835	715	464	406	414
29.....	392	377	346	655	-----	755	1,280	815	695	464	402	409
30.....	388	374	344	602	-----	795	1,340	795	655	454	404	408
31.....	386	-----	353	553	-----	2,540	-----	795	-----	454	408	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	475	386	409	25,100
November.....	430	370	387	23,000
December.....	380	344	366	22,500
January.....	695	360	447	27,500
February.....	775	398	485	26,900
March.....	2,540	464	766	47,100
April.....	4,220	985	1,360	80,900
May.....	1,460	795	1,090	67,000
June.....	962	655	759	45,200
July.....	638	454	511	31,406
August.....	454	402	427	26,300
September.....	425	393	406	24,200
The year.....	4,220	344	618	447,000

SANDY RIVER BASIN

SANDY RIVER ABOVE SALMON RIVER, AT BRIGHTWOOD, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 24, T. 2 S., R. 6 E., at Brightwood, three-quarters of a mile above mouth of Salmon River.

DRAINAGE AREA.—117 square miles.

RECORDS AVAILABLE.—May, 1910, to September, 1914; March, 1926, to March, 1931 (discontinued).

EXTREMES.—Maximum discharge during period (estimated), 11,000 second-feet Mar. 31; minimum, 167 second-feet Oct. 1-4.

1910-1914, 1926-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 155 second-feet Nov. 13, 20, 21, 1929.

REMARKS.—Records fair except those estimated, which are poor. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1	167		374	290	678	508
2	167		508	290	570	508
3			539	305	508	508
4			508	323	508	508
5			450	640	479	479
6			450	508	450	450
7			397	424	424	450
8		* 322	374	397	397	450
9			350	397	397	424
10			397	350	374	424
11			450	715	350	424
12			397	678	350	640
13			640	570	341	678
14			570	539	332	640
15			508	570	332	570
16						
17		* 291	715	539	605	314
18			715	570	605	397
19			570	539	570	424
20			508	508	508	605
21			479	450	479	508
22			450	424	450	479
23			450	397	715	450
24			508	397	925	397
25			508	397	795	397
26			479	350	795	397
27			450	341	1,350	424
28			450	323	1,060	424
29			450	305	970	424
30			424	305	925	640
31			397	290	880	1,000
			290	755		2,000

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October			283	2.42	2.79	17,400
November			419	3.58	3.99	24,900
December	640	290	430	3.68	4.24	26,400
January	1,350	290	625	2.16	2.49	38,400
February	678	314	433	3.70	3.85	24,000
March	9,000	424	1,040	8.89	10.25	64,000
The period						195,000

* Estimated.

SANDY RIVER NEAR MARMOT, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 24, T. 2 S., R. 5 E., three-quarters of a mile southwest of Marmot, 2 miles above Sandy River dam of Portland General Electric Co., and 5 miles below mouth of Salmon River.

DRAINAGE AREA.—262 square miles.

RECORDS AVAILABLE.—August, 1911, to December, 1915; July, 1919, to September, 1931. Combined discharge of Sandy River below dam and canal gives same results January, 1916, to June, 1919.

EXTREMES.—Maximum discharge during year, 26,600 second-feet Mar. 31 (gage height, 16.5 feet, determined from high-water mark); minimum on or about Sept. 1, not definitely recorded.

1911-1931: Maximum discharge, about 29,200 second-feet Jan. 6, 1923 (gage height, 17.5 feet); minimum, 220 second-feet Dec. 3-8, 1929 (gage height, 1.8 feet).

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station. Gage-height record furnished by Portland General Electric Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	256	361	830	461	1,210	925	11,200	1,740	636	696	376	
2	263	341	1,030	524	1,060	1,030	5,780	1,650	590	654	372	
3	260	326	1,140	595	960	1,060	3,990	1,560	575	636	348	
4	260	319	890	650	860	960	3,150	1,440	580	620	336	
5	260	326	800	1,140	830	890	3,040	1,360	565	605	324	
6	365	323	710	960	770	830	2,930	1,400	555	570	320	
7	995	338	650	800	710	770	3,040	1,400	565	550	316	
8		385	590	695	675	740	2,820	1,240	555	540	313	
9		479	575	635	650	710	2,510	1,200	555	545	320	
10		575	551	620	630	710	2,260	1,010	570	516	313	285
11	464	515	710	1,100	615	925	2,110	1,010	508	480	302	
12		1,150	740	1,330	595	1,250	1,920	1,080	485	490	302	
13		1,210	1,250	1,100	575	1,410	1,880	1,120	521	498	299	
14		995	1,140	1,060	560	1,170	1,960	1,120	678	480	306	
15	456	1,410	995	1,170	556	1,100	1,920	970	798	458	302	
16	438	2,240	1,060	1,250	556	1,060	1,880	940	1,010	440	299	
17	425	1,410	1,140	1,290	660	1,100	1,920	970	1,400	440	324	
18	421	1,030	1,060	1,100	995	1,800	1,740	1,280	1,160	432	306	310
19	417	960	890	960	1,290	2,640	1,600	1,080	940	436	292	555
20	425	1,030	860	830	1,030	3,340	1,480	940	774	404	282	408
21	438	1,170	800	740	890	3,560	1,440	875	738	408	235	
22	470	1,370	710	890	830	3,140	1,480	798	908	388	279	
23	520	1,490	710	1,450	830	2,540	1,320	780	970	388	282	
24	625	1,330	685	1,410	770	2,140	1,320	774	908	372	288	
25	860	1,290	660	1,370	770	1,940	1,400	756	810	352	285	292
26	710	1,170	590	2,640	800	1,670	1,520	726	908	388		
27	890	1,060	533	2,240	925	1,540	1,830	696	842	368		
28	610	995	506	1,940	860	1,450	1,920	672	768	376		
29	470	960	484	1,720		1,490	1,880	666	774	376	-270	
30	405	890	466	1,540		3,800	1,880	666	762	368		
31	397		456	1,370		10,800		666		372		

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October	995	256	480	1.83	2.11	29,500
November	2,240	319	915	3.49	3.89	54,400
December	1,250	456	781	2.98	3.44	48,000
January	2,640	461	1,150	4.39	5.06	70,700
February	1,290	556	802	3.06	3.19	44,500
March	19,800	710	2,180	8.32	9.59	134,000
April	11,200	1,326	2,500	9.54	10.64	149,000
May	1,740	666	1,050	4.01	4.62	64,600
June	1,400	485	747	2.85	3.18	44,400
July	696	352	472	1.80	2.08	29,000
August	376		303	1.16	1.34	18,600
September	555		301	1.15	1.28	17,900
The year	19,800		973	3.71	50.42	705,000

SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 30, T. 1 S., R. 5 E., 1 mile below Bull Run River and 2 miles northwest of Bull Run.

DRAINAGE AREA.—440 square miles.

RECORDS AVAILABLE.—April, 1910, to September, 1914; October, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 58,000 second-feet Mar. 31 (gage height, 20.6 feet); minimum, 87 second-feet Aug. 8 (gage height, 0.76 foot).

1910-1914, 1929-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 60 second-feet Dec. 5, 1929.

REMARKS.—Records good except those estimated Oct. 16-20, and those for Mar. 31, Apr. 1, which are fair. No diversions for irrigation above station. Flow regulated by Bull Run power plant of Portland General Electric Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	304	787	1,120	738	2,070	1,510	26,000	2,190	796	1,140	424	342
2.....	296	736	1,750	1,220	1,900	2,120	9,800	1,870	784	1,030	443	359
3.....	327	452	2,120	1,340	1,680	2,040	6,580	1,870	684	1,000	406	296
4.....	333	578	1,790	1,160	1,540	1,970	5,290	1,800	740	664	390	359
5.....	266	519	1,510	2,840	1,380	1,640	4,960	1,450	554	966	391	422
6.....	438	503	1,360	2,570	1,290	1,530	5,290	1,520	844	822	392	310
7.....	2,050	528	1,110	1,940	1,230	1,420	5,640	1,880	456	820	380	400
8.....	1,420	482	1,090	1,630	892	1,010	5,290	1,710	685	873	362	436
9.....	780	616	982	1,440	1,260	1,490	4,640	1,370	729	851	266	392
10.....	666	888	1,080	1,200	959	1,600	4,060	1,340	606	660	461	485
11.....	561	762	1,340	1,930	923	2,080	3,600	1,220	641	635	396	334
12.....	385	2,040	1,480	2,730	854	2,600	3,260	1,280	568	635	360	342
13.....	547	2,640	2,700	2,220	936	2,710	3,050	1,220	617	585	362	325
14.....	514	1,660	2,370	2,120	907	2,280	3,080	1,240	614	610	368	404
15.....	822	2,890	2,250	2,400	855	2,080	3,190	1,180	1,190	580	402	362
16.....	550	6,200	2,220	2,580	920	2,080	2,470	1,090	1,430	528	332	269
17.....		3,690	2,320	2,960	1,100	2,030	2,660	1,680	1,740	533	409	404
18.....		2,550	2,170	2,280	2,300	3,560	2,390	1,910	1,660	524	384	507
19.....		1,980	2,190	2,220	2,880	4,890	2,060	1,570	1,500	520	389	806
20.....		2,080	1,970	1,680	2,230	6,640	1,920	1,320	1,300	502	352	266
21.....	456	2,120	1,480	1,700	1,980	7,540	1,880	1,260	974	433	376	404
22.....	368	2,060	1,390	1,740	1,390	5,820	1,960	1,190	1,290	306	405	604
23.....	440	1,840	1,570	2,660	1,570	4,250	1,760	1,060	1,520	244	278	484
24.....	788	1,870	1,460	2,960	1,240	3,430	1,700	788	1,700	342	368	306
25.....	1,340	1,660	1,020	2,620	1,420	3,180	1,610	1,160	1,310	420	405	316
26.....	1,020	1,490	1,300	4,830	1,530	2,760	1,740	894	1,570	332	386	326
27.....	2,130	1,320	1,170	3,980	1,850	2,660	2,040	902	1,610	518	315	314
28.....	1,460	1,180	930	3,440	1,780	2,540	2,170	880	1,300	388	342	303
29.....	1,060	1,240	953	3,090	-----	2,540	2,260	823	1,430	375	411	340
30.....	868	990	932	2,650	-----	7,030	2,150	836	1,310	432	311	292
31.....	800	-----	840	2,330	-----	45,000	-----	584	-----	422	356	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	2,130	266	748	1.70	1.96	46,000
November.....	6,200	452	1,610	3.66	4.08	95,800
December.....	2,700	840	1,550	3.52	4.06	95,300
January.....	4,830	738	2,300	5.23	6.03	141,000
February.....	2,880	854	1,460	3.32	3.46	84,100
March.....	45,000	1,010	4,320	9.82	11.32	266,000
April.....	26,000	1,610	4,150	9.43	10.52	247,000
May.....	2,190	584	1,320	3.00	3.46	81,200
June.....	1,740	456	1,070	2.43	2.71	63,700
July.....	1,140	244	603	1.37	1.58	37,100
August.....	461	206	375	.852	.98	23,100
September.....	806	266	384	.873	.97	22,800
The year.....	45,000	244	1,660	3.77	51.13	1,200,000

LITTLE ZIGZAG RIVER AT TWIN BRIDGES, NEAR RHODODENDRON, OREG.

LOCATION.—Water-stage recorder probably in sec. 15 of unsurveyed T. 3 S., R. 8 E., 500 feet above upper of Twin Bridges on Mount Hood Loop highway and 5½ miles east of Rhododendron.

DRAINAGE AREA.—3.7 square miles.

RECORDS AVAILABLE.—March, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year (estimated), 250 second-feet Mar. 31 (gage height, about 3.5 feet); minimum, 18 second-feet Mar. 14–16, Aug. 16–23.

1926–1931: Maximum discharge, that of Mar. 31, 1931; minimum daily discharge, 18 second-feet several days in July, September, 1926, Mar. 14–16, 1931, Aug. 16–23, 1931.

REMARKS.—Records fair except those for Oct. 1–28 and Mar. 31 to Apr. 2, which are poor. No diversion or regulation above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		20	21	21	19	19	70	26	23	23	19	20
2		22	22	21	19		40	26	23	23	19	19
3		22	22	20	19		28	26	23	23	19	19
4		24	22	22	19			25	23	23	19	19
5	30	23	22	22	20			25	22	23	20	19
6		22	22	20	20	19		26	22	23	20	19
7		23	22	20	20			25	22	23	19	19
8		22	22	20	20			25	22	22	19	20
9	50	22	22	19			27	24	23	22	19	21
10		22	22	19				25	23	21	19	20
11		22	24	22		19		24	23	21	19	20
12		23	23	21		19		25	23	21	19	20
13		20	23	20		19		24	23	22	19	20
14		20	22	20		18		24	23	22	19	20
15		20	22	20	20	18		24	23	22	19	20
16		20	22	20		18	26	25	24	22	18	20
17		20	22	21		19		26	25	22	18	20
18		20	22	20		20		25	23	22	18	22
19	22	20	22	20		21		23	23	22	18	23
20		20	21	20		19	26	23	23	22	18	22
21		20	21	20		20		23	22	21	18	22
22		20	21	21	19			23	23	21	18	21
23		20	22	21	19		25	23	23	20	18	21
24		20	21	21	19		26	23	23	20	19	21
25		26	22	22	19		26	23	23	20	19	21
26		21	22	22	20	20	26	23	23	20	19	20
27		21	22	21	20		28	22	23	19	19	20
28		21	22	20	20		28	22	23	19	19	20
29	19	21	21	20			28	23	23	20	19	20
30	20	21	22				27	22	23	20	19	20
31	20		22	20		150		22		19		

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	50		24.7	6.68	7.70	1,520
November	24	20	21.1	5.70	6.36	1,260
December	24	21	21.9	5.92	6.82	1,350
January	22	19	20.5	5.54	6.39	1,260
February			19.7	5.32	5.54	1,090
March	150	18	23.5	6.35	7.32	1,440
April	70		28.6	7.73	8.62	1,700
May	26	22	24.0	6.49	7.45	1,450
June	25	22	22.9	61.9	6.91	1,360
July	23	19	21.4	57.8	6.66	1,320
August	20	18	18.8	5.08	5.86	1,160
September	23	19	20.3	5.49	6.12	1,210
The year	150	18	22.3	6.03	81.78	16,200

STILL CREEK NEAR GOVERNMENT CAMP, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 25, T. 3 S., R. 8 $\frac{1}{2}$ E., 100 yards below mouth of Mineral Creek and 2 miles southeast of Government Camp.

DRAINAGE AREA.—2.8 square miles.

RECORDS AVAILABLE.—May, 1910, to May, 1912; May, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 75 second-feet Mar. 31 (gage height, 1.3 feet); minimum, 9 second-feet Aug. 29 to Sept. 4.

1910-1912, 1926-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 5.0 second-feet Nov. 12, 1911.

REMARKS.—Records fair. Mean monthly discharge is mean discharge for days gage was read. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.			12	12			48			14	10	
2.						12	27	30	14		10	9
3.	11	10			12			26				
4.				14			32		14	14		9
5.						12	30			12	10	
6.	12		12					25	14			
7.		10		14	12		25		14			
8.			11		12	12		25		12	10	10
9.	12						21		14		10	
10.				14				25				
11.	11	10					21		16	11	10	10
12.			12		14	19	20	21	17			
13.	11							21	20			10
14.		10									10	10
15.					12	14	20		15	11	10	
16.						17		23	16		10	
17.		11	11	13	14			23				
18.			11			25	19		16	10	10	10
19.						38	19	21		10		
20.	11				11	30		20	16			10
21.		11	11	11	12	20					10	
22.					12	18		20	17	10		
23.				12					17		10	
24.	10	11	10	14				20				10
25.					14	25	20		14	10	10	
26.				14				17		10		
27.	10							16	20	10	10	10
28.		12	10			20		14	16			
29.						20				10	9	
30.								16	13			10
31.	10			13		60		16			9	

Month	Mean	Per square mile	Run-off	
			Inches	Acre-feet
October	10.9	3.89	4.48	670
November	10.6	3.79	4.23	631
December	11.1	3.96	4.56	682
January	13.1	4.68	5.40	806
February	12.5	4.46	4.64	694
March	22.8	8.14	9.38	1,400
April	25.2	9.00	10.04	1,500
May	21.1	7.54	8.69	1,300
June	15.7	5.61	6.26	934
July	11.1	3.96	4.56	682
August	9.88	3.53	4.07	608
September	9.82	3.51	3.92	584
The year	14.5	5.18	70.23	10,500

NOTE.—Gage not read on days for which discharge is not shown.

SALMON RIVER NEAR GOVERNMENT CAMP, OREG.

LOCATION.—Water-stage recorder in sec. 31, T. 3 S., R. 9 E., near lower end of Red Top Meadows, 4 miles southeast of Government Camp.

DRAINAGE AREA.—8.0 square miles.

RECORDS AVAILABLE.—May, 1910, to May, 1912; April, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 424 second-feet Mar. 31 (gage height, 3.55 feet); minimum, 12 second-feet Oct. 19.

1910-1912, 1926-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 12 second-feet Nov. 21, 1929, and Oct. 19, 1930.

REMARKS.—Records fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	16	18	19	15	27		* 175	84	39	29	19	13
2.....	15	18	22	15			88	87	38	28	19	14
3.....	15	16	19	15			70	85	37	28	19	14
4.....	15	15	18	18			55	78	36	27	19	14
5.....	15	14	18	19			62	80	35	26	19	14
6.....	28	14	17	17		* 24	61	82	35	25	19	14
7.....	34	14	17	16			62	76	34	24	19	14
8.....	23	15	17	16			51	67	34	24	19	13
9.....	17	19	17	16			49	64	35	24	19	16
10.....	16	19	17	17			49	68	35	24	19	14
11.....	15	16	23	36			46	70	33	23	18	13
12.....	13	40	21	25		32	44	74	33	23	18	13
13.....	13	28	23	20		28	45	76	38	23	18	15
14.....	15	23	20	19		26	44	76	44	22	18	14
15.....	14	23	19	19		27	44	67	44	21	18	13
16.....	13	23	18	19		28	50	75	48	20	17	13
17.....	13	22	18	17		30	50	82	57	20	17	14
18.....	13	21	18	17		32	43	73	40	20	17	19
19.....	12	21	18	17		59	43	62	36	20	17	19
20.....	13	23	17	17		60	44	59	34	19	17	16
21.....	13	23	17	17		84	56	56	34	17	17	16
22.....	14	22	17	24		57	48	55	39	18	16	17
23.....	16	26	17	32		44	41	54	41	18	16	19
24.....	23	27	16	24		40	45	54	35	18	16	18
25.....	23	26	16	25		37	53	53	33	18	15	17
26.....	26	23	16	43		34	64	50	35	18	14	15
27.....	28	23	16	33		33	80	48	32	19	14	15
28.....	27	22	16	32		31	86	45	31	18	13	14
29.....	26	20	16	31		30	90	43	32	18	13	15
30.....	21	19	16	30		71	90	42	31	19	13	15
31.....	18		16	28		330		41		19	13	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	34	12	18.2	2.28	2.63	1,120
November.....	40	14	21.1	2.64	2.94	1,260
December.....	23	16	17.9	2.24	2.58	1,100
January.....	43	15	22.2	2.78	3.20	1,360
February.....			* 24	3.00	3.12	1,330
March.....	330		44.4	5.55	6.40	2,730
April.....	175	41	60.9	7.61	8.49	3,620
May.....	87	41	65.3	8.16	9.41	4,020
June.....	57	31	36.9	4.61	5.14	2,200
July.....	29	17	21.6	2.70	3.11	1,330
August.....	19	13	16.9	2.11	2.43	1,040
September.....	19	13	15.0	1.88	2.10	893
The year.....	330	12	30.4	3.80	51.55	22,000

* Estimated.

SALMON RIVER BELOW LINNEY CREEK, OREG.

LOCATION.—Water-stage recorder 200 feet below Linney Creek, 9 miles south-east of Welches, and 11 miles downstream from gaging station on Salmon River near Government Camp.

DRAINAGE AREA.—54 square miles.

RECORDS AVAILABLE.—October, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 5,080 second-feet Mar. 31 (gage height, 5.81 feet); minimum, 49 second-feet Oct. 12, 13, Nov. 7 (gage height, 0.27 foot).

1927-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 44 second-feet Nov. 21, 1929 (gage height, 0.27 foot).

REMARKS.—Records good except those for Oct. 1-11, June 1-3, and discharges above 1,500 second-feet, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	} * 60	53	72	76	171	122	2,530	450	* 142	110	66	52
2.....		52	96	79	159	126	1,130	438	* 137	105	66	52
3.....		52	96	78	148	129	792	410	* 132	103	64	52
4.....		50	90	80	139	124	630	375	128	100	64	52
5.....		50	88	101	135	119	605	360	122	96	64	53
6.....		50	85	88	128	115	580	360	120	95	64	53
7.....		49	80	82	120	112	585	372	117	93	64	53
8.....		50	78	72	117	110	525	325	115	90	63	54
9.....		67	76	78	112	112	484	297	117	90	61	63
10.....		73	76	78	110	115	459	284	120	90	61	57
11.....	} 50	59	101	124	108	150	426	275	115	88	60	54
12.....		179	100	117	106	183	391	265	112	88	61	53
13.....		49	112	137	100	103	192	391	269	117	88	60
14.....		60	82	115	95	100	173	387	253	144	88	60
15.....		64	84	103	101	100	173	379	232	154	87	60
16.....	60	92	101	103	96	189	391	253	176	85	59	52
17.....	60	82	100	103	106	194	391	294	210	84	57	52
18.....	57	79	93	98	159	311	350	265	161	82	59	72
19.....	53	78	92	93	171	414	335	224	139	80	59	98
20.....	52	82	87	90	139	502	328	208	128	79	57	67
21.....	52	85	84	87	128	570	346	197	122	73	* 57	60
22.....	52	84	80	101	122	512	339	189	115	73	56	57
23.....	53	80	80	154	120	422	308	183	154	72	56	56
24.....	78	76	79	139	119	375	321	176	133	72	56	56
25.....	90	74	74	133	117	332	342	173	122	70	54	56
26.....	76	73	78	227	115	291	379	166	122	70	56	56
27.....	82	70	67	210	113	265	442	161	120	70	54	56
28.....	64	70	63	210	112	244	463	154	115	68	53	57
29.....	60	70	67	205	-----	229	471	150	117	68	53	59
30.....	57	70	64	197	-----	427	471	148	120	67	52	60
31.....	56	-----	73	183	-----	2,400	-----	146	-----	66	52	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	-----	49	60.8	1.13	1.30	3,740
November.....	179	49	74.2	1.37	1.53	4,420
December.....	137	63	86.3	1.60	1.84	5,310
January.....	227	72	119	2.20	2.54	7,320
February.....	171	96	124	2.30	2.40	6,890
March.....	2,400	110	314	5.81	6.70	19,300
April.....	2,530	308	532	9.85	10.99	31,700
May.....	450	146	259	4.80	5.53	15,900
June.....	210	112	183.6	2.44	2.72	7,860
July.....	110	66	83.6	1.55	1.79	5,140
August.....	66	52	59.0	1.09	1.26	3,630
September.....	98	52	57.6	1.07	1.19	3,430
The year.....	2,530	49	158	2.93	39.79	115,000

• Estimated.

SALMON RIVER AT WELCHES, OREG.

LOCATION.—Staff gage in S. ½ sec. 9, T. 3 S., R. 7 E., just below Sheeny Creek and three-quarters of a mile southeast of Welches.

DRAINAGE AREA.—100 square miles.

RECORDS AVAILABLE.—August, 1913, to September, 1914; July, 1920, to September, 1921; April, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year (estimated), 13,000 second-feet Mar. 31 (gage height, 9.80 feet, determined from high-water mark); minimum, 65 second-feet Aug. 31 to Sept. 3 (gage height, 0.26 foot).

1913-14, 1920-21, 1925-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 65 second-feet Dec. 3-6, 1929, Aug. 31 to Sept. 3, 1931.

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

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	72	98	192	148	445	350	5,000	648	184	207	90	65
2.....	72	90	330	177	420	420	2,000	615	178	207	90	65
3.....	72	87	395	207	372	420	1,360	565	178	184	90	65
4.....	60	87	310	223	330	350	1,040	536	173	166	86	69
5.....	72	83	273	420	310	330	948	481	166	153	86	69
6.....	76	79	239	330	292	310	948	481	158	148	86	69
7.....	273	79	207	292	273	273	948	536	158	142	86	72
8.....	192	79	192	239	239	273	865	481	153	135	81	88
9.....	148	116	192	207	239	273	750	429	153	130	81	94
10.....	98	148	207	207	223	273	648	404	166	136	81	79
11.....	94	116	273	445	207	372	585	381	158	126	81	72
12.....	79	948	273	445	207	472	585	358	153	120	76	72
13.....	76	350	528	372	207	500	500	358	153	120	76	76
14.....	87	239	395	310	207	472	472	358	192	120	76	79
15.....	148	330	310	445	192	420	528	315	207	113	76	76
16.....	121	680	350	445	177	395	500	336	258	113	76	72
17.....	107	372	372	500	207	445	500	454	481	113	76	72
18.....	98	273	350	350	310	865	445	481	336	109	76	72
19.....	90	273	310	310	500	1,460	420	381	296	109	76	207
20.....	83	273	273	273	372	1,560	372	336	240	109	76	105
21.....	79	292	239	273	500	1,660	420	315	207	100	76	86
22.....	76	330	223	292	472	1,260	472	296	240	100	76	79
23.....	76	350	223	500	350	948	420	276	296	100	76	76
24.....	148	310	207	500	273	825	395	258	276	100	72	72
25.....	239	273	192	472	273	750	420	240	224	94	72	72
26.....	148	239	177	1,120	273	680	472	240	224	94	72	76
27.....	273	239	162	788	330	615	528	224	207	98	72	72
28.....	177	223	148	680	310	528	555	207	201	98	69	72
29.....	132	207	148	615	-----	528	615	207	207	94	69	76
30.....	121	117	148	555	-----	2,330	680	201	207	90	69	76
31.....	107	-----	148	500	-----	5,000	-----	192	-----	90	65	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	273	69	119	1.19	1.37	7,320
November.....	948	79	248	2.48	2.77	14,800
December.....	528	148	258	2.58	2.97	15,900
January.....	1,120	148	408	4.08	4.70	25,100
February.....	500	177	304	3.04	3.17	16,900
March.....	8,000	273	915	9.15	10.55	56,300
April.....	5,000	372	813	8.13	9.07	48,400
May.....	648	192	374	3.74	4.31	23,000
June.....	481	153	214	2.14	2.39	12,700
July.....	207	90	123	1.23	1.42	7,560
August.....	90	65	77.7	.777	.90	4,780
September.....	207	65	79.8	.798	.89	4,750
The year.....	8,000	65	328	3.28	44.51	238,000

* Estimated.

BULL RUN RESERVOIR NEAR BULL RUN, OREG.

LOCATION.—Water-stage recorder 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. Gage readings are elevations above mean sea level.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum contents during year, 31,600 acre-feet Mar. 31 (gage height, 1,047.40 feet); minimum, 20,690 acre-feet Oct. 6 (gage height, 1,018.54 feet).

1929–1931: Maximum contents since reservoir was first filled in May, 1929, that of Mar. 31, 1931; minimum, that of Oct. 6, 1930.

REMARKS.—Records good. Bear Creek Dam on Bull Run River was completed in March, 1929, and stores water in Bull Run Reservoir for water supply of Portland. Capacity of reservoir at crest of spillway at gage height 1,036 feet is 26,930 acre-feet; at center line of outlet valves at gage-height 890 feet is 213 acre-feet, which is dead storage. Gage-height record furnished by Portland Water Bureau.

Monthly stage and contents of Bull Run Reservoir near Bull Run, Oreg., 1930–31

Date	Gage height in feet	Contents in acre-feet	Change in contents during month in acre-feet	Date	Gage height in feet	Contents in acre-feet	Change in contents during month in acre-feet
Sept. 30.....	1,019.54	21,020	-----	May 31.....	1,036.52	27,130	—170
Oct. 31.....	1,036.88	27,270	+6,250	June 30.....	1,036.98	27,310	+180
Nov. 30.....	1,036.80	27,240	—30	July 31.....	1,034.55	26,380	—930
Dec. 31.....	1,036.60	27,160	—80	Aug. 31.....	1,026.00	23,250	—3,130
Jan. 31.....	1,037.35	27,460	+300	Sept. 30.....	1,018.72	20,750	—2,500
Feb. 28.....	1,037.10	27,360	—100				
Mar. 31.....	1,046.15	31,060	+3,700	The year.....	-----	-----	—270
Apr. 30.....	1,036.95	27,300	—3,760				

BULL RUN RIVER BELOW BULL RUN RESERVOIR, OREG.

LOCATION.—Water-stage recorder in SE. ¼ sec. 17, T. 1 S., R. 6 E., half a mile below Bull Run Reservoir and 8 miles northeast of Bull Run,

DRAINAGE AREA.—77 square miles.

RECORDS AVAILABLE.—October, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 15,700 second-feet Mar. 31 (gauge height, 10.85 feet); minimum, 5 second-feet (estimated) Oct. 10, 11 (gauge height not determined).

1929-1931: Maximum discharge, that of Mar. 31, 1931; minimum, that of Oct. 10, 11, 1930.

REMARKS.—Records good. Discharge estimated Oct. 1-5, 7-12. No diversions above station. Flow regulated by storage in Bull Run Lake and Bull Run Reservoir. Gauge-height record furnished by Portland Water Bureau.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		235	264	183	505	490	5,120	364	144	350	125	129
2		195	490	250	440	510	2,180	350	140	308	133	129
3	78	177	531	347	375	515	1,410	322	135	278	131	133
4		153	440	445	335	480	1,070	294	129	254	120	137
5		142	384	942	327	420	1,150	275	124	230	116	140
6	79	134	339	704	303	367	1,230	314	116	212	108	137
7	63	128	303	548	278	331	1,280	452	114	192	106	137
8	35	124	267	440	253	303	1,190	368	246	175	116	137
9	15	194	256	375	228	363	958	311	142	165	129	135
10	5	335	250	343	219	520	780	275	92	155	127	135
11	5	260	435	680	210	774	720	257	92	151	125	133
12	75	918	490	760	201	990	605	251	98	142	127	133
13	131	912	984	597	189	910	640	245	103	131	129	133
14	145	581	819	564	180	672	665	239	125	124	124	122
15	169	1,160	617	718	186	575	640	222	205	124	124	106
16	177	2,420	642	781	195	553	556	281	253	122	124	100
17	161	1,270	668	1,030	396	586	529	488	432	116	125	98
18	153	784	629	753	894	1,380	472	496	400	112	129	88
19	131	685	553	586	1,120	1,980	424	388	372	109	129	86
20	117	674	485	485	746	2,140	388	332	308	104	129	86
21	110	648	430	416	575	2,630	372	290	269	98	129	86
22	98	605	371	500	485	1,620	380	263	360	112	129	88
23	98	581	363	878	435	1,120	339	242	472	112	129	88
24	215	510	363	910	375	862	325	222	512	111	129	84
25	423	460	311	809	363	788	322	208	424	109	129	84
26	436	393	284	1,520	380	666	328	198	500	111	127	86
27	857	343	253	1,200	470	608	353	185	538	114	127	86
28	554	311	228	974	480	575	380	178	452	116	129	84
29	386	288	213	823	-----	648	384	162	452	118	127	84
30	314	260	200	718	-----	2,820	380	155	412	120	127	84
31	279	-----	177	602	-----	12,900	-----	148	-----	120	129	-----

Month	Observed			Change in contents, Bull Run Reser- voir (acre- feet)	Corrected for storage				
	Discharge in second- feet		Run-off in acre- feet		Run-off in acre- feet	Discharge in second- feet		Run-off in inches	
	Maxi- mum	Mini- mum				Mean	Mean		Per square mile
October	857	5	181	11, 100	+6, 250	17, 400	283	3. 68	4. 24
November	2, 420	124	528	31, 400	-30	31, 400	528	6. 86	7. 65
December	984	177	421	25, 900	-80	25, 800	420	5. 45	6. 28
January	1, 520	183	674	41, 400	+300	41, 700	678	8. 81	10. 16
February	1, 120	180	398	22, 100	-100	22, 000	396	5. 14	5. 35
March	12, 900	303	1, 290	79, 300	+3, 700	83, 000	1, 350	17. 5	20. 18
April	5, 120	322	852	50, 700	-3, 760	46, 900	788	10. 2	11. 88
May	496	148	283	17, 400	-170	17, 200	280	3. 64	4. 20
June	538	92	272	16, 200	+180	16, 400	276	3. 58	3. 99
July	350	98	155	9, 530	-930	8, 600	140	1. 82	2. 10
August	133	106	125	7, 690	-3, 130	4, 560	74. 2	. 964	1. 11
September	140	84	110	6, 550	-2, 500	4, 050	68. 1	. 884	. 99
The year	12, 900	5	441	319, 000	-270	319, 000	441	5. 73	77. 63

BULL RUN RIVER NEAR BULL RUN, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 25, T. 1 S., R. 5 E., $1\frac{1}{2}$ miles above intake of Portland water-supply pipe line and 5 miles east of Bull Run.

DRAINAGE AREA.—102 square miles.

RECORDS AVAILABLE.—January, 1895, to September, 1931.

EXTREMES.—Maximum discharge during year, 20,600 second-feet Mar. 31 (gage height, 13.8 feet); minimum, 72 second-feet Oct. 11 (gage height not determined).

1895-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 63 second-feet Aug. 13-16, 1926.

REMARKS.—Records good. Discharge estimated Oct. 11-17, 19, 24, 26-31, Nov. 2-7, 9-15, Mar. 19-21, Mar. 31 to Apr. 3, June 26-27. No diversions above station. Flow regulated by storage in Bull Run Lake and Bear Creek Reservoir. Gage-height record furnished by Portland Water Bureau.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	99	328	364	253	630	662	7,600	357	168	446	136	139
2	99	267	662	336	540	668	3,200	388	162	388	142	139
3	97	249	695	490	455	673	2,150	361	156	353	142	139
4	97	222	580	590	395	620	1,520	335	153	316	133	142
5	97	208	515	1,220	382	545	1,620	313	144	288	133	142
6	153	186	436	960	350	475	1,770	346	136	260	121	142
7	400	186	382	750	318	418	1,770	520	133	234	121	142
8	265	172	341	610	297	390	1,770	425	243	214	130	142
9	182	223	323	515	273	450	1,350	361	171	202	142	150
10	109	400	318	470	261	630	1,120	324	119	192	142	147
11	72	321	540	870	253	960	980	302	113	183	142	144
12	133	958	595	990	245	1,190	860	291	113	174	142	142
13	182	1,100	1,190	780	229	1,120	890	288	119	165	147	142
14	216	751	1,020	750	221	870	920	277	147	153	142	136
15	248	1,210	810	930	229	722	890	260	243	150	139	119
16	247	3,120	870	1,020	241	690	775	313	437	147	136	119
17	205	1,670	930	1,260	469	695	720	538	525	144	136	113
18	207	1,080	870	960	1,020	1,410	645	561	489	136	142	105
19	181	900	780	750	1,260	2,150	575	446	458	133	142	142
20	166	960	673	625	900	2,600	516	388	384	124	139	113
21	159	930	600	545	722	2,990	454	350	350	121	139	105
22	150	870	515	662	615	2,050	487	316	450	133	139	99
23	163	810	510	1,050	560	1,410	404	291	570	136	139	99
24	293	722	500	1,080	490	1,120	388	274	625	136	139	96
25	565	640	431	1,020	465	1,020	384	257	525	133	139	96
26	491	550	390	1,800	500	870	384	240	594	133	139	96
27	939	490	350	1,410	630	780	396	224	651	139	139	96
28	716	445	314	1,190	656	750	412	211	561	136	139	94
29	491	422	293	1,020	900	990	412	195	566	136	139	94
30	400	377	269	900	-----	3,280	404	183	520	139	139	94
31	407	-----	241	750	-----	16,400	-----	177	-----	136	139	-----

Month	Observed				Change in con- tents, Bull Run Reser- voir (acre- feet)	Corrected for storage			
	Discharge in second-feet			Run-off in acre- feet		Run-off in acre- feet	Discharge in second- feet		Run-off in inches
	Maxi- mum	Mini- mum	Mean				Mean	Per square mile	
October	565	72	265	16, 300	+6, 250	22, 600	368	3. 61	4. 16
November	3, 120	172	692	41, 200	- 30	41, 200	692	6. 78	7. 56
December	1, 190	241	558	34, 300	- 80	34, 200	556	5. 45	6. 28
January	1, 800	253	857	52, 700	+300	53, 000	862	8. 45	9. 74
February	1, 260	221	486	27, 000	-100	26, 900	484	4. 75	4. 95
March	16, 400	390	1, 600	98, 400	+3, 700	102, 000	1, 660	16. 3	18. 79
April	7, 600	384	1, 190	70, 800	-3, 760	67, 000	1, 130	11. 1	12. 53
May	561	177	326	20, 000	-170	19, 800	322	3. 16	3. 64
June	651	113	334	19, 900	+180	20, 100	338	3. 31	3. 69
July	446	121	190	11, 700	-980	10, 800	176	1. 73	1. 99
August	147	121	138	8, 480	-3, 130	5, 350	87. 0	. 853	. 98
September	150	94	122	7, 260	-2, 500	4, 760	80. 0	. 784	. 87
The year	16, 400	72	564	408, 000	- 270	408, 000	564	5. 53	75. 03

LITTLE SANDY RIVER NEAR BULL RUN, OREG.

LOCATION.—Water-stage recorder in N.E. $\frac{1}{4}$ sec. 10, T. 2 S., R. 5 E., three-eighths of a mile above Portland General Electric Co.'s dam and tunnel from Sandy River and 3 miles east of Bull Run.

DRAINAGE AREA.—23 square miles.

RECORDS AVAILABLE.—May, 1911, to April, 1913, fragmentary; July, 1919, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,500 second-feet Mar. 31 (gage height, 8.4 feet); minimum, 10 second-feet Sept. 2-5.
1911-1913, 1919-1931: Maximum discharge, 3,950 second-feet Nov. 20, 1921 (gage height, 8.90 feet); minimum, 10 second-feet Sept. 17, 1924, Sept. 2-5, 1931.

REMARKS.—Records good except those for Mar. 31 to June 2, which are fair. No diversions or regulation above station. Gage-height record furnished by Portland General Electric Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	58	74	59	102	127	1,400	82	31	94	14	11
2	12	49	192	77	92	129	650	80	29	82	14	11
3	11	45	157	91	82	131	447	74	28	73	13	11
4	12	40	113	116	77	115	337	66	27	63	13	10
5	12	37	96	233	80	.99	354	61	26	57	13	10
6	66	34	84	159	74	88	354	78	24	52	13	11
7	381	32	74	125	68	80	361	116	23	45	13	12
8	210	33	67	91	61	75	297	95	22	41	13	12
9	136	61	64	92	57	81	254	80	24	38	12	21
10	82	73	61	85	55	102	230	68	31	36	12	16
11	59	52	127	230	54	159	212	61	27	34	12	12
12	48	215	107	190	51	210	182	57	23	33	12	12
13	41	157	238	146	49	182	192	64	24	31	12	12
14	58	112	168	153	48	134	192	52	41	30	12	12
15	66	284	142	168	50	123	173	48	72	30	12	12
16	56	566	168	153	52	120	153	68	149	28	12	11
17	49	285	175	173	78	134	146	116	188	26	12	11
18	43	190	168	140	151	288	125	110	134	24	12	19
19	38	155	149	122	155	361	112	81	120	23	12	75
20	33	168	127	105	112	.399	104	70	95	21	12	39
21	30	166	113	96	95	523	101	63	87	21	11	20
22	28	144	104	131	89	337	101	59	132	19	11	16
23	30	134	105	180	89	244	85	54	151	18	11	14
24	69	118	98	149	81	208	84	49	146	19	11	13
25	127	110	88	155	84	192	84	46	116	18	11	13
26	110	102	80	318	91	159	88	43	157	17	11	12
27	198	94	73	222	105	153	92	41	149	16	12	12
28	107	85	67	188	112	146	91	38	120	16	11	12
29	81	80	64	162	-----	166	87	35	134	15	11	13
30	64	72	59	140	-----	650	82	33	112	15	11	14
31	74	-----	57	118	-----	2,940	-----	32	-----	14	11	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	381	11	75.6	3.29	3.79	4,650
November	566	32	125	5.43	6.06	7,440
December	238	57	112	4.87	5.62	6,890
January	318	59	147	6.39	7.37	9,040
February	155	48	81.9	3.56	3.71	4,550
March	2,940	75	286	12.4	14.30	17,600
April	1,400	82	239	10.4	11.60	14,200
May	116	32	64.8	2.82	3.25	3,980
June	188	22	81.4	3.54	3.95	4,840
July	94	14	33.8	1.47	1.70	2,080
August	14	11	12	.522	.60	738
September	75	10	15.7	.683	.76	934
The year	2,940	10	106	4.61	62.71	76,900

WILLAMETTE RIVER BASIN

MIDDLE FORK OF WILLAMETTE RIVER AT EULA, OREG.

LOCATION.—Staff gage in sec. 18, T. 20 S., R. 2 E., a quarter of a mile southwest of Eula and 8 miles below mouth of North Fork.

DRAINAGE AREA.—943 square miles.

RECORDS AVAILABLE.—July, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 28,000 second-feet Apr. 1 (gage height, 12.2 feet); minimum, 450 second-feet Sept. 4-6, 16, 17 (gage height, 1.2 feet).

1923-1931: Maximum discharge, 55,100 second-feet Feb. 21, 1927 (gage height, 17.0 feet); minimum, 450 second-feet Nov. 24, 25, Dec. 5, 6, 1929, Sept. 4-6, 16, 17, 1931.

REMARKS.—Records good. No diversions above station. Considerable diurnal fluctuation during low water, owing to logging operations upstream. Gage-height record October to April furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	655	550	1,000	1,320	1,480	2,050	22,500	2,600	850	925	510	475
2	655	550	1,240	1,000	1,400	2,050	14,800	2,490	850	925	510	475
3	655	550	1,400	1,570	1,320	2,050	8,970	2,490	780	925	510	475
4	655	510	1,160	1,480	1,320	2,050	6,290	2,380	780	925	510	450
5	655	510	1,000	1,480	1,240	1,660	5,350	2,270	780	850	510	450
6	600	510	925	1,400	1,160	1,660	4,850	2,270	715	715	510	450
7	600	510	1,240	1,320	1,160	1,570	4,270	2,050	715	715	510	475
8	925	510	1,000	1,160	1,080	1,570	3,890	2,160	715	715	510	510
9	780	600	1,000	1,080	1,080	1,570	3,770	2,050	715	715	510	550
10	655	655	1,080	1,000	1,000	1,660	3,170	1,750	715	655	510	510
11	600	655	1,160	1,080	1,000	1,660	2,820	1,660	715	655	510	510
12	600	780	1,400	1,080	1,000	2,600	2,820	1,660	715	655	510	475
13	600	1,080	2,600	1,080	925	3,530	2,930	1,660	655	655	510	475
14	715	715	2,820	1,160	925	3,410	2,820	2,270	780	600	510	475
15	655	780	1,750	1,320	1,000	3,410	2,710	1,950	1,000	606	475	475
16	600	5,010	1,850	2,050	1,000	3,410	2,710	1,750	1,400	600	475	460
17	600	2,380	1,750	1,850	1,080	3,770	2,600	1,570	1,400	600	475	450
18	550	1,660	1,660	1,750	1,160	6,690	2,490	1,400	1,240	600	475	475
19	550	1,240	1,480	1,570	2,050	5,900	2,270	1,400	1,160	600	475	655
20	510	1,240	1,400	1,480	1,850	7,110	2,160	1,320	1,080	550	475	600
21	510	1,000	1,320	1,400	1,570	6,900	2,160	1,240	1,000	550	475	550
22	510	1,000	1,240	1,400	1,750	7,540	2,050	1,160	1,000	550	475	510
23	510	1,160	1,160	1,570	1,660	5,710	2,050	1,160	1,000	550	475	510
24	550	1,240	1,080	1,750	1,570	4,850	2,050	1,160	1,000	550	475	510
25	780	1,320	1,080	1,850	1,480	4,010	1,950	1,080	925	550	475	475
26	715	1,320	1,000	2,050	1,480	3,290	1,850	1,080	850	550	475	475
27	715	1,320	1,000	1,950	2,160	3,530	1,850	1,080	1,160	550	475	475
28	780	1,240	1,000	1,950	1,950	3,290	1,950	1,000	1,160	550	475	475
29	715	1,240	1,000	1,850	-----	3,170	2,050	925	1,080	550	475	475
30	655	1,080	925	1,660	-----	8,710	2,160	925	1,080	550	475	482
31	550	-----	925	1,570	-----	13,600	-----	850	-----	550	475	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	925	510	639	0.678	0.78	39,300
November	5,010	510	1,100	1.17	1.30	65,500
December	2,820	925	1,310	1.39	1.60	80,600
January	2,050	1,000	1,490	1.58	1.82	91,600
February	2,160	925	1,350	1.43	1.49	75,000
March	13,600	1,570	4,000	4.24	4.89	246,000
April	22,500	1,850	4,140	4.39	4.90	246,000
May	2,600	850	1,640	1.74	2.01	101,000
June	1,400	655	934	0.990	1.10	55,600
July	925	550	653	.692	0.80	40,200
August	510	475	491	.521	.60	30,200
September	655	450	494	.524	.58	29,400
The year	22,500	450	1,520	1.62	21.87	1,100,000

WILLAMETTE RIVER AT SPRINGFIELD, OREG.

LOCATION.—Water-stage recorder in SE. ¼ sec. 34, T. 17 S., R. 3 W., at highway bridge at Springfield. Zero of gage is 423.1 feet above mean sea level.

DRAINAGE AREA.—2,030 square miles.

RECORDS AVAILABLE.—November, 1911, to September, 1913; October, 1928, to September, 1931. Comparable record at Eugene, 4 miles downstream, June, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 51,800 second-feet Apr. 1 (gage height, 15.75 feet); minimum, 515 second-feet Sept. 6 (gage height, 1.43 feet).

1911–1913, 1919–1931: Maximum discharge, 73,300 second-feet Feb. 21, 1927 (gage height at Eugene, 17.0 feet); minimum, 500 second-feet Aug. 11, 1926.

Maximum stage in recent years, 21.5 feet at Eugene Nov. 23, 1909 (discharge, 96,000 second-feet).

REMARKS.—Records excellent. Slight diurnal fluctuation during low water, owing to logging operations in Middle Fork Basin. No diversions above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	792	800	1,700	1,580	2,620	4,880	43,700	3,130	1,190	1,520	704	535
2.....	776	784	1,820	1,760	2,410	4,660	34,400	3,360	1,160	1,410	688	530
3.....	744	760	2,080	3,860	2,340	4,340	19,700	3,200	1,130	1,300	673	525
4.....	720	760	2,080	4,040	2,200	3,950	14,000	2,980	1,080	1,200	659	525
5.....	712	744	1,940	3,770	2,140	3,600	11,000	2,830	1,080	1,190	652	525
6.....	712	744	1,820	3,770	2,080	3,280	9,380	2,760	1,050	1,120	652	515
7.....	788	744	1,700	3,360	1,940	3,060	8,760	2,760	1,020	1,070	652	530
8.....	1,300	728	1,520	2,980	1,880	2,830	8,450	2,620	1,010	1,030	652	562
9.....	1,410	744	1,460	2,690	1,760	2,980	7,400	2,410	1,010	1,010	638	604
10.....	1,180	880	1,410	2,410	1,700	2,900	6,520	2,270	1,070	974	638	596
11.....	992	1,040	1,940	2,410	1,640	3,200	6,220	2,200	1,120	947	568	659
12.....	896	947	2,620	2,550	1,640	5,520	5,800	2,140	1,040	920	568	624
13.....	816	1,410	3,950	2,480	1,520	8,760	5,660	2,140	992	904	617	624
14.....	800	1,460	4,880	2,410	1,580	6,950	5,520	2,480	1,010	888	610	586
15.....	800	1,460	3,600	2,830	1,760	5,520	5,250	2,480	1,300	880	604	580
16.....	840	9,970	3,770	4,880	2,010	4,770	4,880	2,270	1,640	864	598	592
17.....	840	8,150	3,860	5,660	1,880	4,440	4,550	2,200	2,550	848	586	586
18.....	808	4,660	3,680	4,550	2,080	9,070	4,240	2,200	2,480	840	598	580
19.....	784	3,360	3,600	3,860	4,770	14,000	3,950	2,010	2,410	824	592	832
20.....	768	2,900	3,280	3,440	4,880	14,000	3,680	1,880	2,080	808	598	965
21.....	760	2,760	2,980	3,130	3,950	14,800	3,440	1,760	1,760	800	580	832
22.....	760	2,760	2,760	2,900	3,440	16,000	3,280	1,700	1,520	768	580	728
23.....	744	2,980	2,550	3,130	3,440	12,500	3,200	1,640	1,640	752	574	680
24.....	760	2,980	2,410	4,040	3,280	9,890	3,060	1,520	1,640	736	568	659
25.....	904	2,690	2,270	3,770	3,130	8,150	2,900	1,520	1,520	728	568	610
26.....	1,180	2,480	2,080	3,860	3,280	6,950	2,760	1,520	1,410	704	562	604
27.....	1,030	2,340	1,940	3,770	6,660	6,660	2,690	1,410	1,700	720	550	598
28.....	1,000	2,080	1,820	3,440	5,520	8,150	2,760	1,360	2,140	712	545	586
29.....	956	1,940	1,760	3,130	-----	8,760	2,760	1,300	1,580	712	545	580
30.....	888	1,820	1,640	2,980	-----	12,500	2,830	1,250	1,700	712	545	580
31.....	840	-----	1,640	2,830	-----	28,900	-----	1,200	-----	712	535	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	1,410	712	880	0.433	0.50	54,100
November.....	9,970	728	2,260	1.11	1.24	134,000
December.....	4,880	1,410	2,470	1.22	1.41	152,000
January.....	5,660	1,580	3,300	1.63	1.88	203,000
February.....	5,660	1,520	2,730	1.34	1.40	152,000
March.....	28,900	2,830	7,930	3.91	4.51	488,000
April.....	43,700	2,690	8,090	3.99	4.45	481,000
May.....	3,360	1,200	2,150	1.06	1.22	132,000
June.....	2,550	992	1,480	.729	.81	88,100
July.....	1,520	704	923	.455	.52	56,800
August.....	704	535	603	.297	.34	37,100
September.....	965	515	621	.306	.34	37,000
The year.....	43,700	515	2,780	1.37	18.62	2,020,000

WILLAMETTE RIVER AT ALBANY, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 6, T. 11 S., R. 3 W., at Albany, just below mouth of Calapooya River. Zero of gage is 171.4 feet above mean sea level.

DRAINAGE AREA.—4,840 square miles.

RECORDS AVAILABLE.—November, 1878, to April, 1882; January, 1892, to September, 1931; some fragmentary records 1883 to 1888.

EXTREMES.—Maximum discharge during year, 109,000 second-feet Apr. 3 (gage height, 22.9 feet); minimum, 1,890 second-feet Sept. 5 (gage height, 0.26 foot).

1878–1882, 1892–1931: Maximum discharge, 229,000 second-feet Jan. 14, 1881 (gage height, 32.8 feet); minimum, about 1,870 second-feet Sept. 21–27, 1879 (gage height, 0.2 foot). Minimum discharge in recent years, that of Sept. 5, 1931.

Maximum stage known, 36.0 feet Dec. 8, 1861 (discharge, estimated, 274,000 second-feet).

REMARKS.—Records good. No regulation. Albany power canal diverts water from South Santiam River into Willamette River above station. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	2,520	2,720	5,160	5,160	9,270	13,800	63,200	7,270	5,680	4,450	2,520	2,140
2.....	2,520	2,720	4,920	5,160	9,270	12,400	88,600	7,270	5,680	4,450	2,520	2,140
3.....	2,340	2,720	4,920	5,420	8,380	8,380	108,000	7,000	5,680	4,220	2,520	2,140
4.....	2,340	2,720	4,680	8,670	7,540	7,820	76,400	7,000	5,680	4,220	2,520	1,930
5.....	2,340	2,720	4,920	11,400	7,000	7,820	47,600	7,000	5,680	4,220	2,520	1,930
6.....	2,340	2,720	4,920	13,500	6,460	7,820	34,900	6,730	5,430	3,990	2,520	1,960
7.....	2,340	2,720	4,920	13,500	5,940	7,540	29,000	6,730	5,430	3,770	2,520	1,960
8.....	2,340	2,720	4,680	12,400	5,940	7,270	25,900	6,730	5,430	3,550	2,520	1,960
9.....	3,130	2,920	4,680	11,100	5,880	7,820	25,300	6,730	5,430	3,340	2,530	1,960
10.....	3,340	2,720	4,450	9,570	5,420	8,370	22,900	7,730	5,430	3,130	2,530	1,960
11.....	3,340	2,720	4,450	8,670	6,160	8,970	20,300	6,730	5,430	3,130	2,330	2,140
12.....	2,920	2,720	4,450	7,270	5,160	12,400	18,200	6,730	5,430	3,130	2,330	2,140
13.....	2,720	2,520	3,730	6,460	5,160	16,300	17,300	6,730	5,430	3,130	2,330	2,140
14.....	2,720	3,340	8,100	7,270	5,160	21,000	16,600	6,730	5,430	2,920	2,330	2,140
15.....	2,720	3,550	10,800	7,270	5,160	19,000	16,000	6,460	5,430	2,920	2,330	2,140
16.....	2,520	3,770	9,870	8,100	5,420	15,600	15,400	6,460	5,430	2,920	2,330	2,140
17.....	2,520	18,600	9,570	12,800	6,200	13,100	14,700	6,460	5,180	2,920	2,330	2,140
18.....	2,520	16,700	9,270	14,900	7,000	14,200	13,800	6,460	5,940	2,920	2,330	2,140
19.....	2,520	11,100	9,270	13,100	10,500	22,600	12,800	6,460	6,200	2,720	2,140	2,520
20.....	2,520	8,970	8,970	11,700	13,000	30,700	11,900	6,460	6,200	2,720	2,140	2,520
21.....	2,520	7,540	8,670	10,800	15,200	32,700	11,300	6,200	6,200	2,720	2,140	2,720
22.....	2,520	6,460	7,820	9,870	13,800	33,600	10,100	6,200	5,180	2,720	2,140	2,520
23.....	2,520	5,680	7,540	9,870	12,100	35,500	9,250	6,200	4,930	2,720	2,140	2,530
24.....	2,520	6,200	7,270	8,380	11,400	31,100	8,670	5,940	4,690	2,720	2,140	2,530
25.....	2,520	6,200	7,000	8,380	9,870	25,000	8,100	5,940	4,450	2,720	2,140	2,140
26.....	2,720	6,200	6,730	12,800	8,970	21,800	7,540	5,940	4,450	2,520	2,140	2,140
27.....	2,720	5,940	6,460	14,500	10,500	19,000	7,540	5,940	3,990	2,520	2,140	2,140
28.....	2,720	5,680	6,200	14,200	14,500	17,800	7,270	5,680	3,550	2,520	2,140	2,140
29.....	2,720	5,680	5,940	13,100	-----	21,000	7,270	5,680	3,990	2,520	2,140	2,140
30.....	2,720	5,420	5,420	12,100	-----	21,800	7,270	5,680	4,450	2,520	2,140	2,140
31.....	2,720	-----	5,160	10,200	-----	29,800	-----	5,680	-----	2,520	2,140	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	3,340	2,340	2,630	0.543	0.63	162,000
November.....	18,600	2,520	5,410	1.12	1.25	322,000
December.....	10,800	4,450	6,580	1.36	1.57	405,000
January.....	14,900	5,160	10,200	2.11	2.43	627,000
February.....	16,000	5,160	8,500	1.76	1.83	472,000
March.....	36,500	7,270	17,800	3.68	4.24	1,090,000
April.....	108,000	7,270	25,500	5.27	5.88	1,520,000
May.....	7,270	5,680	6,450	1.33	1.53	397,000
June.....	6,200	3,550	5,250	1.08	1.20	312,000
July.....	4,450	2,520	3,140	.649	.75	193,000
August.....	2,520	2,140	2,300	.475	.55	141,000
September.....	2,720	1,890	2,150	.444	.50	128,000
The year.....	108,000	1,890	7,980	1.65	22.36	5,770,000

WILLAMETTE RIVER AT SALEM, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 22, T. 7 S., R. 3 W., at highway bridge at Salem. Zero of gage is 113.4 feet above mean sea level.

DRAINAGE AREA.—7,280 square miles.

RECORDS AVAILABLE.—October, 1909, to December, 1916; October, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 220,000 second-feet Apr. 2 (gage height, 23.5 feet, determined by leveling to high-water mark); minimum, 2,500 second-feet Sept. 5-8 (gage height, -3.5 feet).

1909-1916, 1927-1931: Maximum discharge, 315,000 second-feet Nov. 25, 1909 (gage height, 30.5 feet); minimum, that of Sept. 5-8, 1931.

Maximum known discharge (estimated), 500,000 second-feet Dec. 4, 1861 (gage height, about 39 feet). Flood of Feb. 5, 1890, reached a stage of 37.1 feet.

REMARKS.—Records good except those estimated from records of discharge for stations in basin above, which are fair. A few small irrigation diversions above station; part of flow of Salem Canal diverted from North Santiam River returns to Willamette River below gage. No regulation. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....		3,840	8,600	7,740	17,800	21,600	165,000	*14,000		7,200		* 2,580
2.....		3,840	8,310	7,740	16,500	20,800	200,000	*15,000		6,680		* 2,570
3.....		3,180	7,740	8,900	15,800	20,800	159,000	*14,500				* 2,550
4.....		3,180	9,500	14,200	14,500	20,000	129,000	*14,000				* 2,520
5.....	* 3,490	3,180	9,500	17,800	13,200	18,500	87,700	13,200				* 2,500
6.....		3,180	8,310	24,200	12,600	17,100	61,700	12,600				* 2,500
7.....		3,180	8,310	23,300	12,000	15,800	52,400	12,600				* 2,500
8.....		3,180	7,200	20,800	11,300	14,800	49,700	11,600				* 2,500
9.....	5,420	3,180	7,200	17,800	10,700	13,900	45,700	11,600				2,650
10.....	5,670	3,180	6,680	15,800	10,100	15,200	39,200	11,600	* 7,590			2,650
11.....	5,670	3,480	6,680	15,800	9,500	16,500	34,300					2,740
12.....	5,420	3,840	8,310	14,500	9,500	20,800	31,000					2,740
13.....	3,840	3,840	10,100	14,500	9,500	25,100	28,000					2,740
14.....	3,480	6,680	16,500	13,900	9,200	30,000	27,000					2,650
15.....	3,180	7,200	18,500	13,900	8,900	28,000	27,000					2,650
16.....	3,180	7,740	16,500	16,500	8,900	24,200	26,000					2,570
17.....	3,480	28,600	16,500	21,600	9,500	21,600	24,200			* 4,350		2,570
18.....	3,480	29,000	16,500	26,000	9,500	22,500	22,500					2,650
19.....	3,480	20,000	15,800	23,300	19,200	39,200	20,000		11,300			2,650
20.....	3,480	15,200	15,800	21,600	25,100	51,100	19,200		10,700			2,840
21.....	3,480	13,200	15,800	18,500	25,100	56,600	17,800	* 9,680	10,100			3,180
22.....	3,180	12,600	13,200	17,800	21,600	62,500	17,100		8,310			3,180
23.....	3,180	12,000	12,600	18,500	19,200	59,500	15,800		7,740			2,950
24.....	3,180	12,000	12,000	24,200	18,900	51,100	15,200		8,310			2,840
25.....	3,180	12,000	11,600	27,000	17,100	40,400	14,500		8,310			2,740
26.....	3,180	11,300	12,600	27,000	15,800	33,200	13,900		7,740			2,650
27.....	4,700	11,000	10,100	30,000	17,100	29,000	13,200		7,740			2,650
28.....	7,200	10,100	10,100	28,000	20,000	29,000	13,200		7,740			2,650
29.....	5,180	9,500	8,900	24,200	-----	31,000	13,200		7,740			2,650
30.....	4,700	9,200	8,310	21,600	-----	37,300	13,200		7,740			2,650
31.....	4,250	-----	7,740	20,000	-----	76,600	-----		7,740			-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	5,670	3,180	3,970	0.545	0.63	244,000
November.....	29,000	3,180	9,030	1.24	1.38	537,000
December.....	18,500	6,680	11,100	1.52	1.75	682,000
January.....	30,000	7,740	19,200	2.64	3.04	1,180,000
February.....	25,100	8,900	14,600	2.01	2.09	811,000
March.....	76,600	13,900	31,100	4.27	4.92	1,910,000
April.....	200,000	13,200	43,500	6.39	7.13	2,770,000
May.....	15,000	-----	10,700	1.47	1.70	658,000
June.....	11,300	-----	8,000	1.10	1.23	476,000
July.....	7,200	-----	4,520	.621	.72	278,000
August.....	-----	-----	* 2,950	.405	.47	181,000
September.....	3,180	2,500	2,680	.368	.41	159,000
The year.....	200,000	2,500	13,700	1.88	25.47	9,890,000

* Estimated.

COAST FORK OF WILLAMETTE RIVER AT SAGINAW, OREG.

LOCATION.—Chain gage in NW. $\frac{1}{4}$ sec. 15, T. 20 S., R. 3 W., at Saginaw, 1 mile below mouth of Row River. Zero of gage is about 595.1 feet above mean sea level.

DRAINAGE AREA.—529 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 17,000 second-feet Apr. 1 (gage height, 10.4 feet); minimum, 23 second-feet Sept. 3, 4.

1923-1931: Maximum discharge, 28,600 second-feet Feb. 20, 1927 (gage height, 12.9 feet); minimum, 7 second-feet July 31, 1928.

REMARKS.—Records good except those below 100 second-feet, which are fair: No diversions or regulation above station. Gage-height record October to April furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	71	71	296	520	558	1,400	14,700	411	144	174	55	25
2.....	58	71	296	760	485	1,240	8,650	385	144	160	62	25
3.....	58	64	359	1,340	437	1,090	5,000	372	152	152	48	24
4.....	64	64	359	1,240	346	940	3,390	346	169	148	43	23
5.....	64	58	320	1,190	359	805	2,580	346	160	132	39	23
6.....	58	58	296	1,190	320	760	2,110	333	160	132	37	26
7.....	77	52	260	990	308	675	1,670	320	169	124	34	34
8.....	178	144	249	850	296	675	1,890	308	178	120	34	43
9.....	346	178	227	675	284	635	1,560	284	178	113	32	52
10.....	238	196	196	595	272	595	1,400	284	178	113	34	52
11.....	144	205	276	635	260	2,830	1,400	272	187	105	39	50
12.....	90	178	450	675	249	2,340	1,400	260	187	113	39	45
13.....	83	411	1,450	635	260	1,890	1,400	249	196	109	41	45
14.....	77	227	1,290	595	260	1,450	1,400	249	187	105	41	41
15.....	77	196	1,190	635	290	1,400	1,340	233	260	105	41	41
16.....	90	7,320	1,040	1,780	450	1,190	1,190	227	385	98	43	39
17.....	90	2,580	1,040	1,670	398	1,090	1,090	227	595	98	43	37
18.....	77	1,890	990	1,450	424	2,340	940	216	595	98	41	39
19.....	71	1,400	940	1,140	1,780	4,490	760	205	595	90	41	98
20.....	71	1,040	850	895	1,670	3,540	675	205	558	83	39	90
21.....	64	805	385	805	1,450	3,240	735	196	520	80	39	77
22.....	64	850	346	718	1,340	2,700	595	196	520	80	39	39
23.....	64	895	372	760	1,140	2,340	595	196	485	77	37	52
24.....	64	850	359	895	895	2,000	558	187	404	74	37	43
25.....	308	718	333	1,040	675	1,670	558	187	272	74	37	39
26.....	216	558	346	1,090	635	1,450	520	187	205	68	34	39
27.....	169	398	333	990	1,780	1,340	485	169	205	64	34	39
28.....	136	385	284	850	1,450	1,560	437	160	196	64	34	39
29.....	113	372	249	675	-----	1,890	450	152	196	61	32	34
30.....	105	346	260	675	-----	2,960	450	144	187	64	32	28
31.....	77	-----	333	635	-----	9,600	-----	144	-----	61	30	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	346	58	112	0.212	0.24	6,890
November.....	7,320	52	753	1.42	1.58	44,800
December.....	1,450	196	515	.974	1.12	31,700
January.....	1,780	520	922	1.74	2.01	56,700
February.....	1,780	249	681	1.29	1.34	37,800
March.....	9,600	595	2,000	3.78	4.36	123,000
April.....	14,700	437	1,990	3.76	4.20	118,000
May.....	411	144	247	.467	.54	15,200
June.....	595	144	286	.541	.60	17,000
July.....	174	61	101	.191	.22	6,210
August.....	55	30	38.7	.073	.08	2,380
September.....	98	23	42.7	.081	.09	2,540
The year.....	14,700	23	640	1.21	16.38	462,000

MCKENZIE RIVER AT MCKENZIE BRIDGE, OREG.

LOCATION.—Staff gage in sec. 14, T. 16 S., R. 5 E., at highway bridge at McKenzie Bridge.

DRAINAGE AREA.—353 square miles (at gaging cable $2\frac{1}{2}$ miles above gage).

RECORDS AVAILABLE.—August, 1910, to September, 1931.

EXTREMES.—Maximum discharge during year, 10,400 second-feet Apr. 1 (gage height, 6.5 feet, from high-water marks); minimum, 832 second-feet Oct. 20, Nov. 3-5 (gage height, 0.32 foot).

1910-1931: Maximum discharge, 18,000 second-feet Jan. 6, 1923 (gage height, 8.3 feet, from high-water marks); minimum, that of Oct. 20, Nov. 3-5, 1930.

REMARKS.—Records good except those estimated for Mar. 30 to Apr. 4, which are fair. No diversions or regulation above station. Discharge measurements made from cable $2\frac{1}{2}$ miles upstream from gage.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	868	844	934	940	1,400	1,080	7,460	1,580	1,270	1,080	928	868
2.....	868	838	934	947	1,360	1,080	4,490	1,580	1,270	1,080	916	868
3.....	874	832	934	947	1,310	1,080	3,390	1,580	1,230	1,080	916	868
4.....	874	832	934	947	1,270	1,080	3,250	1,540	1,230	1,080	916	868
5.....	880	832	934	947	1,230	1,080	3,110	1,540	1,230	1,080	904	862
6.....	886	838	934	954	1,190	1,080	3,110	1,540	1,230	1,080	904	862
7.....	916	838	934	954	1,150	1,080	3,110	1,540	1,230	1,070	904	862
8.....	904	838	934	954	1,150	1,120	3,110	1,540	1,230	1,070	904	862
9.....	892	844	940	954	1,120	1,120	2,970	1,540	1,190	1,070	904	862
10.....	886	844	947	954	1,120	1,310	2,840	1,490	1,190	1,070	892	862
11.....	880	856	961	954	1,120	1,490	2,710	1,400	1,150	1,070	892	862
12.....	868	862	1,080	961	1,120	1,580	2,580	1,360	1,150	1,040	892	862
13.....	856	868	1,400	961	1,120	1,580	2,330	1,360	1,150	1,020	880	862
14.....	856	874	1,360	961	1,120	1,540	2,330	1,360	1,120	1,010	880	862
15.....	856	880	1,310	961	1,080	1,490	2,160	1,310	1,120	1,010	880	862
16.....	856	904	1,230	961	1,080	1,490	1,940	1,310	1,080	1,010	880	862
17.....	856	954	1,230	968	1,080	1,540	1,940	1,310	1,080	1,000	880	868
18.....	844	947	1,190	1,010	1,080	1,540	1,880	1,310	1,080	1,000	880	868
19.....	838	947	1,190	1,040	1,080	1,830	1,830	1,310	1,080	1,000	880	868
20.....	832	940	1,080	1,190	1,080	2,100	1,780	1,310	1,080	1,000	880	868
21.....	838	940	1,080	1,270	1,080	2,210	1,780	1,260	1,080	968	880	868
22.....	844	934	1,070	1,400	1,080	2,210	1,680	1,270	1,080	968	880	862
23.....	850	934	1,070	1,440	1,080	2,210	1,880	1,270	1,080	968	880	862
24.....	856	934	1,060	1,490	1,080	2,160	1,630	1,270	1,080	968	880	862
25.....	856	934	1,060	1,540	1,080	2,160	1,630	1,270	1,080	968	880	862
26.....	862	940	1,050	1,580	1,080	2,160	1,630	1,270	1,080	954	880	862
27.....	868	940	1,040	1,580	1,080	2,160	1,580	1,270	1,080	940	880	862
28.....	862	940	1,040	1,580	1,080	2,160	1,580	1,270	1,080	940	880	862
29.....	862	940	1,030	1,490	-----	2,450	1,540	1,270	1,080	940	880	862
30.....	856	934	1,020	1,490	-----	3,540	1,540	1,270	1,080	928	868	862
31.....	850	-----	940	1,440	-----	7,660	-----	1,270	-----	928	868	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	916	832	864	2.45	2.82	53,100
November.....	954	832	893	2.53	2.82	53,100
December.....	1,400	934	1,060	3.00	3.46	65,200
January.....	1,580	940	1,150	3.26	3.76	70,700
February.....	1,400	1,080	1,140	3.23	3.36	63,300
March.....	7,660	1,080	1,880	5.33	6.14	116,000
April.....	7,460	1,540	2,490	7.05	7.87	148,000
May.....	1,580	1,270	1,380	3.91	4.51	84,800
June.....	1,270	1,080	1,140	3.23	3.60	67,800
July.....	1,080	928	1,010	2.86	3.30	62,100
August.....	928	868	880	2.52	2.90	54,700
September.....	868	862	864	2.45	2.73	51,400
The year.....	7,660	832	1,230	3.48	47.27	890,000

MCKENZIE RIVER NEAR VIDA, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 5, T. 17 S., R. 3 E., 1 mile above head of Martin Rapids and 5 miles east of Vida. Zero of gage is 855.56 feet above mean sea level.

DRAINAGE AREA.—930 square miles.

RECORDS AVAILABLE.—September, 1924, to September, 1931; at Martin Rapids (gage heights only) June, 1910, to March, 1911.

EXTREMES.—Maximum discharge during year, 38,000 second-feet Apr. 1 (gage height, 11.99 feet); minimum, 1,260 second-feet Nov. 7, Sept. 17 (gage height, 0.36 foot).

1924-1931: Maximum discharge, 47,200 second-feet Feb. 20, 1927 (gage height, 14.2 feet); minimum, that of Nov. 7, 1930, Sept. 17, 1931.

Flood of Jan. 6, 1923, reached a stage of 17.25 feet (discharge estimated, 60,000 second-feet).

REMARKS.—Records excellent. Discharge estimated Jan. 21-25. No diversion or regulation above station. Gage-height record furnished by Eugene Water Board.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,320	1,300	1,890	1,760	2,830	2,830	29,200	3,800	1,960	1,960	1,440	1,330.
2	1,320	1,300	2,180	2,030	2,660	3,000	15,900	3,710	1,960	1,890	1,440	1,330.
3	1,310	1,290	2,260	2,490	2,490	3,080	11,100	3,530	1,960	1,820	1,430	1,330.
4	1,300	1,280	2,100	2,330	2,410	3,000	8,640	3,350	1,960	1,820	1,420	1,320
5	1,300	1,270	2,030	2,490	2,330	2,740	7,510	3,260	1,890	1,820	1,420	1,310.
6	1,300	1,270	1,890	2,490	2,260	2,580	7,240	3,260	1,890	1,760	1,420	1,300.
7	1,700	1,260	1,820	2,330	2,180	2,410	6,970	3,170	1,890	1,760	1,410	1,310.
8	1,700	1,280	1,760	2,180	2,100	2,330	6,700	3,000	1,890	1,760	1,400	1,310.
9	1,560	1,330	1,760	2,030	2,030	2,490	6,060	2,830	1,890	1,700	1,400	1,360.
10	1,410	1,410	1,700	1,960	2,030	2,490	5,560	2,740	1,890	1,700	1,400	1,330.
11	1,340	1,350	2,490	2,100	1,960	2,830	5,190	2,740	1,820	1,700	1,400	1,290.
12	1,320	1,570	2,490	2,260	1,960	4,500	4,840	2,740	1,820	1,700	1,390	1,280.
13	1,310	1,820	3,800	2,260	1,890	4,720	4,840	2,740	1,820	1,630	1,390	1,280.
14	1,310	1,530	3,350	2,330	1,890	3,900	4,720	3,000	1,960	1,630	1,380	1,280.
15	1,340	2,380	2,920	2,740	1,890	3,530	4,610	2,740	2,100	1,620	1,380	1,270.
16	1,350	5,930	3,000	3,350	1,890	3,350	4,400	2,660	2,330	1,610	1,380	1,270.
17	1,330	3,260	2,830	3,170	2,030	3,350	4,280	2,740	2,490	1,570	1,380	1,260.
18	1,310	2,330	2,660	2,830	2,410	6,180	4,000	2,660	2,410	1,560	1,380	1,450.
19	1,300	2,030	2,580	2,660	3,350	6,970	3,800	2,490	2,410	1,550	1,370	1,580.
20	1,300	1,960	2,410	2,490	2,830	9,250	3,620	2,410	2,260	1,550	1,360	1,400.
21	1,290	1,960	2,260	2,410	2,660	10,200	3,530	2,330	2,030	1,630	1,360	1,320.
22	1,280	2,100	2,180	2,490	2,490	8,640	3,440	2,330	2,100	1,510	1,350	1,290.
23	1,290	2,330	2,100	3,170	2,490	6,700	3,350	2,260	2,260	1,510	1,350	1,280.
24	1,350	2,260	2,030	3,440	2,330	5,680	3,260	2,180	2,100	1,490	1,350	1,280.
25	1,610	2,180	1,960	3,260	2,330	5,070	3,170	2,180	2,030	1,490	1,340	1,280.
26	1,420	2,180	1,890	4,290	2,410	4,500	3,080	2,180	2,100	1,490	1,340	1,270.
27	1,450	2,100	1,820	4,000	2,740	4,500	3,170	2,100	2,260	1,490	1,340	1,270.
28	1,440	2,030	1,820	3,620	2,740	4,840	3,260	2,100	2,180	1,490	1,330	1,270.
29	1,390	1,960	1,760	3,350	-----	4,720	3,350	2,030	2,030	1,480	1,330	1,280.
30	1,340	1,890	1,760	3,170	-----	8,950	3,530	2,030	1,960	1,470	1,330	1,310.
31	1,340	-----	1,700	3,000	-----	25,700	-----	2,030	-----	1,460	1,330	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October	1,700	1,280	1,380	1.48	1.71	84,800
November	5,930	1,260	1,940	2.09	2.23	115,000
December	3,800	1,700	2,230	2.40	2.77	137,000
January	4,290	1,760	2,730	2.94	3.39	168,000
February	3,350	1,890	2,340	2.52	2.62	190,000
March	25,700	2,330	5,320	5.72	6.60	327,000
April	29,200	3,080	6,060	6.54	7.30	362,000
May	3,800	2,030	2,690	2.80	3.23	165,000
June	2,490	1,820	2,060	2.22	2.48	123,000
July	1,960	1,460	1,630	1.75	2.02	100,000
August	1,440	1,330	1,380	1.48	1.71	84,800
September	1,580	1,260	1,310	1.41	1.57	78,000
The year	29,200	1,260	2,590	2.78	37.83	1,870,000

EUGENE POWER CANAL NEAR WALTERTVILLE, OREG.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 23, T. 17 S., R. 1 W., 150 yards below intake and 2 miles east of Waltherville. Zero of gage is 597.0 feet above mean sea level.

RECORDS AVAILABLE.—July, 1926, to September, 1931. September, 1911, to March, 1915, at station 3 miles downstream.

EXTREMES.—Maximum discharge during year, 1,060 second-feet June 17, 18 (gage height, 3.28 feet); minimum, 605 second-feet Oct. 19 (gage height, 1.90 feet).

1911-1915, 1926-1931: Maximum discharge, 1,350 second-feet Mar. 20, Oct. 29, 1929; no flow at times.

REMARKS.—Records fair except those for July to September, which are poor. Canal diverts from McKenzie River in SE. $\frac{1}{4}$ sec. 23, T. 17 S., R. 1 W. Water is used for power purposes in NW. $\frac{1}{4}$ sec. 29 and is discharged into Camp Creek 4 miles above its mouth. Gage-height record furnished by Eugene Water Board.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	870	740	770	770	740	770	740	740	740	1,020	800	740
2	870	740	770	770	740	770	740	740	740	1,020	800	740
3	870	740	770	770	740	770	740	740	740	1,020	800	740
4	870	740	740	770	740	770	740	740	740	1,020	800	740
5	870	740	740	770	740	770	740	740	740	1,020	800	740
6	870	740	740	770	740	770	740	740	740	1,020	800	740
7	630	740	740	770	740	770	740	740	740	1,020	800	740
8	630	740	740	770	740	770	740	740	740	980	800	740
9	630	740	740	770	740	770	740	740	740	980	800	740
10	630	740	740	770	740	770	740	740	740	980	800	740
11	630	740	740	770	740	770	740	740	740	980	800	680
12	630	740	740	770	740	770	740	740	740	980	800	680
13	630	740	740	770	740	770	740	740	740	980	800	740
14	630	770	800	770	740	770	740	740	740	980	800	740
15	630	770	800	770	740	770	740	740	1,020	980	800	740
16	630	710	770	770	740	770	740	740	1,020	835	800	740
17	630	740	770	770	740	770	740	740	1,060	* 824	800	740
18	630	740	770	770	740	770	740	740	1,060	* 812	800	740
19	605	740	770	770	740	770	740	740	1,020	800	800	740
20	630	740	740	770	740	770	740	740	1,020	800	800	740
21	630	740	740	740	740	770	740	740	1,020	800	800	740
22	630	740	740	740	740	770	740	740	980	800	800	740
23	630	740	740	740	740	770	740	740	980	800	800	740
24	630	740	740	740	740	770	740	740	980	800	800	740
25	630	740	740	740	740	770	740	740	980	800	800	740
26	630	740	710	740	740	770	740	740	980	800	800	740
27	630	740	710	740	740	770	740	740	980	800	800	740
28	630	740	710	740	740	770	740	740	980	800	740	740
29	630	740	710	740	-----	770	740	740	980	800	740	740
30	630	770	710	740	-----	770	740	740	980	800	740	740
31	740	-----	710	740	-----	770	-----	740	-----	800	740	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	870	605	679	41,800
November	770	710	742	44,200
December	800	710	745	45,800
January	770	740	759	46,700
February	740	740	740	41,100
March	770	770	770	47,300
April	740	740	740	44,000
May	740	740	740	45,500
June	1,060	740	880	52,400
July	1,020	880	898	55,200
August	800	740	792	48,700
September	740	680	736	43,800
The year	1,060	605	769	556,000

* Interpolated.

LONG TOM RIVER AT MONROE, OREG.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 33, T. 14 S., R. 5 W., at Monroe, a quarter of a mile below mouth of Shafer Creek. Prior to Oct. 1, 1930, gage was 1 mile downstream. Zero of present gage is 261.97 feet above mean sea level.

DRAINAGE AREA.—391 square miles.

RECORDS AVAILABLE.—November, 1920, to September, 1931; incomplete prior to 1928.

EXTREMES.—Maximum discharge during year, 4,910 second-feet Apr. 3 (gage height, 12.4 feet); minimum, 11 second-feet Sept. 4-6 (gage height, 0.26 foot).

1920-1931: Maximum discharge, 18,600 second-feet Jan. 7, 1923 (gage height, 16.6 feet, present gage); minimum, 8 second-feet Sept. 5-19, 23, 1924.

REMARKS.—Records good. No diversions above station. Some fluctuation at low stages due to pondage at mill dam at Monroe.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	34	77	140	575	980	3,180	196	77	57	19	12
2	24	31	84	146	500	875	4,380	188	72	53	19	12
3	23	29	72	281	450	775	4,770	181	68	52	19	12
4	22	28	79	625	400	650	3,940	174	68	50	19	11
5	22	27	79	1,100	360	550	2,970	167	66	48	18	11
6	21	27	90	1,580	340	500	2,110	167	64	44	17	11
7	23	27	96	1,910	320	425	1,710	160	61	44	16	12
8	23	30	96	1,710	281	380	1,490	153	59	43	16	13
9	26	30	84	1,370	262	425	1,370	146	59	39	16	14
10	31	35	79	1,010	262	650	1,190	146	59	36	16	15
11	34	43	84	725	227	1,190	1,010	140	61	34	16	16
12	36	53	114	625	227	1,490	900	134	61	34	15	18
13	34	68	181	550	211	1,710	825	134	61	34	16	18
14	31	66	320	475	211	1,610	725	127	64	33	16	18
15	28	64	400	475	227	1,340	650	127	79	31	16	18
16	25	114	525	700	262	1,070	575	120	90	31	15	16
17	24	211	425	1,070	340	900	525	120	114	33	15	16
18	24	320	360	1,160	600	1,070	425	120	120	33	15	15
19	24	525	320	1,160	1,100	1,310	400	127	127	31	15	16
20	21	550	320	980	1,610	1,640	380	120	114	30	15	14
21	23	380	300	800	1,790	1,640	340	114	90	27	15	15
22	23	244	300	675	1,520	1,490	320	114	79	25	15	15
23	23	196	262	675	1,220	1,370	300	108	75	24	15	16
24	25	153	244	875	1,010	1,190	281	108	70	22	14	16
25	24	140	227	1,250	900	980	262	102	70	18	14	15
26	24	114	211	1,340	775	850	244	102	68	18	12	14
27	25	102	196	1,220	875	750	244	96	64	20	13	14
28	31	102	174	1,100	980	800	227	90	61	20	13	14
29	33	96	160	900	-----	925	211	90	61	20	13	14
30	31	79	153	750	-----	1,160	211	84	59	19	12	14
31	33	-----	140	650	-----	1,950	-----	79	-----	19	12	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October	36	21	26.3	0.067	0.08	1,620
November	550	27	131	.335	.37	7,800
December	525	72	202	.517	.60	12,400
January	1,910	140	904	2.31	2.66	55,600
February	1,790	211	637	1.63	1.70	35,400
March	1,950	380	1,050	2.69	3.10	64,600
April	4,770	211	1,210	3.09	3.44	72,000
May	196	79	130	.332	.38	7,990
June	127	59	74.7	.191	.21	4,440
July	57	18	33.0	.084	.10	2,030
August	19	12	15.4	.039	.04	947
September	18	11	14.5	.037	.04	863
The year	4,770	11	367	.932	12.72	266,000

NORTH SANTIAM RIVER AT DETROIT, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 12, T. 10 S., R. 5 E., a quarter of a mile east of Detroit. Discharge measurements made from bridge in NE. $\frac{1}{4}$ sec. 15, T. 10 S., R. 5 E.

DRAINAGE AREA.—231 square miles (above measuring section).

RECORDS AVAILABLE.—January, 1907, to October, 1909; October, 1928, to September, 1931. Comparable records at gage above Boulder Creek near Hoover, August, 1910, to October, 1913.

EXTREMES.—Maximum discharge during year, 15,000 second-feet Mar. 31 (gage height, 10.0 feet); minimum, 306 second-feet Sept. 26–28 (gage height, 0.32 foot).

1907–1909, 1928–1931: Maximum discharge, that of Mar. 31, 1931; minimum, that of Sept. 26–28, 1931.

REMARKS.—Records good. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	342	348	447	451	980	695	10,100	1,100	516	459	342	312
2.....	336	348	488	480	890	720	5,650	1,190	506	451	342	312
3.....	336	342	550	484	890	775	3,070	1,130	488	447	342	312
4.....	336	339	520	484	830	748	2,270	1,070	480	443	342	312
5.....	336	336	488	511	812	748	2,030	1,040	475	443	336	318
6.....	339	330	488	565	748	720	1,920	1,010	467	435	336	321
7.....	427	333	471	535	720	720	1,920	1,010	459	427	336	315
8.....	493	348	451	506	670	670	1,720	890	447	427	336	318
9.....	403	374	443	488	645	720	1,470	890	463	427	324	339
10.....	384	381	467	493	620	720	1,470	860	480	419	324	327
11.....	357	367	748	498	595	890	1,330	860	451	411	324	321
12.....	351	447	720	493	570	1,130	1,260	890	451	407	324	318
13.....	345	480	920	488	560	1,070	1,260	890	467	415	324	312
14.....	351	423	812	565	570	1,010	1,190	890	535	411	324	312
15.....	357	459	775	595	595	980	1,130	860	570	403	324	312
16.....	357	645	812	720	645	980	1,130	830	560	395	324	312
17.....	357	570	670	695	695	1,010	1,130	860	595	395	324	321
18.....	354	498	645	645	775	1,820	1,820	812	620	392	327	364
19.....	354	419	620	620	1,040	1,820	1,010	720	565	388	324	367
20.....	354	411	595	595	775	2,150	980	695	525	378	324	333
21.....	342	407	545	595	748	2,930	950	670	498	370	324	324
22.....	342	407	516	670	748	2,150	920	670	540	374	324	315
23.....	345	407	511	980	748	1,720	860	645	565	374	324	312
24.....	403	427	498	1,010	695	1,550	830	595	530	367	318	312
25.....	435	427	488	1,010	695	1,400	830	595	511	354	318	312
26.....	423	431	480	1,720	695	1,190	860	570	516	348	318	306
27.....	411	431	459	1,400	695	1,130	980	560	525	348	318	306
28.....	388	439	443	1,260	695	1,100	1,040	555	535	348	318	306
29.....	378	431	439	1,190	-----	1,130	1,130	545	525	348	318	312
30.....	360	435	435	1,130	-----	1,990	1,040	545	498	348	312	318
31.....	354	-----	427	1,070	-----	8,970	-----	545	-----	348	312	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acro-feet
October.....	493	336	369	1.60	1.84	22,700
November.....	645	330	415	1.80	2.01	24,700
December.....	920	427	560	2.42	2.79	34,400
January.....	1,720	451	740	3.20	3.69	45,500
February.....	1,040	560	727	3.15	3.28	40,400
March.....	8,970	670	1,460	6.32	7.29	89,800
April.....	10,100	830	1,780	7.71	8.60	106,000
May.....	1,190	545	806	3.49	4.02	49,600
June.....	620	447	512	2.22	2.48	30,500
July.....	459	348	397	1.72	1.98	24,400
August.....	342	312	326	1.41	1.63	20,000
September.....	367	306	319	1.38	1.54	19,000
The year.....	10,100	306	700	3.03	41.15	507,000

NORTH SANTIAM RIVER AT MEHAMA, OREG.

LOCATION.—Staff gage in NW. ¼ sec. 18, T. 9 S., R. 2 E., at Mehama, half a mile below Little North Santiam River.

DRAINAGE AREA.—665 square miles.

RECORDS AVAILABLE.—July, 1905, to March, 1907; October, 1910, to September, 1914; September, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 54,000 second-feet Mar. 31 (gage height, 16.0 feet); minimum, 454 second-feet Sept. 15-17 (gage height, 1.26 feet).

1905-1907, 1910-1914, 1921-1931: Maximum discharge, 62,000 second-feet Nov. 20, 1921, Jan. 6, 1923 (gage height, 17.5 feet); minimum, 420 second-feet Sept. 18, 1924 (gage height, 1.45 feet).

REMARKS.—Records good. No diversions for irrigation or regulation above station. Gage-height record October to April furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	536	755	1,420	1,200	2,920	2,610	36,800	3,080	1,200	1,310	622	467
2.....	529	710	1,900	1,260	2,610	2,920	14,000	3,080	1,090	1,260	614	467
3.....	522	710	2,170	2,030	2,310	2,920	9,900	2,920	1,040	1,200	598	490
4.....	522	670	1,900	1,770	2,170	2,920	7,900	2,610	1,040	1,090	574	480
5.....	508	670	1,650	2,920	2,030	2,610	6,850	2,460	990	1,090	566	474
6.....	508	630	1,530	2,760	1,900	2,310	6,600	2,610	940	1,090	558	474
7.....	614	630	1,420	2,310	1,770	2,030	6,100	2,610	890	990	558	515
8.....	1,200	614	1,420	2,030	1,650	2,030	6,600	2,310	940	940	558	480
9.....	1,090	670	1,260	1,770	1,530	2,310	5,850	2,030	940	940	550	515
10.....	940	990	1,200	1,650	1,480	2,310	4,910	1,900	990	940	550	522
11.....	755	800	1,530	1,770	1,420	2,610	4,680	2,030	990	890	550	487
12.....	670	710	2,030	2,310	1,360	3,820	4,030	2,170	890	845	543	474
13.....	630	2,610	4,030	2,170	1,310	4,680	4,030	2,170	890	845	529	474
14.....	630	1,650	3,430	2,030	1,310	3,820	4,240	2,170	990	845	522	467
15.....	630	1,360	2,610	2,610	1,310	3,250	4,240	2,030	1,360	800	529	454
16.....	670	8,450	2,760	3,080	1,360	3,080	3,820	1,770	1,310	800	522	454
17.....	630	3,820	2,610	3,250	1,420	2,920	3,620	2,030	2,170	755	522	454
18.....	630	2,460	2,310	2,920	2,460	6,850	3,430	2,310	2,610	755	529	508
19.....	622	2,030	2,170	2,610	5,140	7,630	3,080	2,030	2,460	755	515	890
20.....	606	1,770	2,030	2,310	3,430	10,500	2,760	1,770	1,900	755	508	710
21.....	582	1,770	1,900	2,170	2,760	11,100	2,610	1,530	1,530	710	522	582
22.....	558	1,900	1,770	2,170	2,460	9,320	2,610	1,530	1,650	710	501	522
23.....	558	2,030	1,650	3,820	2,310	7,110	2,460	1,480	2,030	670	494	494
24.....	670	2,030	1,650	4,680	2,170	5,370	2,310	1,420	2,030	710	501	490
25.....	1,650	1,900	1,530	3,620	2,030	4,680	2,310	1,420	1,770	670	487	474
26.....	1,090	1,770	1,530	5,610	1,900	4,030	2,170	1,420	1,650	670	487	467
27.....	1,450	1,650	1,420	5,610	2,460	3,620	2,460	1,510	1,770	670	494	467
28.....	1,310	1,530	1,420	4,680	2,310	3,820	2,760	1,260	1,650	630	480	467
29.....	1,060	1,530	1,310	4,030	-----	3,820	2,920	1,260	1,530	630	480	490
30.....	890	1,480	1,200	3,620	-----	7,370	2,920	1,260	1,420	630	480	550
31.....	800	-----	1,200	3,250	-----	43,800	-----	1,200	-----	622	467	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	1,650	508	778	1.17	1.35	47,800
November.....	8,450	614	1,680	2.53	2.82	100,000
December.....	4,030	1,200	1,870	2.81	3.24	115,000
January.....	5,610	1,200	2,840	4.27	4.92	175,000
February.....	5,140	1,310	2,120	3.19	3.32	118,000
March.....	43,800	2,030	5,750	8.65	9.97	354,000
April.....	36,800	2,170	5,630	8.47	9.45	335,000
May.....	3,080	1,200	1,970	2.96	3.41	121,000
June.....	2,610	890	1,420	2.14	2.39	84,500
July.....	1,310	622	846	1.27	1.46	52,000
August.....	622	-----	529	.795	.92	32,500
September.....	860	454	510	.767	.86	30,300
The year.....	43,800	454	2,160	3.25	44.11	1,570,000

LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OREG.¹

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 18, T. 9 S., R. 3 E., 6 miles east of Mehama.

DRAINAGE AREA.—100 square miles.

RECORDS AVAILABLE.—July to September, 1924; July to September, 1931.

EXTREMES.—Maximum discharge during period, 165 second-feet Sept. 19 (gage height, 1.44 feet); minimum, 23 second-feet Sept. 17 (gage height, 0.48 foot).
1924, 1931: Maximum discharge, about 300 second-feet Sept. 26, 1924; minimum, 22 second-feet Sept. 16, 1924.

REMARKS.—Records good except those estimated for July 1–12, which are fair.
No regulation or diversions above station.

Daily and monthly discharge, in second-feet, 1931

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1.....	140	41	25	16.....	87	30	24
2.....		39	25	17.....	76	30	23
3.....		37	25	18.....	73	30	83
4.....		37	24	19.....	67	29	165
5.....		36	24	20.....	67	29	67
6.....		36	24	21.....	61	29	45
7.....		35	26	22.....	58	28	38
8.....		34	26	23.....	56	28	34
9.....		34	31	24.....	54	27	31
10.....		33	30	25.....	51	26	30
11.....	94	33	28	26.....	49	27	29
12.....		33	26	27.....	47	26	29
13.....		33	26	28.....	47	26	29
14.....		32	25	29.....	45	26	34
15.....		31	25	30.....	44	25	41
				31.....	42	25	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
July.....	-----	42	98.2	0.932	1.07	5,780
August.....	41	25	31.1	.311	.36	1,910
September.....	165	23	36.4	.364	.41	2,170
The period.....	-----	-----	-----	-----	-----	9,870

¹ Records for 1924 published as near Mill City.

SOUTH SANTIAM RIVER AT WATERLOO, OREG.

LOCATION.—Staff gage in NW. ¼ sec. 28, T. 12 S., R. 1 W., 200 yards below highway bridge at Waterloo and 4 miles above Hamilton Creek.

DRAINAGE AREA.—640 square miles.

RECORDS AVAILABLE.—July, 1905, to March, 1907; October, 1910, to December, 1911; July, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 70,000 second-feet Mar. 31 (gage height, 22.0 feet); minimum, 120 second-feet Sept. 15, 16 (gage height, 2.05 feet).

1905-1907, 1910-11, 1923-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 100 second-feet several days in September, October, November, 1925.

REMARKS.—Records good except those for July to September, which are fair. Discharge interpolated Sept. 18. No diversions or regulation above station. Gage-height record October to April furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	170	325	1,030	825	2,110	2,440	39,100	1,260	432	730	199	123
2-----	170	295	1,140	925	1,800	2,620	16,100	1,730	432	682	199	123
3-----	170	265	1,200	1,950	1,660	2,800	10,700	1,390	395	635	187	123
4-----	170	265	1,200	2,270	1,520	2,440	8,330	1,260	395	592	187	123
5-----	170	265	1,030	3,180	1,390	2,110	6,240	1,260	395	550	187	123
6-----	170	238	925	2,990	1,260	1,880	5,520	1,140	360	510	187	123
7-----	170	212	825	2,800	1,140	1,660	5,060	1,080	360	470	187	138
8-----	1,820	212	730	1,880	1,030	1,660	5,760	925	325	432	187	156
9-----	875	212	730	1,660	1,030	1,660	5,060	925	325	395	160	152
10-----	635	432	825	1,520	1,030	1,950	4,390	875	395	395	160	152
11-----	470	325	1,030	1,590	925	2,270	3,770	825	360	360	160	152
12-----	432	325	1,520	2,110	925	4,180	3,770	825	360	360	160	135
13-----	295	1,880	2,270	1,950	825	4,830	3,370	778	325	325	149	135
14-----	212	1,030	2,270	1,880	825	3,570	3,570	778	395	325	149	135
15-----	212	1,800	2,110	2,800	825	3,180	3,970	778	470	325	149	120
16-----	212	13,800	2,620	3,770	925	2,800	3,570	825	470	325	149	120
17-----	212	5,290	2,270	4,180	825	2,440	3,180	925	1,520	325	149	126
18-----	212	2,990	2,270	3,370	1,660	3,180	2,800	925	1,950	295	149	243
19-----	212	2,110	2,110	2,800	4,390	6,000	2,440	825	1,880	295	149	360
20-----	212	1,800	1,800	2,620	2,440	8,610	2,270	825	1,260	277	149	295
21-----	212	2,270	1,660	2,440	2,270	8,610	1,950	778	1,260	277	138	238
22-----	212	2,110	1,520	2,270	1,800	7,510	1,950	778	1,260	277	138	170
23-----	212	2,110	1,520	2,800	1,730	6,990	1,800	730	1,260	277	138	170
24-----	265	1,950	1,390	3,970	1,590	5,060	1,660	635	1,200	249	138	170
25-----	825	1,800	1,260	3,180	1,520	3,970	1,520	592	925	249	138	152
26-----	550	1,660	1,140	4,390	1,460	3,370	1,390	550	925	249	138	135
27-----	550	1,520	1,030	5,060	2,440	3,180	1,390	550	1,080	249	123	135
28-----	730	1,390	1,030	3,770	2,270	3,370	1,390	510	1,030	273	123	135
29-----	550	1,260	925	3,180	-----	3,770	1,320	510	925	223	123	135
30-----	432	1,140	875	2,800	-----	8,900	1,260	470	825	223	123	152
31-----	395	-----	825	2,440	-----	41,400	-----	470	-----	199	123	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October-----	1,320	170	375	0.586	0.68	23,100
November-----	13,800	212	1,710	2.67	2.98	102,000
December-----	2,620	730	1,390	2.17	2.50	85,500
January-----	5,060	825	2,690	4.20	4.84	165,000
February-----	4,390	825	1,560	2.44	2.54	86,600
March-----	46,400	1,660	5,270	8.23	9.49	324,000
April-----	39,100	1,260	5,150	8.05	8.98	306,000
May-----	1,730	470	862	1.35	1.56	53,000
June-----	1,950	325	783	1.22	1.36	46,600
July-----	730	199	366	.572	.66	22,500
August-----	199	123	155	.242	.28	9,530
September-----	360	120	158	.247	.28	9,400
The year-----	46,400	120	1,700	2.66	36.15	1,230,000

MIDDLE SANTIAM RIVER NEAR FOSTER, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 2, T. 13 S., R. 2 E., half a mile above mouth of Green Peter Creek and 8 miles northeast of Foster. Zero of gage is 733.44 feet above mean sea level.

DRAINAGE AREA.—271 square miles.

RECORDS AVAILABLE.—August and September, 1931.

EXTREMES.—Maximum discharge during period, 375 second-feet Sept. 19 (gage height, 2.96 feet); minimum, 66 second-feet Sept. 16 (gage height, 1.55 feet).

REMARKS.—Records good except those estimated for Aug. 1, 3-16, 23, 30, Sept. 6, 13, which are fair. No regulation or diversions above station.

Daily and monthly discharge, in second-feet, 1931

Day	Aug.	Sept.	Day	Aug.	Sept.
1	125	71	17	94	68
2	123	71	18	94	172
3		69	19	90	330
4		69	20	89	178
5		67			
			21	88	122
6		70	22	86	101
7		94	23	86	89
8		83	24	85	83
9		90	25	83	79
10	105	92			
			26	82	76
11		82	27	79	73
12		73	28	75	72
13		72	29	73	82
14		72	30	72	101
15		69	31	72	
16		67			

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
August	72		95.7	0.353	0.41	5,880
September	330	67	94.6	.349	.39	5,630

ALBANY POWER CANAL NEAR LEBANON, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 2, T. 12 S., R. 2 W., one-eighth of a mile below spillway and 1 mile north of Lebanon.

RECORDS AVAILABLE.—April, 1926, to September, 1931. Comparable records, February to December, 1919, at station near Albany.

EXTREMES.—Maximum discharge during year, 260 second-feet Jan. 25 (gage height, 3.24 feet); minimum (estimated), 10 second-feet Oct. 9.

1919, 1926-1931: Maximum discharge, 295 second-feet Mar. 2, May 29-31, 1919; probably almost dry at times.

REMARKS.—Records fair. Gage read about three times a week; mean monthly discharge is mean of discharges on days gage was read except that for July, which was estimated. This 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. Gage-height record furnished by Mountain States Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			238						227			
2				216	227	249		238				87
3		196	238		227	260	238		196		138	
4								216				87
5		186	216	238					196		120	
6												
7	109	156		238	216	249	238	216		216	138	111
8	239		196				216		196	206		111
9	181			238	196	227	227	216	196			
10		186	216				238		196	206	120	120
11						238						
12		206	216	249	206				196		120	120
13	138	249		238	206	249	238	196				
14			249								111	87
15	156						238	196	238			
16				227	206	238						96
17	147	196	260		206	260	238		249		91	91
18								227				
19		238	249	227					249		87	
20	147				249	260	238	238				
21				238							87	186
22	138	238	238	249		216	238	238	238			176
23					238							
24	147	238	227	260	227	238	249	227	238		87	138
25												
26		238	227	249					238		87	
27	186					227	227	238				
28		238		249	238						87	95
29	216							227	227			
30			206	227		249						87
31	196										87	

Month	Mean	Run-off in acre-feet	Month	Mean	Run-off in acre-feet
October	167	10,300	May	223	13,700
November	214	12,700	June	222	13,200
December	229	14,100	July	190	11,700
January	239	14,700	August	105	6,460
February	220	12,200	September	114	6,780
March	243	14,900			
April	235	14,000	The year	200	145,000

YAMHILL RIVER AT LAFAYETTE, OREG.

LOCATION.—Staff gage in sec. 7, T. 4 S., R. 3 W., above Government locks 1 mile southeast of Lafayette. Zero of gage is 67.80 feet above mean sea level.

DRAINAGE AREA.—728 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931. Records of stage below locks October, 1908, to September, 1914.

EXTREMES.—Maximum discharge during year (estimated), 27,000 second-feet Apr. 2 (gage height, 30.0 feet); minimum, 35 second-feet Sept. 3, 4.

1928-1931: Maximum discharge, that of Apr. 2, 1931; minimum, 35 second-feet Sept. 19-23, 26, 1929, Sept. 3, 4, 1931.

Maximum stage known, 40.7 feet Jan. 9, 1923.

REMARKS.—Records fair except those for Apr. 1-7, August to September, which are poor. Discharge estimated Oct. 13, Apr. 1-7, July 6, 7, Aug. 24-27. No diversions or regulation above station. Gage-height record furnished by Engineer Corps, United States Army.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	117	228	560	2,200	2,700	24,000	690	172	232	80	40
2	83	117	208	840	2,090	2,700	25,000	690	165	204	70	41
3	78	114	285	2,320	1,760	2,320	18,500	690	135	200	68	35
4	79	114	335	2,830	1,560	2,090	14,500	655	165	200	60	35
5	78	112	335	4,540	1,360	1,870	13,000	590	162	165	60	36
6	79	109	335	5,730	1,270	1,660	10,500	560	135	155	60	40
7	79	109	335	5,370	1,270	1,560	8,000	530	135	145	62	46
8	83	110	285	3,750	920	1,360	5,550	530	135	135	63	50
9	95	112	276	2,960	920	1,660	4,700	530	117	130	63	68
10	112	200	285	2,200	880	3,360	3,780	445	141	112	68	82
11	112	165	276	1,980	840	4,230	3,220	445	172	117	66	92
12	95	295	335	1,760	760	5,030	3,090	362	172	130	59	83
13	89	258	655	1,660	760	5,030	2,570	335	186	130	63	80
14	83	690	1,870	1,460	620	4,230	2,320	335	208	104	63	80
15	83	445	1,360	1,560	760	3,500	2,570	390	335	98	60	74
16	84	690	1,180	2,090	760	2,960	2,320	335	445	102	59	70
17	70	2,200	1,180	4,080	1,270	2,440	2,090	390	300	112	60	69
18	92	1,460	1,180	3,780	3,780	4,230	1,870	418	249	109	62	79
19	94	1,000	500	2,830	6,100	6,300	1,660	390	240	95	62	80
20	94	760	1,560	2,440	5,910	6,900	1,560	335	240	92	60	98
21	94	690	1,360	2,090	4,380	6,300	1,270	335	220	83	53	130
22	92	560	1,180	2,440	3,090	6,900	1,180	320	193	82	53	98
23	83	500	1,000	6,100	2,440	5,200	1,090	296	240	80	46	95
24	112	500	1,270	7,830	2,090	4,380	1,040	285	240	68	44	80
25	112	335	1,090	9,380	1,870	3,500	960	240	244	68	42	68
26	232	305	1,090	8,330	1,980	3,220	920	240	240	70	41	68
27	168	290	840	6,900	2,700	2,570	880	240	530	68	39	78
28	135	272	760	5,910	2,960	3,500	840	236	500	70	37	80
29	141	249	690	4,230	4,080	760	232	335	80	38	80	80
30	135	240	620	2,440	5,200	690	212	276	80	40	92	92
31	130	560	2,700	10,800	200	80	40	-----	-----	-----	-----	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October	232	70	103	0.141	.16	6,330
November	2,200	109	437	.600	.67	26,000
December	1,870	208	787	1.04	1.20	46,500
January	9,380	560	3,650	5.01	5.78	224,000
February	6,100	620	2,050	2.82	2.94	114,000
March	10,800	1,360	3,930	5.40	6.23	242,000
April	25,000	690	5,350	7.35	8.20	318,000
May	690	200	403	.554	.64	24,800
June	530	117	234	.321	.36	13,900
July	232	68	116	.159	.18	7,130
August	88	37	55.5	.076	.09	3,410
September	130	35	71.6	.098	.11	4,280
The year	25,000	35	1,420	1.95	26.56	1,030,000

HASKINS CREEK NEAR McMinnville, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 13, T. 3 S., R. 6 W., 300 feet above flow line of water-supply reservoir of city of McMinnville and 11 miles northwest of McMinnville.

DRAINAGE AREA.—5.7 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 610 second-feet Mar. 31 (gage height, 4.00 feet); minimum, 1.2 second-feet Aug. 30 (gage height, 0.52 foot).
1928-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 1.2 second-feet Sept. 3, 1930, Aug. 30, 1931 (gage height, 0.52 foot).

REMARKS.—Records good except those for Mar. 31 and Apr. 1, which are fair. No diversions or regulation above station. Gage-height record furnished by city of McMinnville.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	2.5	3.8	11	32	36	280	18	5.1	4.5	2.0	1.4
2	1.8	2.4	7.3	21	27	35	175	18	5.1	4.4	1.9	1.4
3	1.8	2.5	6.8	32	26	33	130	15	5.1	4.4	1.9	1.4
4	1.8	2.5	6.5	41	23	30	119	13	4.7	4.1	1.8	1.4
5	1.8	2.5	6.5	70	22	28	77	12	4.7	3.7	2.0	1.4
6	1.9	2.3	6.2	63	20	26	70	12	4.7	3.1	2.1	3.1
7	3.6	2.2	5.7	50	19	24	90	13	4.5	3.6	2.0	3.6
8	2.4	4.4	5.4	40	17	23	81	11	4.7	3.4	1.9	2.1
9	2.5	6.8	5.7	33	16	45	68	11	4.7	3.6	1.8	1.9
10	2.2	5.4	5.7	28	15	52	59	9.4	5.1	3.6	1.9	2.0
11	2.0	3.8	6.5	28	15	60	50	9.1	4.7	3.6	1.9	1.9
12	1.9	9.8	12	25	14	60	44	9.4	4.4	3.4	1.9	1.9
13	1.8	6.5	28	22	14	54	41	9.1	4.7	3.7	1.8	1.8
14	1.9	4.2	18	25	14	48	46	9.1	6.0	3.9	1.9	1.7
15	2.3	22	14	28	14	43	42	8.8	7.4	3.6	1.8	1.8
16	2.2	28	14	53	14	38	38	9.1	6.4	3.4	1.8	1.7
17	2.0	17	18	54	43	40	35	9.1	6.0	3.3	1.7	1.8
18	2.0	11	17	46	53	66	31	9.1	5.8	2.9	1.8	3.4
19	1.9	11	17	38	52	88	29	8.5	5.3	2.7	1.9	2.9
20	1.9	11	15	33	43	93	27	8.2	4.9	2.6	1.8	2.1
21	1.9	9.5	14	34	38	85	24	8.0	4.9	2.6	1.9	2.0
22	1.9	7.7	12	64	34	74	23	8.0	5.8	2.5	1.8	1.7
23	2.2	6.8	14	116	31	64	22	7.4	5.3	2.5	1.7	1.5
24	3.6	6.0	13	98	28	58	23	7.1	4.9	2.5	1.8	1.5
25	3.1	5.4	12	90	28	52	21	6.8	5.3	2.4	1.6	1.6
26	3.1	4.9	11	80	32	47	19	6.6	9.4	2.1	1.7	1.7
27	3.6	4.4	11	66	42	45	18	6.2	6.8	2.3	1.6	1.7
28	2.6	4.2	10	56	40	58	18	5.8	5.1	2.1	1.4	1.8
29	2.5	4.0	9.5	48	-----	68	18	5.5	5.3	2.3	1.4	2.5
30	2.4	4.0	9.1	42	-----	142	18	5.1	4.7	2.1	1.4	3.4
31	2.4	-----	8.7	38	-----	500	-----	5.1	-----	2.1	1.4	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	3.6	1.7	2.28	0.400	0.46	140
November	28	2.2	7.16	1.26	1.41	426
December	28	3.8	11.1	1.95	2.25	682
January	116	11	47.5	8.33	9.60	2,920
February	53	14	27.4	4.81	5.01	1,520
March	500	23	68.2	12.0	13.83	4,190
April	280	18	57.9	10.2	11.38	3,450
May	18	5.1	9.47	1.66	1.91	582
June	9.4	4.4	5.38	.944	1.05	320
July	4.5	2.1	3.13	.549	.63	192
August	2.1	1.4	1.78	.312	.36	109
September	3.4	1.4	20.2	.346	.39	117
The year	500	1.4	20.2	3.54	48.28	14,600

• Interpolated.

WILLAMETTE RIVER BASIN

89

MOLALLA RIVER NEAR CANBY, OREG.

LOCATION.—Staff gage in NE. ¼ sec. 9, T. 4 S., R. 1 E., at bridge 1½ miles south of Canby. Zero of gage is 104.27 feet above mean sea level.

DRAINAGE AREA.—323 square miles.

RECORDS AVAILABLE.—August, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 22,300 second-feet Mar. 31 (gage height, 14.7 feet); minimum, 42 second-feet Aug. 23, 24.

1928-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 41 second-feet Sept. 12, 1929.

REMARKS.—Records good except those estimated, Oct. 1-29, which are fair. A few small irrigation diversions above gage.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		120	332	356	940	1,060	15,200	490	133	430	68	48
2		108	445	445	820	1,060	7,820	525	116	342	68	46
3		110	590	980	740	1,140	4,970	460	116	320	71	46
4		92	480	980	665	1,060	3,550	402	119	266	60	46
5		95	412	2,030	590	900	2,960	375	116	252	60	48
6		69	368	1,710	590	820	2,680	364	112	234	60	51
7		79	332	1,320	515	740	3,100	430	112	189	60	51
8		102	305	1,140	480	665	3,100	364	106	181	60	63
9		125	295	940	445	740	2,550	326	109	155	60	66
10		280	280	820	412	780	2,180	300	116	126	55	60
11		226	412	820	380	940	1,960	275	122	133	60	55
12		209	515	940	374	1,320	1,760	256	112	144	63	55
13		702	980	900	356	1,510	1,660	238	119	140	60	55
14		445	1,060	860	320	1,320	1,660	238	119	136	60	55
15	121	374	860	980	332	1,140	1,560	234	201	133	60	51
16		3,290	940	1,140	356	1,060	1,380	217	261	126	58	46
17		1,410	900	1,230	344	960	1,290	217	402	119	53	46
18		940	860	1,230	1,230	2,380	1,160	234	1,020	112	55	66
19		702	860	1,060	2,140	2,880	1,020	310	860	106	51	103
20		628	740	980	1,410	3,010	940	270	700	100	48	126
21		590	665	900	1,140	3,150	900	248	430	100	46	126
22		665	628	980	960	2,880	860	230	490	94	44	82
23		702	628	1,320	940	2,260	700	213	665	94	42	79
24		665	628	1,710	820	2,380	665	193	630	94	42	66
25		590	590	1,510	820	1,710	630	181	560	88	44	55
26		552	515	2,140	820	1,510	595	181	560	85	46	55
27		515	480	2,030	1,060	1,410	525	162	630	79	46	55
28		445	412	1,710	980	1,510	525	155	490	77	48	66
29		380	380	1,410	-----	1,610	490	147	490	77	48	66
30	128	350	368	1,230	-----	2,380	490	147	430	71	48	77
31	128	-----	344	1,060	-----	10,000	-----	140	-----	71	48	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	-----	-----	121	0.375	0.43	7,440
November	3,290	69	519	1.61	1.80	30,900
December	1,060	280	668	1.76	2.03	34,900
January	2,140	356	1,190	3.68	4.24	73,200
February	2,140	320	750	2.32	2.42	41,700
March	15,000	665	1,980	6.13	7.07	122,000
April	15,200	490	2,800	7.12	7.94	137,000
May	525	140	275	.851	.98	16,900
June	1,020	106	348	1.08	1.20	20,700
July	430	71	151	.467	.54	9,280
August	71	42	54.6	.169	.19	3,360
September	126	46	63.7	.197	.22	3,790
The year	15,200	42	691	2.14	29.06	501,000

PUDDING RIVER AT AURORA, OREG.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 12, T. 4 S., R. 1 W., at highway bridge at Aurora, half a mile above mouth of Mill Creek. Zero of gage is 77.44 feet above mean sea level.

DRAINAGE AREA.—493 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 9,950 second-feet Apr. 1 (gage height, 21.4 feet); minimum, 49 second-feet Sept. 2, 5 (gage height, 0.40 foot).

1928-1931: Maximum discharge, that of Apr. 1, 1931; minimum, 48 second-feet Oct. 2, 1929.

Maximum known stage, 25.0 feet Jan. 9, 1923 (discharge, about 14,500 second-feet).

REMARKS.—Records good. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	96	164	310	440	1,210	1,210	9,100	540	156	420	88	50
2	88	148	310	480	1,080	1,140	9,100	520	148	380	88	49
3	84	148	420	776	1,010	1,110	8,380	520	156	360	86	52
4	78	138	480	1,180	936	1,060	7,500	500	164	320	86	50
5	80	135	440	1,690	867	985	6,550	460	148	292	84	49
6	78	130	400	2,260	798	890	5,920	440	135	263	82	53
7	81	126	380	2,200	732	798	5,320	400	130	227	82	52
8	88	121	340	1,720	688	754	4,810	420	130	209	81	52
9	124	122	320	1,480	624	732	4,390	420	126	200	80	53
10	148	140	310	1,300	582	732	3,690	380	129	191	80	60
11	140	282	340	1,140	561	960	2,780	340	137	173	78	69
12	134	282	420	1,080	520	1,210	1,950	320	134	173	78	69
13	124	380	540	1,060	500	1,390	1,840	301	140	164	76	68
14	110	500	688	1,010	460	1,420	1,780	282	148	164	74	66
15	105	440	821	960	440	1,270	1,750	282	134	164	72	66
16	104	732	798	1,080	440	1,160	1,690	272	173	156	72	68
17	110	1,660	798	1,180	500	1,110	1,540	263	254	148	70	66
18	114	1,390	821	1,600	710	1,270	1,390	360	732	148	69	69
19	114	1,060	821	1,630	1,660	2,540	1,240	360	867	140	69	74
20	99	821	867	1,450	1,980	2,860	1,080	301	798	137	69	102
21	93	710	867	1,300	1,750	2,900	1,010	282	645	132	69	132
22	94	624	798	1,300	1,570	3,060	867	272	540	124	70	118
23	102	561	732	1,420	1,390	2,900	754	254	561	118	72	99
24	108	520	710	1,660	1,210	2,460	732	245	561	114	76	93
25	119	500	732	2,200	1,140	2,020	732	227	520	110	81	81
26	156	460	688	2,380	1,040	1,780	710	218	480	105	78	68
27	218	420	603	2,380	1,180	1,720	645	209	561	104	69	68
28	209	400	561	2,160	1,210	1,750	603	209	645	102	62	66
29	236	360	520	1,920	-----	2,020	582	191	561	98	57	69
30	209	340	480	1,570	-----	2,090	561	182	460	93	55	70
31	182	-----	460	1,390	-----	3,910	-----	173	-----	88	53	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October	236	78	123	0.249	0.29	7,560
November	1,690	121	460	.933	1.04	27,400
December	867	310	573	1.16	1.34	35,200
January	2,380	440	1,460	2.96	3.41	89,800
February	1,980	440	1,057	1.94	2.02	53,100
March	3,910	732	1,650	3.35	3.86	101,000
April	9,100	561	2,970	6.02	6.72	177,000
May	540	173	327	.683	.76	20,100
June	867	126	349	.708	.79	20,800
July	420	88	181	.367	.42	11,100
August	88	53	74.4	.161	.17	4,578
September	132	49	70.0	.142	.16	4,170
The year	9,100	49	763	1.55	20.98	552,000

TUALATIN RIVER NEAR WILLAMETTE, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 34, T. 2 S., R. 1 E., 300 feet above county bridge and 1 mile northwest of Willamette.

DRAINAGE AREA.—710 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 7,330 second-feet Apr. 5 (gage height, 9.76 feet); minimum, 5 second-feet Sept. 2-6 (gage height, 0.41 foot).

1928-1931: Maximum discharge, that of Apr. 5, 1931; minimum, 2 second-feet Aug. 14-21, 1928 (gage height, 0.25 foot).

REMARKS.—Records excellent except those during periods October to December, June to September, which are good. Oswego Canal diverts from Tualatin River above station and returns water to Willamette River below station. Some regulation in low-water season by flashboards on crest of Oswego Canal diversion dam.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	52	69	168	204	3,000	1,910	6,000	705	172	204	20	6
2.....	46	61	168	204	2,470	1,690	6,000	705	168	180	19	5
3.....	37	56	191	242	2,150	1,550	6,520	705	162	148	19	6
4.....	31	47	216	610	1,690	1,550	7,040	655	140	130	18	5
5.....	28	47	256	1,170	1,350	1,550	7,190	680	105	117	16	5
6.....	25	43	284	1,760	1,170	1,350	7,050	605	126	98	14	6
7.....	32	45	270	1,990	1,050	1,230	6,690	555	130	87	15	7
8.....	37	45	242	1,990	930	1,170	5,970	532	130	77	15	7
9.....	42	50	242	1,760	815	1,170	4,230	510	130	68	16	25
10.....	50	66	229	1,550	760	1,230	4,350	488	130	63	16	38
11.....	52	78	216	1,350	710	1,410	4,230	442	138	60	16	38
12.....	50	109	204	1,110	610	1,760	4,120	400	140	59	16	32
13.....	45	119	229	930	610	1,830	3,790	380	145	55	17	25
14.....	53	142	270	930	610	1,990	3,380	340	150	52	14	22
15.....	46	190	361	815	610	1,830	2,910	340	160	50	11	20
16.....	35	216	495	930	610	1,760	2,550	340	210	50	10	19
17.....	33	294	435	1,230	660	1,690	2,230	340	305	51	9	18
18.....	29	455	378	1,690	815	2,150	1,910	340	360	50	9	25
19.....	29	455	345	1,830	1,550	2,550	1,620	340	322	50	9	32
20.....	32	435	329	1,760	2,150	2,820	1,410	322	322	46	8	32
21.....	29	378	270	1,550	2,550	3,000	1,350	322	305	45	8	36
22.....	29	314	284	1,550	2,550	3,090	1,230	305	240	44	7	44
23.....	32	270	284	1,690	2,470	3,090	1,110	305	178	43	7	39
24.....	35	256	209	2,150	2,390	3,000	990	288	172	34	7	32
25.....	39	216	284	2,550	2,070	3,000	930	270	183	28	7	26
26.....	42	204	284	2,910	1,760	2,820	930	270	180	24	7	21
27.....	58	191	256	3,290	1,690	2,640	870	240	189	23	7	19
28.....	76	180	256	3,390	1,830	2,470	815	240	186	22	7	19
29.....	69	168	242	3,390	-----	2,390	760	210	225	20	6	19
30.....	74	168	216	3,390	-----	2,640	705	170	225	20	7	21
31.....	76	-----	216	3,190	-----	4,260	-----	165	-----	19	7	-----

Month	River only				River and Oswego Canal (combined)					
	Maximum	Minimum	Mean	Run-off in acre-feet	Maximum	Minimum	Mean	Second-feet per square mile	Run-off	
									Depth in inches	Acres-feet
October.....	76	25	43.3	2,660	132	79	98.5	0.139	0.16	6,060
November.....	455	43	178	10,600	545	97	226	.318	.35	13,490
December.....	495	168	272	16,700	561	174	324	.456	.53	19,900
January.....	3,390	204	1,710	105,000	3,530	281	1,810	2.55	2.94	111,000
February.....	3,000	610	1,490	82,800	3,130	661	1,560	2.20	2.29	86,800
March.....	4,290	1,170	2,150	132,000	4,460	1,240	2,250	3.17	3.66	138,000
April.....	7,190	705	3,290	196,000	7,340	748	3,420	4.82	5.38	204,000
May.....	705	165	402	24,700	748	218	437	.615	.71	26,900
June.....	360	105	191	11,400	430	166	256	.361	.40	15,200
July.....	204	19	65.1	4,000	272	78	127	.179	.21	7,810
August.....	20	6	11.7	719	79	62	67.8	.095	.11	4,170
September.....	44	5	21.7	1,290	105	62	82.4	.116	.13	4,900
The year.....	7,190	5	812	588,000	7,340	62	882	1.24	16.87	638,000

OSWEGO CANAL NEAR OSWEGO, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 17, T. 2 S., R. 1 E., 3 miles southwest of Oswego.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 258 second-feet Apr. 4, 12 (gage height, 8.20 feet); minimum (estimated), 5 second-feet Nov. 26–30.

1928–1931: Maximum discharge, that of Apr. 4, 12, 1931; minimum, that of November, 1930.

REMARKS.—Records fair except those for Apr. 19 to Sept. 30, which are poor. Oswego Canal diverts from Tualatin River in NW. $\frac{1}{4}$ sec. 20, three-quarters of a mile above gage; diversion dam on Tualatin River is in NE. $\frac{1}{4}$ sec. 33, $2\frac{1}{4}$ miles by river below canal.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	54	* 6	77	128	80	175	43	55	68	59	57
2	58	54	* 6	80	109	77	208	43	55	66	59	57
3	56	54	* 6	87	98	82	233	43	55	66	59	57
4	56	54	6	109	85	82	268	41	59	66	59	57
5	54	54	* 8	77	68	82	148	41	61	66	57	57
6	54	54	* 10	77	68	80	128	41	61	63	57	59
7	56	54	20	77	68	70	121	41	61	63	57	59
8	54	63	20	106	61	68	115	37	61	63	57	59
9	56	63	21	101	61	70	98	37	63	63	57	59
10	56	63	23	93	57	70	98	35	63	63	57	61
11	56	63	51	82	57	82	80	33	63	63	55	63
12	56	63	63	77	53	85	258	33	63	63	55	63
13	56	66	63	77	51	86	248	33	63	63	55	63
14	56	66	63	75	53	86	238	33	63	63	55	63
15	56	68	68	75	51	82	208	32	66	63	55	63
16	54	75	66	70	51	82	193	32	72	63	55	61
17	54	82	66	87	55	80	189	32	72	63	55	61
18	54	90	61	93	57	93	163	32	70	63	53	63
19	54	87	61	115	87	93	68	32	68	61	53	63
20	54	45	61	101	98	121	63	32	68	61	55	63
21	54	45	80	101	104	151	85	32	68	61	55	63
22	54	27	80	90	93	151	53	30	68	59	55	61
23	54	27	80	98	72	118	53	30	66	59	55	61
24	54	24	80	109	75	118	49	30	68	59	55	61
25	54	24	82	115	90	115	49	30	66	59	55	61
26	54	* 5	82	134	82	109	47	30	68	59	55	61
27	56		82	134	80	106	47	29	68	59	55	61
28	56		82	137	82	106	43	27	72	59	57	61
29	56		80	137	—	106	43	25	70	59	57	61
30	56		80	134	—	106	43	53	68	59	57	61
31	56	—	77	128	—	175	—	53	—	59	57	—

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	58	54	55.2	3,390
November	90	—	48.1	2,860
December	82	6	52.4	3,220
January	137	70	98.5	6,000
February	128	51	74.8	4,150
March	175	68	97.1	5,970
April	258	43	127	7,560
May	53	25	35.3	2,170
June	72	55	64.8	3,860
July	68	59	62.1	3,820
August	59	53	56.0	3,440
September	63	57	60.7	3,610
The year	258	—	69.2	50,100

* Estimated.

CLACKAMAS RIVER AT BIG BOTTOM, OREG.

LOCATION.—Water-stage recorder in SE. ¼ sec. 26, T. 6 S., R. 7 E., just below Pot Creek at lower end of Big Bottom, half a mile above proposed dam site, and 28 miles southeast of Estacada.

DRAINAGE AREA.—132 square miles.

RECORDS AVAILABLE.—April, 1920, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,750 second-feet Mar. 31 (gage height, 8.28 feet); minimum, 190 second-feet on several days in August and September (gage height, 1.25 feet).

1920-1931: Maximum discharge, that of Mar. 31, 1931; minimum, that in August and September, 1931.

REMARKS.—Records good. No regulation or diversions above station. Field data furnished by Portland General Electric Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	202	204	210	210	364	304	3,940	602	249	230	194	190
2	202	204	220	220	343	301	1,960	625	252	228	194	192
3	200	204	224	220	323	307	1,430	580	247	225	192	192
4	200	202	220	217	313	307	1,160	558	244	223	192	192
5	200	202	217	253	304	304	1,040	535	241	218	197	192
6	202	202	215	245	291	297	1,010	515	238	218	199	197
7	227	202	212	234	282	291	1,010	515	236	215	197	197
8	215	204	210	229	276	288	902	471	233	213	194	199
9	215	220	210	227	267	304	825	435	236	211	194	201
10	208	222	212	224	264	313	775	419	238	211	192	197
11	204	210	258	232	258	371	725	412	236	208	194	194
12	204	242	250	239	256	431	675	404	230	208	194	194
13	204	234	297	234	253	427	650	398	233	206	192	192
14	206	217	264	237	250	393	625	401	261	206	192	192
15	208	242	245	245	253	382	580	376	287	206	192	192
16	206	282	245	261	250	386	580	376	275	206	192	192
17	206	242	239	253	297	393	580	390	300	203	190	192
18	206	224	234	245	435	662	535	373	287	201	190	218
19	204	220	232	239	494	760	495	342	269	199	190	225
20	204	220	227	234	404	860	479	325	252	199	190	208
21	202	220	222	234	368	1,020	475	309	247	199	190	199
22	202	220	220	276	347	860	475	300	261	201	190	194
23	206	217	217	371	333	710	455	287	264	199	190	192
24	227	215	215	368	320	640	443	281	252	199	190	192
25	232	212	210	368	313	572	443	275	247	199	190	192
26	212	210	210	550	317	510	439	266	247	199	192	192
27	210	210	208	510	310	486	467	258	247	199	192	192
28	210	210	206	482	301	462	515	252	244	197	190	192
29	206	210	208	443	-----	443	535	252	238	197	190	194
30	206	208	200	416	-----	681	580	249	236	197	190	197
31	204	-----	208	393	-----	4,130	-----	249	-----	197	190	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	232	200	208	1.58	1.82	12,800
November	282	202	218	1.65	1.84	13,000
December	297	200	225	1.70	1.96	13,800
January	550	210	294	2.23	2.57	18,100
February	494	250	314	2.38	2.48	17,400
March	4,130	288	600	4.55	5.25	36,900
April	3,940	439	827	6.27	7.00	49,200
May	625	249	388	2.94	3.39	23,900
June	300	230	251	1.90	2.12	14,900
July	230	197	207	1.57	1.81	12,700
August	199	192	192	1.45	1.67	11,800
September	225	190	196	1.48	1.65	11,700
The year	4,130	190	326	2.47	33.56	236,000

CLACKAMAS RIVER ABOVE THREE LYNX CREEK, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 21, T. 5 S., R. 6 E., a quarter of a mile above Three Lynx Creek and 17 miles southeast of Estacada. Zero of gage is 1,098 feet above mean sea level.

DRAINAGE AREA.—488 square miles.

RECORDS AVAILABLE.—October, 1911, to December, 1913; October, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 34,800 second-feet Mar. 31 (gage height, 15.5 feet); minimum, 470 second-feet Oct. 5.

1911–1913, 1921–1931: Maximum discharge, that of Mar. 31, 1931; minimum, 375 second-feet Aug. 10, 16, 1924.

REMARKS.—Records good except those estimated for Nov. 10–12, 21, Dec. 21, 22, Aug. 8–19, Sept. 16–30, and those above 8,000 second-feet, which are fair. Water diverted from Oak Grove Fork is used in power plant on Clackamas River just above station. Field data furnished by Portland General Electric Co.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	563	580	748	706	1,600	1,270	19,700	2,380	910	855	710	619
2.....	568	580	950	790	1,560	1,430	8,970	2,320	882	880	710	610
3.....	546	568	1,020	852	1,390	1,470	6,200	2,160	882	855	700	610
4.....	580	574	918	820	1,310	1,430	4,780	2,050	855	740	696	610
5.....	558	574	918	1,270	1,230	1,350	4,320	1,900	855	775	673	619
6.....	580	563	885	1,200	1,160	1,310	4,170	1,950	844	811	686	606
7.....	706	558	760	1,090	1,090	1,200	4,170	1,900	844	785	686	624
8.....	646	602	760	985	1,020	1,160	3,800	1,710	850	780		619
9.....	664	646	760	918	1,020	1,230	3,400	1,540	855	780		632
10.....	629	740	760	885	950	1,230	3,120	1,460	855	750		632
11.....	585	660	1,120	985	950	1,520	3,000	1,540	855	780		610
12.....	580	950	1,230	1,120	885	1,940	2,760	1,540	828	755		610
13.....	574	950	1,650	1,090	852	1,990	2,650	1,500	855	775	660	678
14.....	585	790	1,470	1,060	852	1,740	2,540	1,540	855	780		655
15.....	607	950	1,310	1,200	852	1,600	2,380	1,420	1,190	775		602
16.....	607	1,560	1,230	1,390	852	1,650	2,320	1,380	1,030	755		
17.....	580	1,160	1,160	1,350	1,090	1,600	2,320	1,380	1,240	790		
18.....	618	918	1,090	1,200	1,940	3,380	2,100	1,580	1,200	691		
19.....	552	820	1,060	1,160	2,700	4,140	1,980	1,340	1,060	700		
20.....	546	852	1,020	1,090	2,040	5,090	1,990	1,280	1,000	735	642	
21.....	541	868	975	1,020	1,700	5,260	1,800	1,200	910	710	637	
22.....	536	885	930	1,310	1,620	4,440	1,780	1,170	1,090	720	646	
23.....	580	820	885	2,470	1,430	3,580	1,710	1,140	1,030	705	632	625
24.....	682	852	790	2,360	1,310	2,940	1,680	1,060	1,000	745	628	
25.....	790	790	754	2,200	1,270	2,640	1,620	1,100	970	735	632	
26.....	634	760	760	3,450	1,270	2,300	1,580	1,030	940	700	624	
27.....	694	736	736	3,060	1,310	2,140	1,780	1,090	970	720	624	
28.....	640	760	688	2,700	1,270	1,990	1,900	970	882	735	610	
29.....	607	760	712	2,420	-----	1,940	2,080	940	910	691	606	
30.....	590	736	682	2,140	-----	3,320	2,160	940	855	710	624	
31.....	590	-----	706	1,940	-----	22,700	-----	882	-----	720	624	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	790	536	605	1.24	1.43	37,200
November.....	1,560	558	785	1.61	1.80	46,700
December.....	1,650	682	950	1.95	2.25	58,400
January.....	3,450	706	1,490	3.05	3.52	91,000
February.....	2,700	852	1,300	2.66	2.77	72,200
March.....	22,700	1,160	2,930	6.00	6.92	180,000
April.....	19,700	1,580	3,490	7.15	7.98	208,000
May.....	2,380	882	1,460	2.99	3.45	89,800
June.....	1,240	828	937	1.92	2.14	55,800
July.....	855	691	754	1.55	1.79	46,400
August.....	710	606	655	1.34	1.54	40,300
September.....	-----	-----	624	1.28	1.43	37,100
The year.....	22,700	536	1,330	2.73	37.02	964,000

CLACKAMAS RIVER NEAR CAZADERO, OREG.

LOCATION.—Water-stage recorder in NE. ¼ sec. 11, T. 4 S., R. 4 E., half a mile above backwater from Cazadero Dam of Portland General Electric Co. and 3 miles southeast of Cazadero. Zero of gage is 532.0 feet above mean sea level; published gage heights have been reduced to mean sea level datum.

DRAINAGE AREA.—665 square miles.

RECORDS AVAILABLE.—January, 1909, to September, 1931.

EXTREMES.—Maximum discharge during year, 60,800 second-feet Mar. 31 (gage height, 556.5 feet); minimum not recorded.

1909-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 410 second-feet Oct. 20, 1925, Sept. 28, 1930, caused by shutdown of power plant at Three Lynx (gage height, 532.03 feet).

REMARKS.—Records good except those for July to September, which are fair. No gage-height records for estimated period Aug. 5 to Sept. 30. Some diurnal fluctuation during low water. Field data furnished by Portland General Electric Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1.	654	722	1,070	980	2,260	1,900	37,500	2,840	1,100	1,070	840
2.	672	713	1,370	1,160	2,080	2,080	13,200	2,840	1,070	1,040	790
3.	650	695	1,510	1,400	1,900	2,120	9,000	2,540	1,040	1,070	765
4.	659	695	1,340	1,370	1,700	2,080	6,870	2,440	980	950	770
5.	630	695	1,310	2,220	1,660	1,940	6,000	2,260	1,010	950	
6.	682	682	1,160	2,040	1,540	1,820	5,660	2,260	980	980	
7.	1,010	672	1,100	1,740	1,440	1,060	5,660	2,260	950	950	
8.	895	695	1,070	1,480	1,370	1,580	5,330	2,120	950	922	
9.	980	750	1,070	1,370	1,340	1,700	4,730	1,900	1,010	922	
10.	815	922	1,010	1,280	1,280	1,660	4,350	1,740	1,010	895	
11.	731	790	1,400	1,580	1,250	2,080	4,230	1,740	1,010	895	
12.	700	1,340	1,540	1,780	1,220	2,640	3,780	1,740	980	895	
13.	682	1,440	2,300	1,660	1,160	2,840	3,670	1,700	950	895	
14.	736	1,130	2,170	1,660	1,190	2,540	3,450	1,700	1,010	895	
15.	770	1,580	1,860	1,900	1,160	2,300	3,240	1,620	1,250	895	
16.	745	3,340	1,860	2,170	1,190	2,350	3,140	1,620	1,310	895	
17.	708	2,120	1,780	2,170	1,340	2,260	3,140	1,740	1,600	840	
18.	695	1,510	1,660	1,940	2,490	4,600	2,940	1,900	1,600	840	• 750
19.	677	1,280	1,580	1,780	3,670	6,000	2,640	1,660	1,440	815	
20.	659	1,250	1,480	1,580	2,740	7,410	2,540	1,540	1,310	840	
21.	654	1,280	1,340	1,510	2,350	7,590	2,400	1,440	1,220	815	
22.	654	1,340	1,280	1,780	2,040	6,510	2,350	1,370	1,370	815	
23.	659	1,340	1,250	3,140	1,940	5,020	2,260	1,370	1,440	815	
24.	840	1,340	1,220	3,340	1,780	4,110	2,170	1,280	1,370	815	
25.	1,070	1,250	1,130	3,040	1,740	3,670	2,170	1,310	1,280	815	
26.	868	1,220	1,130	4,870	1,780	3,240	2,080	1,250	1,220	790	
27.	980	1,160	1,070	4,350	1,940	2,940	2,300	1,250	1,250	840	
28.	895	1,130	980	3,780	1,860	2,840	2,440	1,180	1,160	808	
29.	790	1,130	980	3,340	-----	2,840	2,640	1,130	1,220	840	
30.	770	1,070	950	3,040	-----	5,310	2,640	1,130	1,160	840	
31.	755	-----	950	2,640	-----	37,900	-----	1,070	-----	840	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	1,070	630	764	1.15	1.33	47,000
November	3,340	672	1,180	1.77	1.98	70,200
December	2,300	950	1,350	2.03	2.34	83,000
January	4,870	980	2,200	3.31	3.82	135,000
February	3,670	1,160	1,760	2.65	2.76	97,800
March	37,900	1,580	4,470	6.72	7.75	275,000
April	37,500	2,080	5,150	7.74	8.64	306,000
May	2,840	1,070	1,740	2.62	3.02	107,000
June	1,660	950	1,180	1.77	1.98	70,200
July	1,070	790	889	1.34	1.64	54,700
August	-----	-----	755	1.14	1.31	46,400
September	-----	-----	• 730	1.10	1.23	43,400
The year	37,900	-----	1,850	2.78	37.70	1,340,000

• Estimated.

OAK GROVE FORK ABOVE POWER PLANT INTAKE, OREG.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 3, T. 6 S., R. 7 E., (previously in error), 1 mile above intake of Oak Grove development of Portland General Electric Co. and 24 miles southeast of Estacada.

DRAINAGE AREA.—126 square miles.

RECORDS AVAILABLE.—December, 1923, to September, 1931. At site below Kink Creek half a mile downstream May, 1909, to December, 1923; incomplete.

EXTREMES.—Maximum discharge during year, 3,280 second-feet Mar. 31 (gage height, 5.18 feet); minimum, 252 second-feet Oct. 30, Nov. 5-8, Sept. 25-30 (gage height, 1.45 feet).

1909-1931: Maximum discharge, 5,000 second-feet Jan. 7, 1923 (gage height, 5.45 feet, old gage); minimum, that of Oct. 30, Nov. 5-8, 1930, Sept. 25-30, 1931.

REMARKS.—Records excellent. No diversions above station. Field data furnished by Portland General Electric Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	260	256	260	256	334	302	2,540	724	338	314	282	266
2.....	260	256	278	266	326	302	1,740	730	338	310	282	266
3.....	260	256	270	263	318	302	1,350	700	334	310	286	266
4.....	260	256	266	263	310	302	1,180	658	334	310	286	266
5.....	260	262	266	278	310	302	1,060	634	334	310	282	266
6.....	266	252	263	266	302	298	1,020	634	330	306	282	266
7.....	290	252	290	290	296	294	996	628	326	306	282	266
8.....	278	252	260	256	290	294	912	592	326	302	286	263
9.....	270	270	260	256	290	306	842	556	330	302	282	263
10.....	263	263	263	256	286	310	800	534	326	302	282	266
11.....	260	256	286	286	282	338	758	528	322	302	282	266
12.....	256	302	278	278	282	354	712	517	322	298	278	266
13.....	256	274	314	274	278	354	682	517	330	298	274	266
14.....	263	263	294	274	278	346	664	512	354	302	270	266
15.....	263	282	282	278	278	346	634	465	372	302	274	266
16.....	260	282	286	286	274	350	622	495	382	298	274	266
17.....	260	266	282	278	294	368	622	512	405	286	274	270
18.....	260	260	278	274	342	495	592	490	382	286	274	286
19.....	256	260	274	270	359	592	568	460	354	294	274	286
20.....	256	263	266	263	330	694	556	445	338	294	278	266
21.....	256	266	263	263	318	758	556	425	334	294	274	263
22.....	256	266	263	282	314	706	562	415	342	294	270	260
23.....	256	266	263	314	310	634	568	405	342	290	270	260
24.....	270	263	260	310	302	592	568	395	330	290	270	260
25.....	270	260	260	314	302	550	568	386	330	290	278	256
26.....	263	260	256	377	306	506	580	377	330	290	270	252
27.....	263	260	256	368	306	485	610	372	326	286	274	252
28.....	256	260	252	368	302	465	640	364	322	286	278	252
29.....	256	260	252	359	-----	455	664	354	318	286	270	252
30.....	252	260	252	350	-----	646	694	350	314	286	266	262
31.....	256	-----	256	342	-----	2,150	-----	346	-----	282	266	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acro-feet
October.....	290	252	262	2.08	2.40	16,100
November.....	302	252	263	2.09	2.33	15,090
December.....	314	252	268	2.13	2.46	16,500
January.....	377	256	291	2.31	2.67	17,900
February.....	359	274	304	2.41	2.51	16,900
March.....	2,150	294	490	3.89	4.48	30,100
April.....	2,540	556	829	6.58	7.34	49,300
May.....	730	346	501	3.98	4.59	30,800
June.....	405	314	339	2.69	3.00	20,200
July.....	314	282	298	2.37	2.73	18,300
August.....	286	266	276	2.19	2.52	17,000
September.....	286	252	264	2.10	2.34	15,700
The year.....	2,540	252	365	2.90	39.37	264,000

* Interpolated.

LEWIS RIVER BASIN

LEWIS RIVER ABOVE MUDDY RIVER, NEAR COUGAR, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 30, T. 7 N., R. 7 E., 2 miles above mouth of Muddy River and 15 miles due east of Cougar.

DRAINAGE AREA.—227 square miles.

RECORDS AVAILABLE.—August to October, 1909; August, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 11,600 second-feet Mar. 31 (gage height, 7.87 feet); minimum, 195 second-feet Oct. 5 (gage height, 0.38 foot).
1927-1931: Maximum discharge, 14,500 second-feet Nov. 25, 1927 (gage height, 8.97 feet); minimum, 175 second-feet Nov. 21, 1929.

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	200	218	284	292	1,500	813	8,080	2,630	935	581	303	239
2	209	209	347	315	1,280	820	4,560	2,570	813	554	299	245
3	206		335	303	1,100	842	8,200	2,400	724	526	292	236
4	206		323	343	984	828	2,570	2,290	685	515	284	230
5	203		319	442	888	799	2,690	2,180	655	505	278	251
6	303		311	416	792	771	2,810	2,290	655	475	274	239
7	447		299	380	737	737	3,480	2,030	649	460	270	233
8	303		288	351	685	718	3,130	1,680	625	447	267	224
9	251		295	347	649	771	2,630	1,500	625	442	270	224
10	227		311	367	614	903	2,290	1,500	655	429	278	221
11	215	* 275	351	452	586	1,100	1,980	1,640	576	411	264	218
12	203		371	480	559	1,410	1,780	1,830	515	402	257	218
13	200		480	460	542	1,410	1,680	2,030	559	416	254	215
14	209		424	465	515	1,280	1,590	2,030	685	388	254	218
15	215		398	442	526	1,230	1,500	1,730	730	375	254	215
16	212		393	480	505	1,320	1,460	1,680	895	363	254	212
17	239		393	456	799	1,360	1,460	1,680	835	363	264	212
18	233		375	447	3,770	2,400	1,410	1,410	711	363	260	274
19	221		371	434	* 2,700	3,130	1,320	1,230	673	355	257	254
20	212	284	355	424	* 2,000	3,060	1,280	1,100	598	355	245	221
21	209	299	343	420	1,680	4,210	1,320	1,030	564	355	251	218
22	203	* 298	331	631	1,460	3,560	1,360	975	592	335	245	212
23	206	* 296	335	1,880	1,280	2,750	1,320	1,000	592	335	245	209
24	284	295	323	1,730	1,100	2,290	1,410	1,100	564	327	245	209
25	299	295	303	1,540	1,010	1,930	1,500	1,140	548	319	242	209
26	260	292	295	1,930	943	1,640	1,640	1,060	1,020	315	242	209
27	339	284	281	2,340	880	1,500	1,880	1,000	895	311	242	209
28	260	295	254	2,940	813	1,860	2,180	935	764	311	236	206
29	239	288	257	2,460		1,280	2,400	935	685	311	242	206
30	230	281	245	2,080		1,460	2,630	967	637	311	239	221
31	227		270	1,730		7,640		1,000		311	233	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	447	200	241	1.06	1.22	14,800
November			277	1.22	1.36	16,500
December	480	245	331	1.46	1.68	20,400
January	2,940	292	896	3.95	4.55	55,100
February	3,770	505	1,100	4.85	5.05	61,100
March	7,640	718	1,780	7.84	9.04	109,000
April	8,080	1,280	2,280	10.0	11.16	136,000
May	2,630	935	1,570	6.92	7.98	96,500
June	1,020	515	689	3.04	3.39	41,000
July	591	311	396	1.74	2.01	24,300
August	303	233	259	1.14	1.31	15,900
September	274	206	224	.987	1.10	13,800
The year	8,080	200	835	3.68	49.85	604,000

* Estimated.

LEWIS RIVER NEAR COUGAR, WASH.

LOCATION.—Water-stage recorder in SE. ¼ sec. 29, T. 7 N., R. 5 E., 1 mile below Swift Creek and 4 miles east of Cougar.

DRAINAGE AREA.—483 square miles.

RECORDS AVAILABLE.—July, 1910, to March, 1912; June, 1924, to September, 1931. July, 1909, to June, 1910, at site 1,000 feet above Swift Creek.

EXTREMES.—Maximum discharge during year, 20,400 second-feet Mar. 31 (gage height, 9.50 feet); minimum, 550 second-feet Oct. 3-5, 22, 23 (gage height, 0.18 foot).

1910-1912, 1924-1931: Maximum discharge, 27,900 second-feet Nov. 25, 1927 (gage height, 11.3 feet); minimum, 475 second-feet Nov. 20, 23, 24, 1929 (gage height, 0.03 foot).

Maximum stage known, 14 feet, referred to present gage, Dec. 17 or 18, 1917.

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	560	620	859	873	4,240	2,100	16,100	4,830	1,880	1,510	824	650
2.....	560	596	950	922	3,610	2,100	10,200	4,730	1,770	1,420	810	662
3.....	555	584	953	990	3,180	2,280	7,700	4,440	*1,550	1,370	789	682
4.....	550	578	936	1,160	2,860	2,220	6,210	4,240	*1,470	1,330	768	644
5.....	555	572	936	1,610	2,560	2,160	5,980	4,060	*1,460	1,280	754	668
6.....	662	572	922	1,610	2,350	2,040	6,210	4,150	1,460	1,240	754	698
7.....	1,010	566	901	1,420	2,160	1,990	7,450	3,890		1,240	747	704
8.....	789	572	880	1,280	2,040	1,940	7,450	3,360		1,190	740	686
9.....	698	692	880	1,240	1,940	2,100	6,210	3,020			740	686
10.....	644	901	922	1,280	1,820	2,490	5,550	2,940	*1,270		747	686
11.....	608	796	1,080	1,560	1,770	3,020	4,830	3,020		*1,070	736	644
12.....	584	1,240	1,190	1,610	1,720	3,890	4,340	3,270			722	650
13.....	578	1,370	1,880	1,560	1,610	3,700	4,150	3,610		1,240	716	
14.....	584	1,070	1,660	1,560	1,560	3,360	4,060	3,700	*1,270		716	
15.....	602	1,010	1,510	1,510	1,510	3,180	3,780	3,360	*1,350	998	716	
16.....	596		1,420	1,720	1,510	3,360	3,520	3,180	1,560	990	710	*698
17.....	674		1,420	1,770	1,960	3,440	3,440	3,270	1,560	982	704	
18.....	656		1,320	1,660	6,040	5,980	3,270	2,860	1,460	974	710	
19.....	614	*937	1,280	1,560	7,700	7,950	3,180	2,490	1,370	958	698	
20.....	560		1,240	1,510	5,760	7,950	3,100	2,280	1,320	950	686	
21.....	560		1,240	1,460	4,530	9,200	3,020	*2,200	1,280	936	686	650
22.....	550	982	1,150	1,940	3,780	8,450	3,020	*2,100	1,370	908	698	626
23.....	560	990	1,150	4,930	3,360	6,700	2,940	2,040	1,320	901	680	608
24.....	692	974	1,110	5,550	2,940	5,550	2,940	2,100	1,320	894	674	596
25.....	810	943	1,070	4,930	2,630	4,730	2,940	2,100	1,320	880	668	
26.....	740	915	1,010	5,760	2,490	4,060	3,020	2,100	2,350	859	662	596
27.....	852	887	950	6,210	2,350	3,610	3,360	1,990	2,100	852	674	586
28.....	747	894	901	7,200	2,220	3,270	3,780	1,880	1,820	845	662	590
29.....	692	880	880	6,450		3,180	4,240	1,880	1,660	838	662	626
30.....	668	866	845	5,760		3,780	4,730	1,880	1,560	831	656	632
31.....	650		852	5,080		14,300		1,940		824	644	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-foot
October.....	1,010	550	650	1.35	1.56	40,000
November.....	1,370	566	856	1.77	1.98	50,900
December.....	1,880	845	1,100	2.28	2.63	67,600
January.....	7,200	873	2,700	5.59	6.44	166,000
February.....	7,700	1,510	2,940	6.09	6.34	163,000
March.....	14,300	1,940	4,330	8.96	10.33	266,000
April.....	16,100	2,940	5,020	10.4	11.60	299,000
May.....	4,830	1,880	3,000	6.21	7.16	184,000
June.....	2,350		1,480	3.06	3.41	85,100
July.....	1,510	824	1,050	2.17	2.50	64,600
August.....	824	644	715	1.48	1.71	44,000
September.....			657	1.36	1.52	39,100
The year.....	16,100	550	2,030	4.20	57.18	1,470,000

* Estimated.

LEWIS RIVER BASIN

99

LEWIS RIVER NEAR AMBOY, WASH.

LOCATION.—Staff gage in sec. 36, T. 6 N., R. 3 E., at a former river crossing known as Cresap Ferry, 5 miles northeast of Amboy.

DRAINAGE AREA.—665 square miles.

RECORDS AVAILABLE.—January, 1911, to April, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 41,600 second-feet Mar. 31 (gage height, 11.0 feet); minimum, 690 second-feet Oct. 3, 13, 20, 21 (gage height, -0.1 foot).

1911-1931: Maximum discharge, about 60,000 second-feet Dec. 18, 1917 (gage height, 16.4 feet, from high-water mark); minimum, 660 second-feet Sept. 5-14, 19-22, 1924 (gage height, -0.20 foot).

REMARKS.—Records good. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1.	740	835	1,430	1,550	7,690	3,690	25,000
2.	740	800	1,550	1,850	6,560	3,890	15,400
3.	690	770	1,670	2,240	4,520	3,790	11,200
4.	740	770	1,790	2,710	4,090	3,690	9,290
5.	740	800	1,670	4,090	3,790	3,420	9,220
6.	770	740	1,550	4,300	3,690	3,240	9,540
7.	1,160	770	1,550	3,330	3,420	3,000	11,600
8.	1,490	800	1,430	2,710	3,160	2,850	10,960
9.	905	1,110	1,490	2,570	2,850	3,000	9,570
10.	770	1,380	1,550	2,920	2,570	4,090	8,280
11.	740	1,210	1,670	3,690	2,300	4,980	6,560
12.	740	1,550	1,980	3,890	2,100	6,290	6,290
13.	715	2,360	2,780	3,500	2,040	5,760	6,020
14.	770	2,240	3,000	3,160	1,980	5,240	6,290
15.	835	2,430	2,850		1,910	4,980	6,020
16.	940	2,570	2,710		2,240	4,750	5,760
17.	870	2,640	2,850	3,980	4,750	4,750	5,500
18.	800	2,430	3,000		9,870	8,280	4,980
19.	740	2,360	2,850		12,600	13,800	4,520
20.	715	2,430	2,710	2,850	10,200	12,300	4,090
21.	715	2,300	2,570	3,710	8,000	14,200	3,890
22.	740	2,360	2,500	3,330	7,690	12,800	4,090
23.	800	2,240	2,430	4,980	6,590	12,000	4,300
24.	905	2,170	2,360	7,120	6,020	10,900	4,520
25.	1,060	2,040	2,300	7,980	4,750	8,280	4,520
26.	1,380	1,850	2,240	9,320	3,890	6,560	4,750
27.	1,430	1,670	2,170	9,540	3,600	5,500	4,980
28.	1,160	1,670	2,040	18,200	3,690	4,980	5,240
29.	980	1,550	1,980	8,540		4,980	5,240
30.	940	1,490	1,790	9,320		8,280	5,240
31.	905		1,610	6,900		34,400	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	1,490	690	891	1.34	1.54	54,800
November	2,640	740	1,680	2.53	2.82	100,000
December	3,000	1,430	2,130	3.20	3.69	131,000
January	10,200	1,550	4,770	7.17	8.27	298,000
February	12,600	1,910	4,910	7.38	7.68	273,000
March	34,400	2,850	7,440	11.9	13.72	457,000
April	25,000	3,890	7,430	11.2	12.50	442,000
The period						1,750,000

LEWIS RIVER AT ARIEL, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 4, T. 5 N., R. 2 E., at Ariel, half a mile below Ariel Dam and power plant. Zero of gage is 44.00 feet above mean sea level.

DRAINAGE AREA.—733 square miles.

RECORDS AVAILABLE.—July, 1922, to September, 1931. July to November, 1909, for station 3 miles upstream.

EXTREMES.—Maximum discharge during year, 30,600 second-feet Apr. 1 (gage height, 14.20 feet); no flow at times June 30, July 1-3, 6-9 (caused by regulation during construction of dam upstream).

1909, 1922-1931: Maximum discharge, 59,000 second-feet Nov. 25, 1927 (gage height, 19.5 feet); minimum, that of June, July, 1931.

REMARKS.—Records excellent except those for May 13 to June 20, which are poor, and those for June 21 to Sept. 7, which are fair. No diversions above station. Regulation caused by obstruction of partly completed dam during flood beginning Mar. 30, by operation of gates in dam and filling of Lake Merwin Reservoir May 13 to Aug. 7, and by operation of power plant and storage in reservoir thereafter. Gage-height record furnished by Northwestern Electric Co.

Daily discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	727	985	1,730	1,730	6,620	4,160	30,200	6,020	217	103	124	260
2.....	727	950	1,940	1,880	5,820	4,160	29,000	6,020	230	104	124	310
3.....	727	915	2,050	2,350	5,050	4,330	23,500	5,620	203	43	115	328
4.....	721	880	2,000	3,600	4,500	4,160	15,600	5,240	208	225	132	310
5.....	715	866	1,880	4,860	4,160	3,840	10,200	4,860	253	225	107	328
6.....	790	852	1,830	4,860	3,760	3,600	9,950	5,050	167	1	142	310
7.....	1,400	838	1,680	4,160	3,440	3,370	11,700	4,860	299	28	158	328
8.....	1,180	880	1,630	3,440	3,220	3,220	12,500	4,330	177	83	139	1,360
9.....	985	1,220	1,630	3,080	3,010	3,440	10,400	3,840	192	96	95	1,780
10.....	880	1,730	1,680	2,940	2,800	4,160	8,760	3,600	179	188	76	1,460
11.....	824	1,580	1,880	3,760	2,670	5,240	7,650	3,600	177	175	66	1,440
12.....	784	1,730	2,290	4,000	2,540	6,220	6,820	3,840	200	188	60	243
13.....	758	2,740	3,840	3,760	2,410	6,220	6,620	1,100	172	164	67	334
14.....	790	2,000	3,920	3,680	2,350	5,430	6,820	147	241	152	84	1,620
15.....	810	2,110	3,370	3,680	2,350	5,050	6,820	155	147	132	260	865
16.....	804	2,490	3,080	4,500	2,350	5,050	6,020	170	163	107	245	668
17.....	873	2,740	3,150	5,430	3,220	5,050	5,620	203	156	107	232	630
18.....	915	2,170	3,080	4,500	8,990	8,530	5,240	193	151	98	245	881
19.....	845	2,050	3,010	4,000	13,900	12,000	4,860	178	145	115	275	1,270
20.....	804	2,230	2,800	3,600	9,470	13,900	4,500	183	145	115	292	296
21.....	778	2,410	2,600	3,300	7,230	14,200	4,330	188	212	132	260	1,240
22.....	771	2,490	2,410	3,520	6,220	14,200	4,330	188	145	115	292	1,020
23.....	790	2,540	2,480	7,840	5,430	11,000	4,160	200	• 150	115	292	575
24.....	985	2,480	2,350	9,950	4,860	8,760	4,000	230	• 155	115	310	519
25.....	1,260	2,290	2,170	8,300	4,330	7,650	4,000	200	• 160	115	292	775
26.....	1,180	2,110	2,050	9,470	4,330	6,420	4,000	215	164	115	275	362
27.....	1,530	2,000	1,940	9,710	4,330	5,820	4,330	178	158	115	292	1,050
28.....	1,350	1,880	1,830	11,000	4,160	5,240	4,860	188	285	115	328	1,100
29.....	1,140	1,830	1,780	9,950	-----	5,430	5,240	151	215	124	260	1,310
30.....	1,060	1,730	1,730	8,760	-----	8,080	5,620	280	34	115	275	833
31.....	1,020	-----	1,680	7,650	-----	19,500	-----	290	-----	124	292	-----

• Estimated.

Monthly discharge, in second-feet, of Lewis River at Ariel, Wash., 1930-31

Month	Observed				Change in contents of Lake Merwin Reservoir (acre-feet)	Corrected for storage			
	Maximum	Minimum	Mean	Run-off in acre-feet		Run-off in acre-feet	Mean	Per square mile	Run-off in inches
October.....	1,530	715	933	57,400	0	57,400	933	1.27	1.46
November.....	2,740	838	1,790	107,000	0	107,000	1,790	2.44	2.72
December.....	3,920	1,630	2,310	142,000	0	142,000	2,310	3.15	3.63
January.....	11,000	1,730	5,270	324,000	0	324,000	5,270	7.19	8.29
February.....	13,900	2,350	4,770	265,000	0	265,000	4,770	6.51	6.78
March.....	19,500	3,220	7,010	431,000	+11,040	442,000	7,190	9.81	11.31
April.....	30,200	4,000	8,920	531,000	-11,040	520,000	8,740	11.9	13.28
May.....	6,020	147	1,980	122,000	+97,620	220,000	3,580	4.88	5.63
June.....	299	34	183	10,900	+117,380	128,000	2,150	2.93	3.27
July.....	225	1	121	7,440	+83,800	91,200	1,480	2.02	2.33
August.....	328	60	200	12,300	+42,800	55,100	896	1.22	1.41
September.....	1,780	243	793	47,200	+4,200	51,400	864	1.18	1.32
The year.....	30,200	1	2,840	2,060,000	+346,000	2,400,000	3,320	4.53	61.43

BIG CREEK BELOW SKOOKUM MEADOW, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 13, T. 7 N., R. 7 E., 3 miles above mouth and 17 miles northwest of Guler.

RECORDS AVAILABLE.—October, 1927, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 766 second-feet Mar. 31 (gage height, 5.1 feet); minimum, 4 second-feet Oct. 1-5.

1927-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 4 second-feet Nov. 20, 21, Dec. 2, 1929, Sept. 2-4, 19-26, 29, 30, Oct. 1-5, 1930.

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4	8	11	11	58	30			25	25	10	7
2	4	7	15	11	50	30			24	24	10	7
3	4	7	13	11	44	30			23	23	10	7
4	4	7	12	12	40	28			22	22	10	7
5	4	7	12	15	36	26		* 102	21	21	10	7
6	11	7	12	13	33	26			20	19	10	9
7	21	7	11	12	30	25			19	18	10	10
8	11	7	11	12	28	24			19	17	10	9
9	11	11	11	12	26	26		89	21	17	9	9
10	8	14	13	14	25	34			26	17	9	8
11	7	10	15	19	24	41			23	16	9	8
12	7	30	16	20	23	55			19	16	9	9
13	6	19	19	17	22	48			24	16	9	8
14	8	15	15	15	21	44			27	16	9	8
15	8	14	14	14	21	46		* 85	39	16	9	8
16	8	14	14	14	20	55			54	15	9	7
17	13	13	13	13	30	58			38	14	9	8
18	9	13	13	13	86	109			31	13	9	17
19	7	12	13	13	90	133			28	13	9	12
20	7	12	13	13	67	133			25	13	8	10
21	6	13	12	12	54	261		49	25	12	8	10
22	6	* 12	12	22	46	195		46	28	12	8	9
23	7	12	12	46	41	135		43	32	12	8	8
24	16	12	12	44	37	105		40	28	12	8	8
25	15	11	12	41	34	85		38	28	12	7	8
26	14	11	12	60	32	70		36	48	12	8	8
27	17	11	11	79	30	60		34	32	11	8	8
28	11	11	11	104	28	53		32	30	11	7	8
29	9	11	11	94		48		29	28	11	7	10
30	8	11	11	80		66		28	27	11	7	12
31	8		11	69		510		27		11	7	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	21	4	9.0	553
November	30	7	11.6	690
December	19	11	12.7	781
January	104	11	29.8	1,630
February	90	20	35.4	2,130
March	510	24	83.5	5,130
April			* 130	7,740
May		27	72.3	4,450
June	54	19	27.8	1,650
July	25	11	15.4	947
August	10	7	8.7	535
September	17	7	8.8	524
The year		4	37.3	27,000

* Estimated.

RUSH CREEK ABOVE FALLS, WASH.

LOCATION.—Water-stage recorder on line between secs. 27 and 34, T. 7 N., R. 7 E., 500 feet above falls, 2 miles above mouth, and 18 miles east of Cougar.

RECORDS AVAILABLE.—December, 1927, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 578 second-feet Apr. 1 (gage height, 2.56 feet); minimum, 79 second-feet Nov. 6, 7.

1927-1931: Maximum discharge, that of Apr. 1, 1931; minimum, 79 second-feet Jan. 24-27, 29, Nov. 6, 7, 1930.

REMARKS.—Records good. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	84	81	84	81	116	96	535	275	165	112	101	96
2.....	83	81	84	81	107	94	418	272	145	111	101	96
3.....	83	81	85	80	101	94	320	282	138	111	100	96
4.....	83	80	84	84	100	94	221	269	132	110	100	96
5.....	83	80	84	87	97	92	221	263	126	110	100	96
6.....	94	79	83	84	94	90	237	269	124	108	100	96
7.....	96	79	83	83	92	89	275	219	121	108	99	96
8.....	90	80	83	82	90	89	224	181	118	107	99	97
9.....	90	84	83	82	89	91	185	181	121	108	98	97
10.....	88	95	83	83	88	97	172	214	125	107	98	97
11.....	87	83	86	87	87	105	162	263	120	107	98	96
12.....	85	128	89	85	87	111	152	275	113	107	98	94
13.....	85	101	92	81	86	104	149	291	117	107	98	94
14.....	85	90	86	82	85	100	144	300	136	107	97	94
15.....	85	89	85	81	85	101	136	243	157	107	97	93
16.....	87	88	85	83	84	106	136	237	177	106	97	93
17.....	88	88	85	81	96	107	139	219	164	105	97	92
18.....	85	87	84	81	152	152	132	177	139	105	96	94
19.....	84	87	84	81	190	167	129	165	125	105	96	93
20.....	83	87	83	81	157	169	128	158	116	105	96	92
21.....	83	87	83	81	132	240	135	158	115	105	96	92
22.....	82	86	83	98	117	229	142	165	122	104	96	92
23.....	83	86	83	117	108	196	142	186	128	104	96	91
24.....	89	85	82	107	101	164	153	207	131	104	96	91
25.....	88	85	81	118	100	139	167	221	121	104	96	91
26.....	87	85	81	152	96	125	181	200	139	102	97	90
27.....	100	84	81	162	97	120	211	188	132	102	97	89
28.....	84	84	81	185	96	116	240	183	118	102	97	89
29.....	83	84	80	164	-----	112	287	190	115	102	96	89
30.....	82	83	80	142	-----	129	275	186	113	102	96	89
31.....	82	-----	80	126	-----	386	-----	185	-----	101	96	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	100	82	86.2	5,300
November.....	128	79	86.6	5,150
December.....	92	80	83.5	5,130
January.....	185	80	99.9	6,140
February.....	190	84	105	5,830
March.....	386	89	132	8,120
April.....	535	128	204	12,100
May.....	300	158	220	13,500
June.....	177	113	130	7,740
July.....	112	101	106	6,620
August.....	101	96	97.6	6,000
September.....	97	89	93.4	5,560
The year.....	535	79	120	87,100

MEADOW CREEK BELOW LONE BUTTE MEADOW, WASH.

LOCATION.—Water-stage recorder below Lone Butte Meadow in sec. 36, T. 7 N., R. 7 E., half a mile above junction with Rush Creek and 16 miles northwest of Guler.

RECORDS AVAILABLE.—September, 1927, to September, 1931 (discontinued); incomplete.

EXTREMES.—Maximum discharge during year, 232 second-feet Mar. 31 (gage height, 1.95 feet); minimum, 47 second-feet Dec. 29-31, Jan. 1-3, 19-21, 1927-1931; Maximum, that of Mar. 31, 1930; minimum, that of Dec. 29-31, 1930, Jan. 1-3, 19-21, 1931.

REMARKS.—Records good except those estimated for Oct. 5-9, Mar. 14 to May 9, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	53	50	47	67	52			71	67	58	54
2	53	52	50	47	63	52			69	66	58	53
3	53	52	50	47	61	51			68	65	58	53
4	53	51	50	50	60	51			67	64	58	53
5		51	50	53	59	51		113	66	64	57	53
6		51	49	50	58	50			66	62	57	54
7	57	51	49	49	56	50			65	61	57	54
8		51	49	48	55	50			65	61	57	53
9		52	49	48	54	51			66	61	57	53
10	55	53	49	49	54	56		97	68	61	57	53
11	55	52	51	52	54	62		104	66	60	56	52
12	54	63	53	51	53	68		106	65	60	56	52
13	54	56	56	49	52	60		106	66	60	56	52
14	55	53	51	49	52			106	69	60	56	52
15	55	53	50	48	52		116	97	76	60	56	52
16	55	53	50	48	51			101	89	60	56	52
17	58	52	49	48	62			112	77	60	56	52
18	55	51	49	48	92			100	70	59	56	57
19	54	51	49	47	82			91	67	59	55	53
20	53	51	49	47	67			86	65	59	55	52
21	53	51	48	47	60			83	65	59	55	51
22	52	51	48	61	53	88		80	67	59	55	51
23	53	51	48	79	55			79	69	59	55	51
24	59	50	48	62	54			79	69	59	55	51
25	58	50	48	62	54			80	66	59	54	50
26	56	50	48	82	53			77	80	59	55	50
27	59	50	48	82	52			76	70	58	55	50
28	54	49	48	90	52			75	68	58	55	50
29	53	49	47	82				74	68	58	54	50
30	53	49	47	74				75	67	58	54	51
31	53		47	70				74		58	54	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October		52	54.9	3,380
November	63	49	51.7	3,080
December	56	47	49.3	3,080
January	90	47	57.0	3,500
February	92	51	58.6	3,250
March		50	73.8	4,540
April			116	6,900
May		74	95.9	5,900
June	89	65	69.0	4,110
July	67	58	60.4	3,710
August	53	54	55.9	3,440
September	57	50	52.1	3,100
The year		47	66.2	47,900

MUDDY RIVER NEAR COUGAR, WASH.

LOCATION.—Water-stage recorder in SE. ¼ sec. 24, T. 7 N., R. 6 E., three-quarters of a mile above mouth and 14 miles east of Cougar.

DRAINAGE AREA.—136 square miles.

RECORDS AVAILABLE.—August to October, 1909; August, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 5,000 second-feet Mar. 31 (gage height, 6.4 feet); minimum, 111 second-feet Oct. 5 (gage height, 1.36 feet). 1909, 1927–1931: Maximum discharge, 7,240 second-feet Nov. 25, 1927 (gage height, 8.40 feet); minimum, 94 second-feet Dec. 5–7, 1929.

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	118	134	237	248		737	4,430	2,080	506	408	177	131
2.....	115	128	276	271		* 720	3,350	2,020	465	390	177	134
3.....	115	125	258	271		* 800	2,630	1,800	436	372	170	128
4.....	115	123	258	338		* 750	2,150	1,750	404	350	170	123
5.....	113	120	253	488		* 750	2,150	1,650	390	336	170	123
6.....	182	123	248	453		* 700	2,210	1,550	377	323	170	151
7.....	237	120	240	402		639	2,870	1,410	372	305	170	151
8.....	167	142	237	375		643	2,750	1,230	354	293	167	140
9.....	150	276	248	359		730	2,390	1,060	350	289	164	137
10.....	136	271	271	396		865	2,030	956	359	281	160	134
11.....	131	204	338	488		1,050	1,760	956	332	273	157	131
12.....	120	359	380	493		1,380	1,560	1,060	305	265	157	128
13.....	120	289	499	488		1,340	1,480	1,230	328	261	154	128
14.....	128	240	441	499		1,250	1,380	1,320	332	267	154	128
15.....	128	244	408	493	*1,000	1,250	1,250	1,180	350	249	154	123
16.....	125	237	397	553		1,250	1,160	1,100	364	241	151	120
17.....	164	229	408	541		1,300	1,120	1,100	336	233	151	123
18.....	144	211	391	517		2,270	1,050	948	336	225	151	180
19.....	134	211	380	499		2,930	960	812	323	218	151	160
20.....	125	214	359	476		2,930	950	710	297	218	145	137
21.....	120	226	338	470		3,230	942	647	297	214	145	128
22.....	118	233	328	918		2,930	940	605	310	208	142	123
23.....	128	244	328	2,630		2,390	956	575	305	211	142	120
24.....	220	237	314	2,450		1,980	948	581	305	200	140	118
25.....	192	237	299	2,090		1,660	964	569	328	194	140	115
26.....	179	237	284	2,270		1,430	1,010	587	828	190	142	118
27.....	188	229	271	2,390		1,250	1,140	563	605	187	140	118
28.....	162	229	262	2,570		1,120	1,410	534	518	183	134	118
29.....	147	226	258	* 2,400		1,070	1,700	512	490	183	134	134
30.....	142	222	244	* 2,300		1,300	1,910	506	440	183	131	151
31.....	136		244	* 2,100		3,720		518		180	131	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	237	113	145	1.07	1.23	8,920
November.....	359	120	211	1.55	1.73	12,600
December.....	499	237	313	2.30	2.65	19,200
January.....	2,630	248	1,010	7.43	8.57	62,100
February.....			* 1,000	7.35	7.65	55,600
March.....	3,720	639	1,500	11.0	12.68	92,200
April.....	4,430	940	1,720	12.6	14.06	102,000
May.....	2,080	506	1,040	7.65	8.82	64,000
June.....	828	297	391	2.88	3.21	23,300
July.....	408	180	255	1.88	2.17	16,700
August.....	177	131	153	1.12	1.29	9,410
September.....	180	115	132	.971	1.08	7,860
The year.....	4,430	113	653	4.80	65.14	473,000

* Estimated.

SWIFT CREEK NEAR COUGAR, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 28, T. 7 N., R. 5 E., one-eighth of a mile above mouth, $1\frac{1}{2}$ miles east of Peterson ranch, and 5 miles east of Cougar.

DRAINAGE AREA.—26 square miles.

RECORDS AVAILABLE.—July to October, 1909; June, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,450 second-feet Mar. 31 (gage height, 3.10 feet); minimum, 92 second-feet Sept. 21–28.

1909, 1924–1931: Maximum discharge, 1,900 second-feet Nov. 24, 1927 (gage height, 3.7 feet); minimum, 80 second-feet Sept. 17, 21, Oct. 7, 1924.

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	95	94	112	104	184	154	593	220	155	153	114	99
2.....	95	94	120	114	173	150	378	217	153	151	112	99
3.....	94	94	112	116	164	150	312	214	148	148	112	96
4.....	94	93	111	132	160	148	277	206	148	144	111	97
5.....	94	93	109	162	152	146	291	206	146	142	109	95
6.....	118	93	107	150	145	145	309	212	146	140	109	101
7.....	104	93	106	137	140	142	364	204	144	138	108	96
8.....	95	99	105	129	135	140	320	190	142	136	106	94
9.....	94	131	110	123	132	164	267	190	148	134	106	95
10.....	94	137	112	135	129	196	267	188	157	131	106	98
11.....	95	112	134	158	127	215	241	190	146	129	106	92
12.....	94	162	134	148	124	260	235	195	142	127	106	93
13.....	94	145	175	143	123	218	270	201	148	127	106	95
14.....	96	126	152	148	120	199	267	193	146	127	106	93
15.....	94	124	145	145	123	191	247	185	146	125	106	92
16.....	95	127	140	162	120	210	235	212	151	125	106	92
17.....	99	123	142	154	182	213	226	232	144	123	105	92
18.....	96	116	137	148	553	372	212	198	144	122	105	125
19.....	96	118	134	142	377	449	204	185	140	122	104	97
20.....	94	119	129	135	244	377	198	180	136	120	102	92
21.....	94	119	124	132	210	444	198	176	140	120	100	92
22.....	94	116	191	191	323	195	173	151	120	100	92	92
23.....	95	115	343	175	270	195	171	148	119	99	92	92
24.....	122	112	* 115	280	166	* 240	193	164	140	119	99	92
25.....	99	111		253	162	* 225	190	162	155	115	99	92
26.....	111	111		307	160	* 210	196	159	235	115	101	93
27.....	106	110	106	299	156	* 195	201	157	171	115	101	92
28.....	* 100	109	104	276	156	186	209	155	164	115	100	93
29.....	* 95	107	103	244	-----	194	214	155	162	114	99	102
30.....	* 95	106	101	221	-----	247	220	155	157	114	97	105
31.....	* 95	-----	102	202	-----	1,050	-----	153	-----	114	97	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	122	94	97.9	3.77	4.35	6,020
November.....	162	93	114	4.38	4.89	6,780
December.....	175	101	121	4.65	5.36	7,446
January.....	343	104	178	6.85	7.90	10,990
February.....	553	120	178	6.85	7.13	9,890
March.....	1,050	140	252	9.69	11.17	15,500
April.....	593	190	258	9.92	11.07	15,400
May.....	232	153	187	7.19	8.29	11,500
June.....	235	136	152	5.85	6.53	9,040
July.....	153	114	127	4.88	5.63	7,810
August.....	114	97	104	4.00	4.61	6,400
September.....	125	92	95.7	3.68	4.11	5,690
The year.....	1,060	92	155	5.96	31.04	112,000

* Estimated.

CANYON CREEK NEAR AMBOY, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 4, T. 5 N., R. 4 E., at wagon bridge 2 miles above mouth and 6 miles northeast of Amboy.

DRAINAGE AREA.—62 square miles.

RECORDS AVAILABLE.—July, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 13,800 second-feet Mar. 31 (gage height, 11.13 feet); minimum, 25 second-feet Oct. 4, 5.

1922-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 15 second-feet Oct. 19-24, 1925.

REMARKS.—Records good. Discharge estimated Oct. 24, 25, May 1, 2, July 6-11, 13-18, 20-22, Aug. 3-7, 10-12. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	27	66	153	149	400	451	4,500	219	72	219	45	26
2.....	26	56	176	209	337	451	1,880	209	69	193	43	26
3.....	26	54	167	336	300	451	1,200	200	69	176	42	26
4.....	25	50	155	470	272	406	845	190	68	160	41	26
5.....	25	48	143	913	251	352	845	181	66	127	40	26
6.....	32	46	128	798	224	308	820	198	63		40	30
7.....	114	43	116	565	206	278	1,160	193	62		39	34
8.....	76	42	112	434	191	254	1,030	167	58		38	29
9.....	51	61	112	349	178	316	775	151	60	110	38	34
10.....	42	117	112	331	167	470	625	141	65		37	29
11.....	37	100	140	546	157	626	525	138	60		36	28
12.....	36	328	169	546	149	798	464	138	56	84	35	28
13.....	34	283	488	470	141	688	545	140	56		34	28
14.....	36	196	346	451	134	526	625	134	62		33	27
15.....	38	394	368	507	134	434	625	125	78		33	27
16.....	36	626	358	775	136	416	545	138	107		33	26
17.....	37	451	416	937	371	416	464	162	132		31	26
18.....	36	325	386	688	1,240	1,080	401	153	145		29	68
19.....	33	337	361	526	1,110	1,400	848	134	158	61	28	95
20.....	32	409	328	434	731	1,310	309	125	128	59	27	51
21.....	33	416	297	377	526	1,470	280	116	120	58	26	41
22.....	33	416	264	403	434	1,110	256	108	160	56	26	38
23.....	33	409	286	710	383	943	244	103	164	54	26	34
24.....	38	352	270	866	328	688	228	100	214	53	26	32
25.....	45	305	246	775	305	585	211	97	203	50	26	31
26.....	78	267	221	890	331	488	200	94	577	49	26	30
27.....	161	236	201	820	413	434	203	89	489	47	26	29
28.....	114	206	184	731	434	409	225	86	366	47	26	29
29.....	89	184	173	646	-----	526	236	81	299	46	26	29
30.....	76	161	163	565	-----	1,860	228	78	250	46	26	35
31.....	73	-----	153	470	-----	10,100	-----	74	-----	45	26	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	161	25	50.7	0.818	0.94	3,120
November.....	626	42	233	3.76	4.20	13,900
December.....	488	112	232	3.74	4.31	14,306
January.....	937	149	571	9.21	10.62	35,100
February.....	1,240	134	357	5.76	6.00	19,800
March.....	10,100	254	966	15.6	17.99	59,400
April.....	4,500	200	695	11.2	12.50	41,400
May.....	219	74	137	2.21	2.55	8,420
June.....	577	56	149	2.40	2.68	8,870
July.....	219	45	87.4	1.41	1.63	5,370
August.....	45	26	32.5	.524	.60	2,080
September.....	95	26	33.8	.545	.61	2,010
The year.....	10,100	25	295	4.76	64.63	214,000

EAST FORK OF LEWIS RIVER NEAR HEISSON, WASH.

LOCATION.—Water-stage recorder in N. $\frac{1}{2}$ sec. 17, T. 4 N., R. 3 E., just above Basket Creek, $1\frac{1}{2}$ miles northeast of Heisson.

DRAINAGE AREA.—124 square miles.

RECORDS AVAILABLE.—September, 1929, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 15,500 second-feet Mar. 31 (gauge height, 12.2 feet); minimum, 47 second-feet Aug. 29.

1929-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 46 second-feet Sept. 19, Oct. 25, 1929.

REMARKS.—Records excellent except those estimated, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	167	* 300		660	748	7,000	334	109	312	76	53
2	55	149	* 350		580	770	3,310	315	106	279	74	52
3	55	139	315		502	748	2,230	292	108	252	73	51
4	54	129	307		468	660	1,710	209	105	232	71	51
5	54	119	289		450	600	1,710	257	100	212	72	50
6	74	115	269		400	520	1,550	282	94	194	74	69
7	432	109	250		373	468	2,140	270	92	176	74	69
8	279	108	238		346	450	1,920	238	90	165	69	59
9	184	154	245		328	580	1,440	216	97	160	63	71
10	134	269	232		315	748	1,210	202	115	158	62	60
11	119	210	289		299	948	1,000	198	103	151	64	56
12	103	695	312		286	1,300	870	194	92	142	64	57
13		620	845		272	1,120	920	190	96	139	65	56
14		432	748		264	845	948	186	110	139	64	59
15		815	620	*1,040	279	725	895	173	149	132	63	55
16			1,240		282	680	795	200	276	124	63	52
17					815	680	725	227	325	116	61	53
18					702	2,660	2,100	640	214	415	112	60
19					680	2,140	2,230	580	190	432	105	63
20					620	1,300	2,050	520	180	320	98	60
21	* 141				560	975	2,420	485	167	289	96	59
22					502	795	1,830	450	162	370	96	59
23					502	702	1,380	415	156	400	96	57
24						620	1,440	400	147	540	94	57
25						600	975	379	142	468	90	55
26					660	845	367	139	925	87	59	63
27					725	770	376	132	748	84	59	62
28					725	725	373	129	560	82	53	61
29						820	361	119	450	79	50	63
30	227			1,120			340	113	370	79	52	75
31	198			920		2,770		112		79	53	
	200			770		12,300						

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October		54	145	117	1.35	8,920
November	1,240	108	488	3.94	4.40	29,000
December	845	232	437	3.52	4.06	26,900
January			1,030	8.31	9.58	63,300
February	2,660	264	672	5.42	5.64	37,300
March	12,300	450	1,460	11.8	13.60	89,800
April	7,000	340	1,200	9.68	10.80	71,400
May	334	112	198	1.60	1.84	12,200
June	925	90	282	2.27	2.53	16,800
July	312	79	141	1.14	1.31	8,670
August	76	50	62.8	.506	.58	3,880
September	292	50	77.3	.623	.70	4,600
The year	12,300	50	515	4.15	56.39	373,000

* Estimated.

KALAMA RIVER BASIN

KALAMA RIVER NEAR KALAMA, WASH.

LOCATION.—Staff gage in sec. 7, T. 6 N., R. 1 E., 150 feet below power plant of Puget Sound Power & Light Co. and 6 miles east of Kalama.

DRAINAGE AREA.—184 square miles.

RECORDS AVAILABLE.—July, 1911, to September, 1913, incomplete; August, 1916, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 10,900 second-feet Mar. 31 (gage height, 9.88 feet); minimum, 170 second-feet Oct. 1-5 (gage height, 0.60 foot).

1911-1913, 1916-1931: Maximum discharge, 13,200 second-feet Nov. 25, 1927 (gage height, 11.0 feet); minimum, 156 second-feet Dec. 4, 1929 (gage height, 0.55 foot).

REMARKS.—Records good. No diversions for irrigation. Slight fluctuations caused by operation of power plant above gage. Gage-height record furnished by Puget Sound Power & Light Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	170	237	440	440	1,090	1,230	8,960	840	360	480	240	185
2	170	228	570	570	1,020	1,230	3,750	780	360	460	234	185
3	170	210	502	840	900	1,300	2,750	698	342	420	231	182
4	170	207	502	1,020	840	1,230	2,290	670	342	400	231	182
5	170	207	460	1,940	780	1,020	2,110	620	325	400	231	182
6	190	201	420	1,620	698	960	2,110	645	325	360	243	290
7	342	198	490	1,300	670	900	3,390	620	325	360	231	237
8	219	204	400	1,020	620	840	2,750	570	325	342	228	213
9	246	290	400	900	570	960	2,200	548	342	342	225	201
10	207	440	400	900	548	1,300	1,860	548	300	325	219	198
11	190	360	595	1,300	525	1,620	1,700	525	342	325	216	195
12	185	645	620	1,230	502	1,780	1,540	525	325	325	216	195
13	182	595	1,230	1,090	480	1,460	1,540	525	342	325	213	192
14	231	480	1,020	1,090	480	1,230	1,780	502	342	308	210	192
15	210	840	840	1,020	525	1,100	1,620	480	380	308	210	190
16	190	725	725	1,780	548	1,100	1,460	570	480	308	207	185
17	228	570	780	1,560	1,300	1,230	1,380	620	400	280	207	182
18	207	595	725	1,460	4,690	2,750	1,230	595	480	280	207	400
19	201	502	780	1,230	3,510	3,280	1,090	502	440	280	207	325
20	190	525	645	1,020	2,290	3,170	1,020	480	400	272	204	240
21	185	645	570	960	1,780	3,170	960	460	380	272	201	225
22	180	670	548	1,300	1,460	2,380	900	440	480	272	201	207
23	188	780	570	3,170	1,230	1,940	840	440	460	272	201	201
24	272	698	548	2,750	1,090	1,700	840	420	480	272	195	192
25	308	698	502	2,290	1,020	1,540	780	420	595	255	195	192
26	308	670	480	2,650	1,160	1,300	780	400	1,230	255	198	190
27	460	595	460	2,290	1,230	1,230	780	400	960	252	195	190
28	342	548	420	2,020	1,230	1,160	780	380	725	240	192	190
29	308	502	420	1,780	1,230	780	380	620	246	190	195	195
30	255	460	400	1,540	2,380	780	380	548	243	190	225	225
31	255	400	400	1,380	8,550	8,550	360	360	243	188	188	188

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	460	170	230	1.25	1.44	14,100
November	840	198	488	2.65	2.96	29,000
December	1,230	400	573	3.11	3.58	35,200
January	3,170	440	1,480	8.04	9.27	91,000
February	4,690	480	1,170	6.36	6.62	65,000
March	8,550	840	1,820	9.89	11.40	112,000
April	6,960	780	1,760	9.57	10.68	105,000
May	840	360	527	2.86	3.30	32,400
June	1,230	325	460	2.50	2.79	27,400
July	480	243	315	1.71	1.97	19,400
August	243	188	211	1.15	1.33	13,000
September	400	182	212	1.15	1.28	12,600
The year	8,550	170	768	4.17	56.62	556,000

COWLITZ RIVER BASIN

COWLITZ RIVER AT PACKWOOD, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 16, T. 13 N., R. 9 E., half a mile above Skate Creek and half a mile northwest of Packwood.

DRAINAGE AREA.—287 square miles.

RECORDS AVAILABLE.—September, 1929, to September, 1931. July, 1911, to December, 1919, at site 1 mile upstream.

EXTREMES.—Maximum discharge during year, 7,440 second-feet Jan. 28 (gage height, 6.88 feet); minimum, 218 second-feet Oct. 16 (gage height, 2.44 feet). 1911–1919, 1929–1931: Maximum discharge, 22,700 second-feet Dec. 29, 1917 (gage height, 10.1 feet at former site); minimum discharge, 160 second-feet Nov. 21, 1929 (gage height, 2.10 feet).

REMARKS.—Records good. Discharge estimated Aug. 5–7, 11–14, 20–23, Sept. 17. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	285	318	748	504	1,760	848	4,360	4,800	3,050	1,100	736	549
2	314	301	890	516	1,480	925	2,660	4,800	2,280	1,100	704	535
3	323	293	862	534	1,340	995	1,900	4,130	1,900	1,060	682	589
4	305	289	814	582	1,180	995	1,580	3,910	1,980	1,100	624	572
5	293	273	788	781	1,100	960	1,480	4,130	2,020	1,140		606
6	611	277	742	841	995	890	1,580	4,460	2,280	1,080	560	540
7	540	269	703	820	925	855	2,660	3,220	2,380	995		390
8	334	293	672	781	862	820	2,300	2,210	2,050	1,030	558	332
9	281	422	660	755	814	820	1,830	1,980	2,360	1,080	587	301
10	277	494	654	781	768	862	1,580	2,310	1,900	960	598	298
11	273	433	722	1,170	729	925	1,430	3,120	1,480	869		306
12	253	1,170	722	1,220	696	995	1,300	4,240	1,340	855		370
13	245	925	834	1,100	666	960	1,260	5,040	1,580	883	570	411
14	253	820	800	995	648	890	1,180	4,660	1,830	800		370
15	233	774	774	925	654	883	1,100	3,800	1,900	794	560	366
16	225	742	768	890	630	925	1,060	3,580	2,380	781	558	341
17	469	672	755	869	696	960	1,140	2,750	2,130	794	552	310
18	450	630	722	827	2,620	1,220	1,100	1,980	1,700	800	594	472
19	375	618	696	794	2,760	1,480	1,030	1,640	1,530	807	558	366
20	332	660	666	762	1,760	1,700	1,030	1,430	1,380	841		310
21	297	660	642	755	1,430	3,180	1,060	1,380	1,340	814	520	301
22	269	660	630	1,340	1,220	2,660	1,180	1,340	1,300	774		289
23	277	684	630	4,470	1,100	1,980	1,180	1,580	1,220	748		277
24	375	690	600	3,260	1,030	1,580	1,390	2,360	1,140	729	558	281
25	346	729	582	2,380	960	1,380	1,700	2,850	1,640	710	524	305
26	552	768	558	2,660	890	1,220	1,900	2,660	3,690	696	487	336
27	629	788	534	3,830	862	1,100	2,540	2,470	2,100	678	457	305
28	450	788	522	6,410	820	1,060	3,580	2,440	1,530	672	511	265
29	411	774	516	4,240	1,030	1,030	4,240	2,600	1,340	678	558	258
30	360	748	504	3,050	1,140	1,140	4,690	3,190	1,180	696	526	438
31	346		499	2,300	4,510	4,510		3,360		703	501	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	629	225	354	1.23	1.42	21,800
November	1,170	269	599	2.09	2.33	35,600
December	890	499	684	2.38	2.74	42,100
January	6,410	504	1,650	5.75	6.63	101,000
February	2,760	630	1,120	3.90	4.06	62,200
March	4,510	820	1,310	4.56	5.26	80,600
April	4,690	1,030	1,900	6.62	7.39	113,000
May	5,040	1,340	3,050	10.6	12.22	188,000
June	3,690	1,140	1,860	6.48	7.23	111,000
July	1,140	672	860	3.00	3.46	52,900
August	736	457	564	1.97	2.27	34,700
September	606	253	381	1.33	1.48	22,700
The year	6,410	225	1,200	4.18	56.49	866,000

COWLITZ RIVER AT MOSSY ROCK, WASH.

LOCATION.—Staff gage in sec. 1, T. 12 N., R. 2 E., at Harmony Bridge, 1 mile north of Mossy Rock and 2½ miles above Tilton River.

DRAINAGE AREA.—1,170 square miles.

RECORDS AVAILABLE.—January, 1912, to September, 1917, incomplete; March, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 28,000 second-feet Apr. 1 (gage height, 15.5 feet); minimum, 740 second-feet Oct. 2.

1912–1917; 1926–1931: Maximum discharge, 30,300 second-feet Jan. 7, 8, 1914 (gage height, 18.0 feet); minimum discharge, 630 second-feet Nov. 21–24, Dec. 3, 5–8, 1929.

Maximum stage known, about 29.4 feet during flood of November, 1906 (discharge, about 51,000 second-feet).

REMARKS.—Records good. No diversions above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	775	1,130	1,820	1,390	7,860	3,530	28,000	11,000	5,470	2,780	1,590	1,160
2.....	740	1,050	1,820	1,490	6,420	3,380	19,700	10,800	4,870	2,640	1,590	1,160
3.....	810	970	2,080	1,490	5,700	2,220	13,400	10,600	3,970	2,500	1,590	1,240
4.....	810	970	1,950	1,490	5,000	3,690	11,000	9,830	3,820	2,500	1,500	1,240
5.....	810	930	1,820	2,080	4,830	3,690	9,100	9,100	3,970	2,500	1,410	1,240
6.....	1,130	890	1,820	2,500	4,330	3,530	8,380	10,200	3,970	2,500	1,410	1,410
7.....	2,500	890	1,700	2,360	4,010	3,380	16,600	9,280	4,120	2,240	1,410	1,240
8.....	1,870	890	1,690	2,080	3,690	3,230	11,200	6,850	4,120	2,240	1,320	1,080
9.....	1,300	970	1,690	1,950	3,530	3,080	9,460	7,610	3,970	2,240	1,410	1,080
10.....	1,130	1,130	1,590	2,220	3,380	3,230	8,020	5,470	3,670	2,240	1,320	1,080
11.....	1,010	1,130	1,700	3,230	3,080	3,530	7,340	6,070	3,370	2,000	1,410	920
12.....	970	1,390	1,820	4,010	2,930	3,690	6,530	7,080	2,780	1,890	1,320	860
13.....	890	2,030	2,080	3,690	2,780	3,850	5,920	8,740	2,640	2,000	1,240	1,080
14.....	930	2,080	2,220	3,380	2,640	3,690	5,620	9,640	3,220	2,000	1,160	1,160
15.....	970	1,950	2,080	3,380	2,640	3,530	5,170	8,380	3,670	1,790	1,320	1,000
16.....	890	1,950	2,080	3,380	2,500	3,380	4,870	7,170	4,120	1,890	1,240	1,000
17.....	1,010	1,950	2,220	3,530	2,640	3,530	4,720	7,010	4,120	1,790	1,320	960
18.....	1,300	1,590	2,080	3,230	3,530	4,330	4,670	5,620	3,670	1,690	1,320	1,000
19.....	1,210	1,590	2,080	3,080	10,200	5,700	4,420	4,870	3,220	1,790	1,410	1,240
20.....	1,050	1,590	1,950	2,930	7,500	6,600	4,120	4,270	3,070	1,890	1,240	920
21.....	1,050	1,590	1,950	2,930	6,060	8,220	3,970	3,970	2,920	1,890	1,320	1,000
22.....	1,050	1,590	1,820	2,780	5,840	10,200	4,120	3,670	2,780	1,790	1,240	920
23.....	970	1,700	1,820	8,790	4,830	8,600	4,120	3,670	2,780	1,790	1,320	920
24.....	970	1,820	1,820	11,600	4,830	7,140	4,270	3,970	2,640	1,790	1,160	880
25.....	1,210	1,820	1,700	8,410	4,010	6,420	4,870	5,170	2,640	1,690	1,240	890
26.....	1,130	1,950	1,700	8,410	4,010	5,700	5,020	5,320	4,870	1,590	1,160	880
27.....	1,700	1,950	1,590	8,410	3,850	5,000	6,070	5,020	5,020	1,590	1,240	920
28.....	1,700	1,950	1,490	14,700	3,530	4,660	7,010	4,270	3,820	1,690	1,080	920
29.....	1,300	1,950	1,490	14,000	-----	4,660	9,100	4,420	3,620	1,590	1,240	840
30.....	1,210	1,950	1,490	11,400	-----	4,660	10,600	4,720	3,070	1,590	1,160	840
31.....	1,130	-----	1,490	9,180	-----	13,100	-----	4,870	-----	1,590	1,160	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	2,500	740	1,140	0.974	1.12	70,160
November.....	2,930	890	1,540	1.32	1.47	91,600
December.....	2,220	1,490	1,820	1.56	1.80	112,000
January.....	14,700	1,390	4,960	4.24	4.98	306,000
February.....	10,200	2,500	4,470	3.82	3.98	243,000
March.....	13,100	2,220	4,940	4.22	4.86	304,000
April.....	28,000	3,970	8,040	6.87	7.66	478,000
May.....	11,000	3,670	6,750	5.77	6.65	415,000
June.....	5,470	2,640	3,660	3.13	3.49	215,000
July.....	2,780	1,590	1,960	1.70	1.96	122,000
August.....	1,590	1,050	1,320	1.13	1.30	81,200
September.....	1,410	840	1,040	.889	.99	61,900
The year.....	28,000	740	3,460	2.96	40.17	2,510,000

COWLITZ RIVER NEAR CASTLE ROCK, WASH.

LOCATION.—Staff gage in sec. 34, T. 10 N., R. 2 W., 2,000 feet below mouth of Toutle River, 2 miles above Castle Rock, and 16 miles above mouth.

DRAINAGE AREA.—2,210 square miles.

RECORDS AVAILABLE.—December, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 65,900 second-feet Apr. 1 (gage height, 13.1 feet); minimum, 1,280 second-feet Oct. 1-3.

1926-1931: Maximum discharge, 74,000 second-feet Nov. 25, 1927 (gage height, 13.95 feet); minimum discharge, 1,230 second-feet Nov. 23, 1929.

REMARKS.—Records good. No diversions.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	1,280	1,930	3,430	3,020	12,700	7,350	63,200	14,000	6,900	5,160	2,200	1,540
2.....	1,280	1,860	3,430	3,430	10,800	7,000	19,600	14,000	6,540	4,540	2,200	1,610
3.....	1,280	1,780	3,650	4,370	9,450	7,350	28,800	13,500	5,490	4,260	2,200	1,680
4.....	1,340	1,710	3,650	4,650	8,550	7,350	21,400	12,500	5,160	4,000	2,050	1,680
5.....	1,340	1,640	3,430	7,750	7,750	7,000	17,800	11,500	4,840	4,000	2,080	1,680
6.....	1,450	1,640	3,430	8,150	7,600	6,300	16,800	11,500	4,840	3,760	2,050	2,200
7.....	3,430	1,590	3,220	7,000	6,650	5,950	22,100	12,500	5,160	3,780	2,050	2,200
8.....	3,430	1,580	3,020	5,600	5,950	5,950	24,700	10,600	5,160	3,530	1,900	2,400
9.....	2,820	1,860	3,020	4,950	5,600	5,600	20,200	8,800	5,160	3,310	1,900	1,680
10.....	2,090	2,090	3,020	5,250	5,250	6,300	16,800	7,650	5,160	3,530	1,820	1,540
11.....	1,930	2,180	3,220	9,900	4,950	7,750	15,100	7,650	4,840	3,100	1,900	1,470
12.....	1,710	2,260	3,870	9,900	4,650	8,550	13,500	8,410	4,260	3,100	1,820	1,470
13.....	1,640	4,370	4,950	9,000	4,370	8,150	12,500	10,160	4,000	3,100	1,820	1,470
14.....	1,640	3,870	5,600	8,150	4,110	7,350	12,500	11,500	4,540	3,100	1,750	1,540
15.....	1,780	3,650	4,950	8,150	4,110	7,000	12,500	10,600	5,160	2,900	1,900	1,540
16.....	1,710	5,250	4,650	9,450	4,370	6,650	10,600	9,650	5,830	2,900	1,750	1,470
17.....	1,780	5,600	4,950	11,200	5,250	7,900	9,650	9,650	6,540	2,710	1,750	1,400
18.....	2,010	4,650	4,950	9,450	16,800	10,800	9,260	9,650	6,180	2,710	1,750	1,610
19.....	2,180	4,110	4,950	7,750	23,900	16,800	8,430	8,030	5,490	2,710	1,750	2,050
20.....	2,010	3,870	4,950	7,000	16,200	16,200	8,030	6,900	4,840	2,710	2,050	1,900
21.....	1,780	3,870	4,370	6,300	12,700	16,800	7,650	6,180	4,260	2,710	1,680	1,610
22.....	1,710	4,110	4,110	7,750	10,400	18,600	7,270	5,830	4,540	2,680	1,680	1,470
23.....	1,640	4,110	4,110	16,800	9,450	16,200	7,270	5,490	4,540	2,630	1,680	1,400
24.....	1,710	4,110	4,110	23,900	8,150	13,700	7,270	5,490	5,160	2,660	1,680	1,340
25.....	2,010	4,110	3,870	18,600	7,750	12,700	7,270	6,180	4,840	2,360	1,680	1,340
26.....	2,180	4,110	3,870	19,800	7,750	10,800	7,650	6,900	8,410	2,360	1,680	1,340
27.....	2,440	4,110	3,650	17,400	8,550	7,350	8,410	6,540	11,800	2,360	1,750	1,340
28.....	3,020	3,870	3,430	19,200	7,750	8,150	9,650	6,180	8,030	2,360	1,610	1,490
29.....	2,630	3,650	3,220	21,100	-----	8,150	11,500	6,180	6,540	2,200	1,610	1,340
30.....	2,260	3,650	3,020	17,400	-----	11,700	13,000	6,180	5,830	2,200	1,610	1,400
31.....	2,090	-----	3,020	14,700	-----	40,800	-----	6,540	-----	2,200	1,610	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	3,430	1,280	1,990	0.900	1.04	122,000
November.....	5,600	1,580	3,240	1.47	1.54	193,000
December.....	5,600	3,020	3,810	1.77	2.04	240,000
January.....	23,900	3,020	10,600	4.80	5.53	652,000
February.....	23,900	4,110	8,600	3.89	4.05	478,000
March.....	40,800	5,600	10,600	4.80	5.53	652,000
April.....	63,200	7,270	16,000	7.24	8.08	982,000
May.....	14,000	5,490	9,320	4.04	4.66	548,000
June.....	11,500	4,000	5,660	2.56	2.86	357,000
July.....	5,160	2,200	3,070	1.39	1.60	180,000
August.....	2,200	1,610	1,830	.828	.95	113,000
September.....	2,200	1,340	1,590	.719	.80	94,000
The year.....	63,200	1,280	6,300	2.85	38.78	4,570,000

CLEAR FORK OF COWLITZ RIVER NEAR PACKWOOD, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 29, T. 14 N., R. 10 E., three-quarters of a mile above mouth and 7 miles northeast of Packwood.

DRAINAGE AREA.—56 square miles (revised).

RECORDS AVAILABLE.—August, 1907, to September, 1917; August, 1930, to September, 1931.

EXTREMES.—Maximum discharge during period Aug. 1, 1930, to Sept. 30, 1931, 1,050 second-feet Mar. 31 (gage height, 5.38 feet); minimum, 40 second-feet Nov. 8 (gage height, 2.17 feet).

1907-1913; 1930-31: Maximum discharge, 2,530 second-feet Nov. 23, 1909 (gage height 7.3 feet, former datum); minimum, that of Nov. 8, 1930.

REMARKS.—Records excellent except those for August, September, 1930, and January, 1931, which are good. No regulation. Small diversion a few hundred feet above gage to accommodate fish hatchery.

Daily discharge, in second-feet, 1930-31

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1930			1930			1930		
1.....		56	11.....	72	68	21.....	58	48
2.....		55	12.....	66	61	22.....	58	48
3.....		54	13.....	66	60	23.....	58	47
4.....		54	14.....	63	66	24.....	57	46
5.....	100	53	15.....	66	62	25.....	57	47
6.....		55	16.....	65	55	26.....	56	48
7.....		56	17.....	64	54	27.....	56	49
8.....		62	18.....	63	51	28.....	56	49
9.....	98	61	19.....	62	49	29.....	58	48
10.....	85	62	20.....	60	48	30.....	57	46
						31.....	56	

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930-31												
1.....	45	58	89	54	299	134	702	715	416	147	69	48
2.....	45	55	109	57	248	138	457	765	332	144	69	48
3.....	44	52	102	58	219	149	348	690	288	139	68	48
4.....	43	50	96	66	190	151	288	622	288	138	67	48
5.....	42	48	90	73	178	147	274	645	288	138	64	48
6.....	73	48	83	70	158	144	291	690	311	133	63	54
7.....	118	45	79	67	144	134	391	542	323	125	62	55
8.....	78	42	76	63	136	128	374	402	314	122	62	52
9.....	63	62	75	63	126	131	323	351	285	118	61	54
10.....	57	73	75	86	120	141	285	364	269	115	61	50
11.....	53	64	86	141	115	147	253	475	208	108	60	50
12.....	50	247	83	141	109	158	234	632	188	104	59	55
13.....	48	148	93	125	103	152	217	740	208	104	59	55
14.....	53	110	86	115	98	144	208	715	243	98	58	58
15.....	49	97	82	104	97	141	193	586	261	96	58	55
16.....	48	89	82	100	94	144	186	546	314	95	58	53
17.....	71	78	81		106	147	197	434	314	91	57	50
18.....	67	72	76		450	190	186	345	241	90	58	68
19.....	60	71	73	90	442	251	176	294	222	86	58	59
20.....	57	76	70		305	269	170	258	195	84	56	54
21.....	55	79	67		241	509	170	248	186	84	54	51
22.....	51	78	66		206	423	182	238	188	82	53	50
23.....	52	81	66	200	186	332	178	280	174	81	52	48
24.....	77	81	63		167	277	197	384	165	79	51	48
25.....	73	86	61		156	243	241	480	186	77	51	47
26.....	107	90	58	354	147	212	294	427	271	75	53	46
27.....	155	91	55	437	139	190	391	388	231	73	51	45
28.....	93	93	54	740	133	178	521	378	193	72	50	45
29.....	75	93	54	582		170	622	402	176	71	49	48
30.....	67	89	52	461		210	690	457	159	70	49	49
31.....	60		52	364		803		476		70	48	

* Estimated.

Monthly discharge, in second-feet, of Clear Fork of Cowlitz River near Packwood, Wash., 1930—31

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
1930						
August.....		56	72.8	1.30	1.50	4,480
September.....	68	46	53.9	.962	1.07	3,210
The period.....						7,690
1930-31						
October.....	155	42	65.5	1.17	1.35	4,030
November.....	247	42	81.5	1.46	1.63	4,850
December.....	109	52	75.3	1.34	1.54	4,630
January.....	740	54	180	3.21	3.70	11,100
February.....	450	94	133	3.27	3.40	10,200
March.....	803	128	216	3.86	4.45	13,300
April.....	702	170	308	5.50	6.14	18,300
May.....	765	238	493	8.62	9.94	29,700
June.....	416	159	248	4.43	4.94	14,800
July.....	147	70	100	1.79	2.06	6,150
August.....	69	48	57.7	1.03	1.19	3,550
September.....	68	45	51.3	.916	1.02	3,050
The year.....	803	42	171	3.05	41.36	124,000

CIPUS RIVER NEAR RANDLE, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 18, T. 11 N., R. 8 E. (unsurveyed), 500 feet above suspension bridge at Tower Rock ranger station and 8 miles southeast of Randle.

DRAINAGE AREA.—323 square miles.

RECORDS AVAILABLE.—October, 1910, to February, 1912; September, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,610 second-feet Mar. 31 (gauge height, 6.58 feet); minimum, 252 second-feet Oct. 5 (gauge height, 2.05 feet). 1910-1912, 1929-31; Maximum discharge, that of Mar. 31, 1931; minimum discharge, 242 second-feet Dec. 3-5, 1929 (gauge height, 2.02 feet).

REMARKS.—Records excellent. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	261	296	435	349	1,680	874	5,560	3,360	1,290	809	502	391
2	272	295	465	365	1,500	892	3,640	3,360	1,190	777	483	412
3	268	283	453	353	1,350	910	2,680	3,100	1,080	761	474	395
4	268	279	447	373	1,250	892	2,220	2,920	1,030	753	452	408
5	265	276	435	508	1,170	857	2,220	2,760	1,000	761	438	430
6	508	276	420	495	1,080	817	2,220	2,920	993	737	415	365
7	632	272	400	453	984	793	3,010	2,600	1,010	713	410	341
8	395	276	390	425	910	769	2,760	2,080	1,000	698	420	333
9	333	326	390	425	865	769	2,370	1,810	993	713	432	341
10	310	353	385	477	825	785	2,080	1,740	937	690	439	326
11	295	322	405	638	793	857	1,880	1,940	841	623	421	310
12	287	544	420	682	753	946	1,740	2,220	769	638	410	326
13	279	602	502	675	713	919	1,620	2,440	825	682	406	329
14	295	477	477	660	682	865	1,500	2,520	974	609	406	333
15	295	459	459	623	668	865	1,400	2,300	1,010	588	406	326
16	287	453	465	630	645	910	1,356	2,080	1,160	567	404	326
17	322	435	465	609	698	928	1,400	1,940	1,070	567	420	318
18	337	400	453	574	2,160	1,360	1,310	1,680	928	595	432	395
19	314	395	447	554	2,690	1,560	1,360	1,450	883	581	408	365
20	306	395	425	540	1,940	1,620	1,230	1,330	809	595	402	341
21	302	415	410	528	1,560	2,370	1,240	1,268	785	574	400	329
22	287	430	400	832	1,400	2,370	1,340	1,200	801	547	388	318
23	291	453	405	3,030	1,240	1,940	1,300	1,190	777	547	391	310
24	361	459	447	2,450	1,120	1,740	1,400	1,270	769	534	391	306
25	369	459	390	1,940	1,060	1,560	1,620	1,400	761	528	380	306
26	337	471	369	2,080	1,000	1,400	1,810	1,400	1,310	521	390	306
27	377	465	357	2,150	946	1,310	2,220	1,330	1,190	495	372	306
28	345	465	345	2,600	892	1,220	2,600	1,280	1,020	502	376	306
29	322	453	345	2,520	-----	1,160	2,920	1,270	928	502	392	298
30	310	441	341	2,220	-----	1,220	3,270	1,300	865	502	371	302
31	306	-----	337	1,940	-----	4,610	-----	1,330	-----	502	367	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October	632	261	327	1.01	1.16	20,100
November	602	272	398	1.23	1.37	23,700
December	502	337	416	1.29	1.49	25,600
January	3,030	349	1,050	3.25	3.75	64,600
February	2,690	645	1,160	3.59	3.74	64,400
March	4,610	769	1,290	3.99	4.60	79,300
April	5,560	1,230	2,100	6.50	7.25	125,000
May	3,360	1,190	1,960	6.07	7.00	121,000
June	1,310	761	967	2.99	3.34	57,500
July	809	495	620	1.92	2.21	38,100
August	502	367	413	1.28	1.48	25,400
September	430	298	340	1.05	1.17	20,200
The year	5,560	261	919	2.85	38.56	668,000

NORTH FORK OF TOUTLE RIVER AT ST. HELEN, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 15, T. 10 N., R. 2 E., at highway crossing half a mile below Hoffstadt Creek, three quarters of a mile above Alder Creek, and three-quarters of a mile west of St. Helen. Zero of gage is 878.03 feet above mean sea level.

DRAINAGE AREA.—120 square miles.

RECORDS AVAILABLE.—September to October, 1909; September, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,450 second-feet Mar. 31 (gage height, 6.64 feet); minimum probably occurred during period of faulty gage-height record Oct. 1-24; not determined.

1909, 1929-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 164 second-feet Sept. 7, 1930 (gage height 1.62 feet).

REMARKS.—Records excellent except those for October and for extreme high water, which are fair. Discharge Oct. 1-24 estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	180	215	330	304	772	581	4,350	700	390	396	208	172
2.....		215	335	355	716	595	2,410	716	365	375	205	176
3.....		215	322	370	672	609	1,660	679	350	350	202	174
4.....		215	312	420	630	581	1,360	651	340	326	198	172
5.....		212	304	560	609	554	1,220	630	335	308	193	178
6.....	250	208	290	542	581	536	1,180	679	330	286	191	215
7.....		208	282	488	548	518	1,740	672	330	274	189	202
8.....		220	270	452	512	500	1,550	609	326	262	187	184
9.....		247	278	440	488	567	1,270	554	322	258	187	180
10.....		247	274	602	470	616	1,140	524	326	250	187	180
11.....	220	229	379	844	446	644	1,020	524	312	247	184	178
12.....		316	381	796	434	686	924	560	286	244	182	182
13.....		308	506	693	418	651	836	595	290	247	182	182
14.....		282	429	637	407	616	900	595	317	244	182	180
15.....		324	412	602	424	609	812	500	355	238	182	176
16.....	210	396	407	700	424	616	756	595	458	232	182	174
17.....		365	424	693	563	602	716	651	370	229	184	174
18.....		326	412	637	1,210	1,080	672	616	350	229	184	226
19.....		317	407	602	1,100	1,180	630	530	345	226	182	206
20.....		340	390	567	868	1,100	595	494	308	223	180	191
21.....	232	380	375	536	764	1,270	567	464	299	220	180	184
22.....		390	370	645	693	1,180	542	440	350	218	178	180
23.....		407	380	1,470	658	1,020	524	424	345	218	178	178
24.....		407	360	1,320	616	940	512	424	375	218	178	174
25.....		412	355	1,180	595	876	494	429	396	215	176	172
26.....	235	402	340	1,360	595	796	494	418	776	212	182	172
27.....	278	380	326	1,220	602	740	518	402	602	210	180	170
28.....	229	370	312	1,140	588	748	567	396	512	210	176	170
29.....	218	355	304	1,020	-----	716	623	385	464	210	176	172
30.....	215	335	299	940	-----	847	651	396	424	210	174	172
31.....	218	-----	294	852	-----	3,890	-----	402	-----	208	172	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	-----	-----	219	1.82	2.10	13,500
November.....	412	208	308	2.57	2.87	18,300
December.....	506	270	350	2.92	3.37	21,500
January.....	1,470	304	742	6.18	7.12	45,600
February.....	1,210	407	622	5.18	5.39	34,500
March.....	3,890	500	854	7.12	8.21	52,500
April.....	4,350	494	1,040	8.67	9.67	61,900
May.....	716	385	539	4.49	5.18	33,100
June.....	776	286	578	3.15	3.51	22,500
July.....	396	208	251	2.09	2.41	15,400
August.....	208	172	185	1.54	1.78	11,400
September.....	229	170	182	1.52	1.70	10,800
The year.....	4,350	-----	471	3.92	53.31	341,000

TOUTLE RIVER NEAR SILVER LAKE, WASH.

LOCATION.—Water-stage-recorder in SE. $\frac{1}{4}$ sec. 19, T. 10 N., R. 1 E., under highway bridge half a mile below junction of North and South Forks, 5 miles northeast of Silver Lake, and 9 miles northeast of Castle Rock.

DRAINAGE AREA.—472 square miles.

RECORDS AVAILABLE.—October, 1919, to December, 1923; September, 1929, to September, 1931. September, 1909, to August, 1912, at site 2 miles downstream.

EXTREMES.—Maximum discharge during year, 28,200 second-feet Mar. 31 (gauge height, 14.73 feet); minimum, 290 second-feet Oct. 5 (gauge height, 1.69 feet).

1910-1912; 1920-1923; 1929-1931: Maximum discharge, 35,600 second-feet

Mar. 2, 1910 (gauge height, 11.0 feet, at former site); minimum discharge, 257 second-feet Nov. 21, 1929.

REMARKS.—Records fair. Discharge estimated Mar. 14. No diversions.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	297	500	1,000	951	2,390	1,810	19,900	2,010	984	1,240	442	326
2.....	297	490	1,030	1,100	2,310	1,770	9,840	2,090	951	1,150	433	326
3.....	297	456	992	1,300	2,090	1,760	5,970	1,930	895	1,080	420	330
4.....	293	442	967	1,490	1,940	1,690	4,530	1,770	850	1,020	406	326
5.....	290	428	935	2,390	1,830	1,570	4,100	1,650	828	967	402	334
6.....	490	420	888	2,390	1,690	1,460	3,840	1,740	813	919	397	509
7.....	1,240	410	850	1,900	1,520	1,400	6,170	1,920	813	880	392	579
8.....	711	415	806	1,600	1,410	1,320	5,770	1,640	806	835	388	446
9.....	649	613	820	1,640	1,310	1,450	4,620	1,490	799	813	384	392
10.....	532	643	828	1,880	1,260	1,690	4,100	1,400	850	799	374	38
11.....	470	543	1,070	2,950	1,210	1,900	3,590	1,330	842	771	366	370
12.....	438	875	1,170	2,790	1,160	1,940	3,270	1,410	785	737	358	370
13.....	415	1,010	1,820	2,550	1,110	1,710	3,190	1,470	757	724	350	374
14.....	505	799	1,650	2,390	1,080	1,680	3,190	1,510	820	704	350	384
15.....	505	1,100	1,440	2,230	1,090	1,660	2,950	1,400	1,120	692	350	362
16.....	465	1,600	1,470	2,790	1,160	1,710	2,710	1,430	1,440	673	350	346
17.....	571	1,490	1,520	3,110	1,580	1,700	2,550	1,670	1,260	655	350	342
18.....	577	1,150	1,520	2,630	4,560	3,780	2,310	1,690	1,100	637	350	548
19.....	500	1,100	1,470	2,310	4,500	4,270	2,230	1,400	1,100	613	354	594
20.....	465	1,150	1,370	2,090	3,350	3,840	2,040	1,280	951	589	342	442
21.....	438	1,270	1,290	1,880	2,790	4,100	1,900	1,200	880	565	338	406
22.....	424	1,280	1,230	2,210	2,390	3,680	1,780	1,130	1,030	543	338	374
23.....	420	1,310	1,270	4,860	2,120	2,950	1,690	1,100	1,060	532	334	358
24.....	495	1,330	1,220	4,580	2,020	2,630	1,620	1,070	1,210	526	338	342
25.....	625	1,350	1,180	3,840	1,930	2,390	1,560	1,080	1,240	510	334	334
26.....	577	1,320	1,130	4,270	1,880	2,120	1,530	1,070	2,650	500	354	326
27.....	865	1,250	1,080	3,760	1,900	1,920	1,530	1,040	2,310	490	362	323
28.....	679	1,180	1,020	3,430	1,860	1,870	1,660	1,010	1,810	475	346	326
29.....	589	1,120	992	2,950	-----	1,990	1,810	984	1,550	465	338	334
30.....	538	1,050	959	2,630	-----	2,630	1,920	984	1,400	466	330	354
31.....	532	-----	943	2,470	-----	18,900	-----	1,000	-----	446	326	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	1,240	290	522	1.11	1.28	32,100
November.....	1,600	410	935	1.98	2.21	55,600
December.....	1,820	806	1,160	2.46	2.84	71,300
January.....	4,860	951	2,560	5.42	6.25	157,000
February.....	4,560	1,080	1,980	4.19	4.36	110,000
March.....	18,900	1,320	2,750	5.83	6.72	169,000
April.....	19,900	1,530	3,800	8.05	8.98	226,000
May.....	2,090	984	1,420	3.01	3.47	87,900
June.....	2,650	767	1,130	2.39	2.67	67,200
July.....	1,240	446	710	1.50	1.73	43,700
August.....	442	326	364	.771	.89	22,400
September.....	594	323	386	.818	.91	23,000
The year.....	19,900	290	1,470	3.11	42.31	1,060,000

YOUNGS RIVER BASIN

YOUNGS RIVER NEAR ASTORIA, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 27, T. 7 N., R. 9 W., 3 miles southwest of Olney and 9 miles south of Astoria.

DRAINAGE AREA.—30 square miles.

RECORDS AVAILABLE.—August, 1927, to September, 1931; March, 1916, to September, 1917 (stage only), at site 2 miles upstream.

EXTREMES.—Maximum discharge during year, 5,840 second-feet Mar. 31 (gage height, 6.3 feet); minimum, 4 second-feet Aug. 31 to Sept. 2.

1927-1931: Extremes, those of 1931.

REMARKS.—Records good except those estimated and those below 50 or over 1,000 second-feet, which are fair. No diversions or regulation above station. Gage-height record furnished by city engineer of Astoria.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	8	23	52	97	150	220	1,760	51	17	54	9	4
2.....	7	21	122	160	132	183	858	50	17	50	9	4
3.....	7	20	107	247	118	164	500	47	17	44	9	5
4.....	7	18	88	384	106	144	375	44	16	39	8	* 20
5.....	7	17	78	445	110	127	280	41	16	34	8	* 20
6.....	22	16	71	367	95	115	340	47	15	30	9	* 80
7.....	86	15	64	276	84	104	849	49	15	27	9	44
8.....	44	28	60	212	77	97	517	42	14	25	8	24
9.....	37	127	77	174	72	216	365	37	16	24	8	17
10.....	27	120	108	160	68	272	289	34	19	23	7	17
11.....	18	77	138	192	64	419	226	32	18	21	7	14
12.....	14	192	216	157	60	472	190	30	17	20	7	7
13.....	12	155	460	146	58	340	198	29	20	21	7	7
14.....	15	190	282	185	55	253	302	28	49	21	6	6
15.....	20	495	235	228	64	213	257	27	39	20	6	6
16.....	17	510	259	622	79	200	210	37	28	18	6	6
17.....	15	411	307	470	816	192	190	47	26	17	6	6
18.....	13	282	256	321	1,020	606	162	39	26	15	6	* 24
19.....	12	241	304	241	585	606	143	31	24	15	6	6
20.....	11	202	266	195	370	444	124	29	20	14	6	6
21.....	11	160	212	200	272	451	112	27	20	14	6	6
22.....	10	133	183	1,370	213	386	100	30	30	13	5	5
23.....	11	112	247	1,750	183	384	90	28	39	12	5	5
24.....	53	97	195	798	159	229	82	25	34	12	5	16
25.....	63	84	170	560	170	210	74	24	64	11	5	15
26.....	46	74	148	479	208	183	70	23	312	11	6	14
27.....	84	66	130	370	307	185	65	21	144	11	6	14
28.....	47	62	112	298	261	479	60	21	101	10	5	14
29.....	36	56	101	232	-----	517	57	20	78	10	5	16
30.....	29	51	91	195	-----	1,420	63	19	66	10	5	25
31.....	27	-----	83	170	-----	4,540	-----	18	-----	10	4	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	86	7	26.3	0.877	1.01	1,620
November.....	510	15	133	4.43	4.94	7,910
December.....	460	52	168	5.60	6.46	10,366
January.....	1,750	97	377	12.6	14.53	23,260
February.....	1,020	55	195	6.50	6.77	10,906
March.....	4,540	97	460	15.3	17.64	28,300
April.....	1,760	53	298	9.93	11.08	17,700
May.....	51	18	33.1	1.10	1.27	2,046
June.....	312	14	43.9	1.46	1.63	2,610
July.....	54	10	21.2	.707	.82	1,300
August.....	9	4	6.6	.220	.25	406
September.....	80	4	22.0	.733	.82	1,310
The year.....	4,540	4	149	4.97	67.22	107,000

* Estimated.

STREAMS BETWEEN COLUMBIA RIVER AND KLAMATH RIVER

ROGUE RIVER BASIN

ROGUE RIVER ABOVE BYBEE CREEK, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 26, T. 30 S., R. 3 E., 500 feet above Bybee Creek and 2 miles northeast of Union Creek.

DRAINAGE AREA.—118 square miles.

RECORDS AVAILABLE.—January, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,050 second-feet Apr. 1 (gage height, 4.74 feet); minimum (estimated), 190 second-feet about Sept. 5.

1930-31: Maximum discharge, that of Apr. 1, 1931; minimum, that of Sept. 5, 1931.

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station. Gage-height record furnished by California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.	235	225	225	* 250	288	288	1,690	670	270	252	204	
2.	230	225	250	* 200	282	298	1,080	670	265	248	204	
3.	228	225	275	* 250	282	320	858	630	262	242	206	
4.	225	228	252	* 250	285	341	730	592	260	240	206	
5.	225	228	243	265	285	326	670	592	258	238	206	
6.	225	225	245	258	280	320	730	575	255	232	210	
7.	238	228	245	250	275	312	730	558	255	235	210	
8.	258	230	245	245	270	310	650	505	258	235	210	
9.	245	260	245	240	270	320	610	505	262	230	210	
10.	232	265	245	250	270	312	592	498	278	228	* 210	* 200
11.	230	240	332	238	270	344	575	498	260	228	* 209	
12.	230	260	262	235	265	440	558	470	255	225	* 209	
13.	228	288	353	232	262	440	558	470	252	225	* 208	
14.	228	252	295	232	272	410	540	522	230	225	208	
15.	230	216	280	238	278	395	505	455	238	222		
16.	230	312	278	* 250	268	410	505	425	308	220		
17.	230	305	298	* 249	268	425	540	410	323	218		
18.	228	295	258	* 249	285	750	522	377	292	216		
19.	228	290	260	248	332	710	505	368	285	216		
20.	228	272	252	245	295	930	522	362	270	214		
21.	228	260		245	288	952	540	347	278	212		
22.	230	238		262	285	890	575	335	265	210	* 200	
23.	232	235		320	290	710	540	333	290	210		
24.	252	232		300	285	610	522	315	252	210		* 210
25.	268	225		285	285	558	505	312	248	210		
26.	242	220	* 230	295	285	505	505	305	255	208		
27.	238	216		288	290	498	540	295	332	208		
28.	235	216		288	280	470	558	288	290	206		
29.	230	216		290		440	630	282	298	204		
30.	230	218		290		610	650	278	255	204		
31.	228			290		1,110		275		206		198

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	268	225	234	1.98	2.28	14,400
November	312	216	245	2.08	2.32	14,600
December	353		254	2.15	2.48	15,600
January	320	232	281	2.21	2.55	16,000
February	332	262	281	2.38	2.48	15,600
March	1,110	288	508	4.31	4.97	31,200
April	1,690	505	641	5.43	6.06	38,100
May	670	275	435	3.69	4.25	26,700
June	332	248	271	2.30	2.57	16,100
July	252	204	222	1.88	2.17	13,600
August			204	1.73	1.99	12,500
September			204	1.73	1.98	12,100
The year	1,690		313	2.65	36.05	226,000

* Estimated.

ROGUE RIVER ABOVE PROSPECT, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 19, T. 32 S., R. 3 E., $1\frac{1}{2}$ miles above intake of diversion of California Oregon Power Co., 3 miles above Mill Creek, and 2 miles northwest of Prospect.

DRAINAGE AREA.—332 square miles (revised).

RECORDS AVAILABLE.—July, 1907, to February, 1912, incomplete; October, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,750 second-feet Apr. 1 (gage height, 4.70 feet); minimum, 213 second-feet Aug. 28, Sept. 4, 5 (gage height, 1.17 feet).

1907-1912, 1923-1931: Maximum discharge, about 9,300 second-feet Nov. 22, 1909 (gage height, about 7.0 feet); minimum, that of Aug. 28, Sept. 4, 5, 1931.

REMARKS.—Records good except those estimated and those for March and April, which are fair. No diversions or regulation above station. Gage-height record furnished by California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	308	283	283	* 290	375	360	3,120	852	345	291	224	216
2	300	283	313	* 300	365	390	2,000	868	336	287	224	216
3	291	283	350	* 290	360	435	1,500	817	331	287	224	216
4	287	283	313	300	355	400	1,260	762	326	283	224	213
5	287	279	300	304	355	435	1,120	749	318	283	224	213
6	287	279	287	304	350	415	1,170	736	313	279	224	220
7	300	275	279	291	340	405	1,170	698	308	275	224	234
8	340	279	275	283	331	400	1,040	623	313	275	224	230
9	322	322	275	263	326	415	960	606	322	267	224	252
10	308	336	279	* 270	322	400	920	595	340	259	220	238
11		304	425	* 280	318	445	868	595	308	259	220	230
12		318	375	291	313	639	824	590	304	255	216	227
13		385	515	281	308	662	817	578	308	255	216	227
14		* 300	318	405	285	584	782	656	336	255	220	227
15			365	304	331	556	730	568	365	232	220	224
16			360	340	322	551	723	540	420	248	216	224
17	291	* 350	331	313	322	568	756	530	430	248	238	224
18	291		313	300	355	1,220	749	495	375	248	234	244
19	291		308	304	460	1,120	710	475	360	248	237	283
20	* 300		287	313	395	1,550	710	460	336	244	224	255
21		* 300	283	267	304	380	1,550	736	450	336	241	224
22		* 300	283	300	322	365	1,450	749	435	322	241	230
23		* 310	287	304	420	375	1,170	692	420	313	238	220
24		340	291	295	410	370	968	662	415	300	230	227
25		* 360	287	259	375	365	852	639	410	295	230	220
26		* 330	287	275	390	360	762	650	395	308	230	216
27		* 310	287	275	390	370	730	674	385	420	227	216
28		* 300	287	* 270	385	355	710	710	375	355	227	216
29		291	283	* 270	385		674	782	365	313	224	216
30		287	279	* 280	390		984	852	355	300	224	216
31		283		* 280	385		2,060		350		224	220

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	360	283	304	0.916	1.06	18,700
November		275	306	.922	1.03	18,200
December	515	259	313	.943	1.09	19,200
January	420	263	325	.979	1.13	20,000
February	460	308	352	1.06	1.10	19,500
March	2,060	360	772	2.33	2.69	47,500
April	3,120	639	969	2.92	3.26	57,700
May	868	350	553	1.67	1.92	34,000
June	430	295	335	1.01	1.13	19,900
July	291	224	253	.762	.88	15,600
August	238	216	222	.669	.77	13,600
September	283	213	230	.693	.77	13,700
The year	3,120	213	411	1.24	16.83	298,000

* Estimated.

ROGUE RIVER BELOW SOUTH FORK OF ROGUE RIVER, NEAR PROSPECT, OREG.

LOCATION.—Water-stage recorder in SW. ¼ sec. 16, T. 33 S., R. 2 E., at Peyton Bridge, 6 miles southwest of Prospect.

DRAINAGE AREA.—643 square miles.

RECORDS AVAILABLE.—April, 1929, to September, 1931.

EXTREMES.—Maximum and minimum discharges during year not determined; maximum occurred Apr. 1 and minimum about Sept. 1.

1929-1931: Maximum discharge (estimated), 10,000 second-feet Dec. 19, 1929; minimum, 572 second-feet Aug. 24, 1929.

REMARKS.—Records good except those estimated, which are fair. Minor irrigation diversions above station. Considerable diurnal fluctuation, owing to operation of power plant 4 miles upstream. Gage-height record furnished by California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	770	683	744	822	888	888	*5,500	1,620	862	791		
2.....	770	683	784	842	888	920	3,500	1,660	895	765		
3.....	770	677	790	836	855	955	2,710	1,580	830	778		
4.....	770	683	790	796	855	990	2,300	1,540	862	758		
5.....	764	689	803	803	855	955	2,110	1,460	830	732		
6.....	758	677	790	790	842	920	2,110	1,540	*824	746		
7.....	764	677	770	770	822	920	2,110	1,460	810	720		
8.....	842	683	758	744	810	888	1,930	1,340	810	746		
9.....	810	713	758	707	803	990	1,800	1,340	817	706		
10.....	764	744	758	719	790	888	1,750	1,300	830	713		
11.....	758	701	920	764	790	990	1,700	1,260	804	700		
12.....	738	719	888	744	777	1,200	1,620	1,300	804	700		
13.....	732	848	1,130	744	777	1,320	1,620	1,260	804			
14.....	719	732	955	738	790	1,160	1,540	1,340	830			
15.....	725	764	888	777	822	1,130	1,460	1,260	862			
16.....	719	990	888	842	810	1,130	1,460	1,180	930		*590	*610
17.....	707	955	836	803	790	1,130	1,500	1,140	*965			
18.....	725	790	810	777	829	1,800	1,600	1,110	862			
19.....	719	770	810	790	1,020	1,840	1,420	1,040	830			
20.....	707	751	777	790	920	2,450	1,420	1,040	830			
21.....	707	744	725	784	920	2,600	1,460	1,000	796			
22.....	707	732	744	796	888	2,500	1,540	1,000	804			
23.....	701	738	770	888	888	2,110	1,420	965	765		*663	
24.....	738	738	764	990	888	1,840	1,380	930	791			
25.....	803	732	677	888	888	1,700	1,340	965	798			
26.....	744	732	683	888	888	1,540	1,380	930	817			
27.....	725	732	683	888	920	1,460	1,380	930	965			
28.....	719	732	689	888	888	1,420	1,460	895	895			
29.....	707	738	707	888		1,340	1,500	930	817			
30.....	707	725	701	888		1,590	1,620	862	804			
31.....	701		790	888		2,930		862				

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	842	701	742	1.15	1.33	45,600
November.....	990	677	742	1.15	1.28	44,200
December.....	1,130	677	793	1.23	1.42	48,800
January.....	990	707	815	1.27	1.46	50,100
February.....	1,020	777	854	1.33	1.38	47,400
March.....	2,930	888	1,440	2.24	2.58	88,500
April.....	5,500	1,340	1,850	2.88	3.21	110,000
May.....	1,660	862	1,190	1.85	2.13	73,200
June.....	965	765	838	1.30	1.45	49,900
July.....	791		692	1.08	1.24	42,500
August.....			*590	.918	1.06	36,300
September.....			*610	.949	1.06	36,300
The year.....	5,500		930	1.45	19.60	673,000

* Estimated.

ROGUE RIVER AT RAYGOLD, NEAR CENTRAL POINT, OREG.

LOCATION.—Water-stage recorder in sec. 18, T. 36 S., R. 2 W., at Raygold, just below dam and power house of California Oregon Power Co., half a mile below Bear Creek, and 6 miles northwest of Central Point.

DRAINAGE AREA.—2,020 square miles.

RECORDS AVAILABLE.—August, 1905, to September, 1931.

EXTREMES.—Maximum discharge during year, 8,420 second-feet Apr. 1 (gage height, 5.30 feet); minimum not recorded.

1905-1931: Maximum discharge, 91,500 second-feet Feb. 21, 1927; minimum stage indeterminate, as water goes below intake pipe of well during low stages, which are usually of short duration.

REMARKS.—Records good except those for May 15 to June 30, which are poor. Numerous diversions for irrigation above station. Diurnal fluctuation, owing to operation of power plant immediately above station. Gage-height record furnished by California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	850	885	962	1,060	1,160	1,400	6,450	1,820	887	885	672	627
2.....	864	860	976	1,160	1,120	1,350	5,810	1,820	878	887	666	627
3.....	850	887	1,050	1,550	1,120	1,350	4,080	1,820	864	880	660	627
4.....	850	864	1,120	1,400	1,120	1,350	3,290	1,700	837	844	654	632
5.....	850	864	1,010	1,300	1,070	1,300	2,880	1,600	844	804	654	632
6.....	844	844	990	1,450	1,070	1,250	2,760	1,600	830	772	649	616
7.....	837	857	990	1,350	1,070	1,200	2,760	1,550	818	792	649	632
8.....	850	871	983	1,250	1,040	1,200	2,570	1,450	818	770	609	638
9.....	969	899	962	1,120	1,050	1,200	2,330	1,400	824	792	649	649
10.....	864	927	941	1,010	1,050	1,250	2,210	1,400	844	759	644	672
11.....	844	934	1,120	1,050	1,010	1,200	2,150	1,300	864	766	644	684
12.....	864	871	1,250	1,050	1,010	1,450	2,040	1,300	804	772	638	666
13.....	837	976	1,500	1,020	1,010	1,760	2,040	1,350	798	726	632	660
14.....	830	976	1,550	1,040	1,010	1,650	1,960	1,400	906	733	632	654
15.....	837	998	1,300	1,060	1,120	1,550	1,870	1,400	913	740	632	649
16.....	913	1,650	1,250	1,200	1,120	1,500	1,760	1,350	1,120	733	638	649
17.....	830	1,650	1,200	1,250	1,050	1,500	1,760	1,300	1,300	726	638	649
18.....	844	1,300	1,200	1,200	1,120	2,420	1,760	1,200	1,050	720	644	649
19.....	824	1,160	1,160	1,070	1,700	3,020	1,700	1,120	906	740	644	733
20.....	837	1,030	1,160	1,120	1,600	3,290	1,600	1,070	899	740	644	830
21.....	864	1,010	1,060	1,120	1,400	3,640	1,650	1,070	899	740	638	746
22.....	824	1,010	998	1,120	1,300	3,780	1,650	1,040	837	746	644	726
23.....	818	1,020	1,010	1,160	1,400	3,080	1,600	1,010	892	702	644	684
24.....	785	1,030	1,020	1,300	1,400	2,630	1,550	1,020	948	720	644	714
25.....	1,010	1,010	1,010	1,350	1,350	2,390	1,500	969	948	690	644	720
26.....	955	1,020	885	1,300	1,300	2,150	1,500	983	927	690	638	714
27.....	871	1,010	913	1,250	1,550	1,960	1,500	969	1,060	672	638	720
28.....	892	990	906	1,200	1,500	1,920	1,500	948	1,250	672	638	714
29.....	864	969	920	1,200	-----	1,870	1,600	920	963	678	632	720
30.....	899	962	920	1,200	-----	1,920	1,920	927	878	672	627	726
31.....	892	-----	962	1,160	-----	3,640	-----	850	-----	666	632	-----
Month	Maximum						Minimum		Mean		Run-off in acre-feet	
October.....	1,010						785		863		53,100	
November.....	1,650						844		1,010		60,100	
December.....	1,550						885		1,070		65,800	
January.....	1,550						1,010		1,200		73,800	
February.....	1,700						1,010		1,210		67,200	
March.....	3,780						1,200		1,970		121,000	
April.....	6,450						1,500		2,330		139,000	
May.....	1,820						850		1,280		78,700	
June.....	1,300						798		920		54,700	
July.....	885						666		747		45,900	
August.....	672						627		642		39,500	
September.....	830						616		679		40,400	
The year.....	6,450						616		1,160		839,000	

MILL CREEK NEAR PROSPECT, OREG.

LOCATION.—Staff gage in SE. ¼ sec. 28, T. 32 S., R. 3 E., 1 mile northeast of Prospect and 2 miles above mouth.

DRAINAGE AREA.—32 square miles.

RECORDS AVAILABLE.—August to October, 1910; May, 1925, to September, 1931.

EXTREMES.—Maximum discharge recorded during year, 134 second-feet Apr. 3 (gage height, 2.88 feet, undoubtedly higher Mar. 31 or Apr. 1); minimum, 24 second-feet Sept. 4-25.

1910, 1925-1931: Maximum discharge, 200 second-feet Feb. 20, 1927; minimum, that of Sept. 4-25, 1931.

REMARKS.—Records fair. Gage read once a week. No diversions or regulation above station. Gage-height record furnished by California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.				38				80		32		
2.												
3.	34						134			32		
4.					33	35			35			24
5.			36									
6.												
7.		35									26	24
8.				36				68				
9.												
10.	34						92			29		
11.			42									24
12.					32				33			
13.						41						
14.		36									25	
15.				36				52				
16.												
17.	33						74			28		
18.			36									24
19.					37				35			
20.						84						
21.		36		36							25	
22.				36				42				
23.	32					88						
24.	34						76			27		
25.												24
26.			35		34				33			
27.		36				66						
28.											25	
29.				36				37				
30.												
31.	34									26		

Month	Mean	Per square mile	Run-off	
			Inches	Acre-feet
October	* 33.5	1.05	1.21	2,060
November	* 37.7	1.13	1.32	2,240
December	* 35.3	1.10	1.27	2,170
January	* 36.3	1.13	1.30	2,230
February	* 32.2	1.01	1.05	1,790
March	* 53.1	1.66	1.91	3,260
April	* 94.0	2.94	3.28	5,590
May	* 55.8	1.74	2.01	3,430
June	* 34.0	1.06	1.18	2,020
July	* 29.0	.906	1.04	1,750
August	* 25.2	.788	.91	1,550
September	* 24.0	.750	.84	1,430
The year	40.8	1.28	17.32	29,600

* Mean of days when gage was read.

† Estimated by comparison with Rogue River above Prospect.

SOUTH FORK OF ROGUE RIVER NEAR PROSPECT, OREG.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 7, T. 33 S., R. 4 E., a quarter of a mile below mouth of Innaha Creek and 6 miles southeast of Prospect.

DRAINAGE AREA.—79 square miles.

RECORDS AVAILABLE.—April, 1924, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 602 second-feet Apr. 1 (gage height, 2.63 feet); minimum, about 35 second-feet in September, when no gage-height record was obtained.

1924-1931: Maximum discharge, 1,980 second-feet Dec. 19, 1929; minimum, that of September, 1931.

REMARKS.—Records fair. Discharge estimated July 16 to Sept. 30. No diversions or regulation above station, but diversion dam for California Oregon Power Co. was under construction during summer just above station. Gage-height record furnished by California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1	55	50	56	55	55	64	445	182	81	65	
2	55	50	61	56	56	65	322	182	81	64	
3	54	50	65	55	56	67	252	172	80	63	
4	53	50	61	55	57	69	223	165	80	60	
5	52	50	59	54	58	68	209	165	76	60	
6	52	50	58	54	58	67	218	165	75	59	
7	54	50	57	53	57	66	218	156	73	58	
8	62	50	56	52	56	66	197	143	73	58	
9	59	50	56	52	57	69	186	138	72	57	
10	56	50	57	52	56	69	182	135	73	57	
11	55	50	65	53	56	74	179	132	71	56	
12	55	53	66	53	56	79	172	132	70	56	
13	54	59	84	54	56	80	172	130	69	55	
14	54	55	70	55	59	79	165	135	72	56	
15	53	58	66	56	61	80	156	129	77	57	
16	53	118	65	55	59	84	154	119	81		* 38
17	53	78	63	53	59	90	161	114	89		
18	52	64	61	53	64	145	163	108	80		
19	52	59	61	53	72	140	156	107	77		
20	52	57	59	52	65	193	158	103	76		
21	53	57	58	52	63	215	165	101	76		
22	53	57	57	54	62	213	175	98	72		
23	53	58	58	63	65	184	161	96	70		* 50
24	56	58	56	59	63	167	151	94	69		
25	59	57	55	57	62	152	146	93	66		
26	55	57	52	57	63	139	148	91	69		
27	55	57	55	56	63	132	154	89	82		
28	54	56	54	56	62	127	156	87	75		
29	52	55	55	56		121	170	85	70		
30	52	55	55	56		145	179	82	67		
31	51		55	55		231		81			

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	62	51	54.1	0.685	0.79	3,330
November	118	50	57.3	.725	.81	3,410
December	84	52	59.9	.758	.87	3,680
January	63	52	54.7	.692	.80	3,300
February	72	55	59.9	.758	.79	3,330
March	231	64	114	1.44	1.66	7,010
April	445	140	190	2.41	2.69	11,300
May	182	81	123	1.56	1.80	7,500
June	89	66	74.7	.946	1.06	4,440
July	65		54.2	.686	.79	3,330
August			* 38	.481	.55	2,340
September			* 41	.519	.58	2,440
The year	445		76.7	.971	13.19	55,500

* Estimated.

MIDDLE FORK OF ROGUE RIVER NEAR PROSPECT, OREG.

LOCATION.—Water-stage recorder in NE. ¼ sec. 1, T. 33 S., R. 3 E., at intake of proposed diversion into Rogue River 5 miles southeast of Prospect.

DRAINAGE AREA.—57 square miles.

RECORDS AVAILABLE.—May, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 590 second-feet Apr. 1 (gauge height, 2.30 feet); minimum, 72 second-feet Aug. 24 to Sept. 5.

1925-1931: Maximum discharge, 1,200 second-feet Dec. 19, 1929; minimum, that of Aug. 24 to Sept. 5, 1931.

REMARKS.—Records good. No diversions or regulation above station, but construction started in July on a diversion dam just above station. Gauge-height record furnished by California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	97	95	101	95	101	103	482	192	107	89	76	72
2.....	95	95	107	101	101	101	333	192	107	89	76	72
3.....	95	95	107	99	101	103	265	185	105	87	76	72
4.....	95	93	103	97	101	105	225	182	105	87	74	72
5.....	95	93	101	97	101	103	208	188	105	87	74	72
6.....	95	93	99	97	99	103	218	192	103	86	76	74
7.....	97	93	99	95	97	101	212	182	101	87	76	78
8.....	109	95	97	93	97	101	192	166	97	87	76	80
9.....	103	97	97	91	95	105	185	163	97	87	76	82
10.....	99	101	101	91	95	101	182	163	99	87	76	76
11.....	99	99	116	91	93	105	175	166	95	85	* 76	76
12.....	99	113	116	93	95	113	163	172	95	85	* 76	76
13.....	97	109	123	91	95	111	160	175	95	85	76	76
14.....	97	103	111	91	97	109	154	172	99	83	77	76
15.....	97	111	107	95	97	109	145	163	103	82	77	76
16.....	97	151	107	97	95	111	148	151	105	80	74	76
17.....	97	113	105	95	93	116	157	142	105	80	74	76
18.....	97	107	105	95	97	172	157	134	99	82	74	76
19.....	97	103	103	95	105	157	151	128	99	80	76	* 90
20.....	97	101	101	93	101	257	154	125	97	80	76	* 85
21.....	97	103	99	95	99	273	166	123	95	80	74	80
22.....	95	103	97	99	99	242	178	123	93	80	74	80
23.....	97	105	97	105	101	202	160	120	93	80	76	80
24.....	101	103	97	101	101	185	151	120	91	78	72	78
25.....	101	103	97	99	99	166	151	120	91	78	72	78
26.....	97	101	99	99	101	157	157	118	95	78	72	80
27.....	97	101	97	99	101	148	166	116	107	78	72	* 80
28.....	97	103	95	99	99	142	172	113	97	77	72	80
29.....	95	101	97	99	99	137	185	111	95	77	72	80
30.....	95	101	95	99	99	222	188	109	91	77	72	82
31.....	95	95	95	101	99	354	109	109	76	72	72	82

Month	Maximum	Minimum	Mean	Per square mile-	Run-off	
					Inches	Acre-feet
October.....	109	95	97.5	1.71	1.97	6,000
November.....	151	93	103	1.81	2.02	6,130
December.....	123	95	102	1.79	2.06	6,270
January.....	105	91	98.4	1.69	1.95	5,930
February.....	105	93	98.4	1.73	1.80	5,460
March.....	354	101	149	2.61	3.01	9,160
April.....	482	145	191	3.35	3.74	11,400
May.....	192	109	149	2.61	3.01	9,160
June.....	107	91	98.9	1.74	1.94	5,880
July.....	89	76	82.4	1.45	1.67	5,070
August.....	77	72	74.6	1.31	1.51	4,590
September.....	90	72	77.7	1.36	1.52	4,620
The year.....	482	72	110	1.93	26.20	79,700

* Estimated or interpolated.

RED BLANKET CREEK NEAR PROSPECT, OREG.

LOCATION.—Staff gage 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, 1931. Prior to October, 1928, in NE. $\frac{1}{4}$ sec. 24, T. 32 S., R. 3 E.

EXTREMES.—Maximum discharge recorded during year, 184 second-feet Mar. 20, Apr. 3 (somewhat higher Mar. 31 or Apr. 1); minimum, 34 second-feet Sept. 3, 4, 25.

1925-1931: Maximum discharge, 1,200 second-feet Mar. 11, 1928; minimum, that of Sept. 3, 4, 25, 1931.

REMARKS.—Records fair. One irrigation diversion above station. Gage read only once a week. Gage-height record furnished by California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.								87		47		
2.				63								
3.	48						184			47		34
4.			62									34
5.					60	63			46			
6.												
7.		47										
8.				56				94			37	
9.												
10.	49						102			39		
11.			68									35
12.					56				47			
13.						75						
14.		49									35	
15.				57				81				
16.												
17.	48						81			39		
18.			61									38
19.					64				51			
20.				55		184						
21.		60									35	
22.				62				62				
23.						111						
24.	54						71			37		
25.			57									34
26.					64				48			
27.		62				81						
28.											35	
29.				62				52				
30.												
31.	48									36		

Month	Mean	Per square mile	Run-off	
			Inches	Acre-feet
October.....	^a 49.4	1.24	1.43	3,040
November.....	^b 57.3	1.43	1.60	3,410
December.....	^a 62.0	1.55	1.79	3,810
January.....	^a 59.2	1.48	1.71	3,640
February.....	^b 57.7	1.44	1.50	3,200
March.....	^b 87.3	2.18	2.51	5,370
April.....	^a 110	2.75	3.07	6,550
May.....	^a 75.2	1.88	2.17	4,620
June.....	^a 48.0	1.20	1.34	2,860
July.....	^a 40.8	1.02	1.18	2,510
August.....	^a 35.5	.888	1.02	2,180
September.....	^a 35.0	.875	.98	2,080
The year.....	59.8	1.50	20.30	43,300

^a Mean of days when gage was read.

^b Estimated by comparison with Rogue River above Prospect.

SOUTH FORK OF BIG BUTTE CREEK NEAR BUTTE FALLS, OREG.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 11, T. 35 S., R. 2 E., just below Ginger Creek and 1 mile above Butte Falls.

RECORDS AVAILABLE.—September, 1910, to October, 1911; August to October, 1915; October, 1917, to September, 1922; March, 1925, to September, 1931.

Comparable records at station at Butte Falls, August, 1922, to March, 1925.

EXTREMES.—Maximum discharge during year, 312 second-feet Apr. 1 (gage height, 1.23 feet); minimum, 42 second-feet Aug. 11 (gage height, 0.34 foot).
1910–11, 1915, 1917–1931: Maximum discharge, 2,470 second-feet Feb. 20, 1927; minimum, that of Aug. 11, 1931.

REMARKS.—Records fair. Diversions for irrigation and Medford municipal supply above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.	74	78	76	72	89	• 68	289	96	55	60	47	• 50
2.	72	76	80	86	89	68	261	93	55	62	47	50
3.	74	72	80	93	82	74	254	91	54	61	45	50
4.	72	78	• 81	93	78	80	208	89	52	61	44	49
5.	72	80	82	91	76	84	192	82	50	62	45	47
6.	72	76	84	93	74	80	179	76	49	62	45	49
7.	74	89	82	82	72	76	164	72	• 50	61	45	56
8.	76	86	82	74	72	76	150	70	• 51	60	45	58
9.	76	89	82	70	64	80	134	72	52	56	47	60
10.	76	72	86	68	61	76	126	72	50	55	44	58
11.	76	74	82	70	64	78	123	74	49	54	44	56
12.	76	84	86	68	61	91	120	76		55	44	55
13.	74	93	105	68	60	96	118	86		52	45	55
14.	74	86	98	70	64	96	112	120		52	44	54
15.	72	102	96	66	66	96	93	115		50	44	52
16.	72	167	98	147	62	96	102	100		52		52
17.	72	115	96	150	66	100	98	98	• 52			49
18.	72	91	93	134		200	96	96		48		54
19.	74	82	91	123		192	93	93		47		62
20.	76	78	86	112		196	91	91		45		62
21.	74	76	82	105		204	89	80		45		60
22.	74	74	78	96		212	86	84		45		56
23.	76	74	78	120	• 65	192	89	82	55	45	• 47	54
24.	78	74	74	160		183	93	61	55	45		55
25.	72	74	72	150		167	96	61	54	45		55
26.	74	72	68	141		160	98	60	58	44		52
27.	74	72	68	129		150	100	58	64	44		50
28.	76	72	66	118		147	100	58	60	44		50
29.	72	72	66	110		134	96	56	58	44		54
30.	70	74	66	105		141	98	55	60	45		54
31.	70		70	96		147		55		45		
Month	Maximum						Minimum		Mean		Run-off in acre-feet	
October	78						70		73.7		4,530	
November	167						72		83.4		4,960	
December	105						66		81.7		5,020	
January	160						66		102		6,270	
February	89						68		68.4		3,800	
March	212						68		124		7,620	
April	289						86		131		7,800	
May	120						55		78.5		4,830	
June	64						44		53.4		3,180	
July	62						44		51.5		3,170	
August	62						44		46.0		2,830	
September	62						47		53.9		3,210	
The year	289						44		79.0		57,200	

• Estimated.

SOUTH FORK OF LITTLE BUTTE CREEK AT BIG ELK RANGER STATION, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 21, T. 37 S., R. 4 E., 1 mile south of Big Elk ranger station and 15 miles southeast of Lakecreek.

RECORDS AVAILABLE.—October, 1926, to September, 1931; incomplete (discontinued).

EXTREMES.—Maximum discharge during year, 31 second-feet Nov. 16 (gage height, 1.57 feet); minimum, 4 second-feet July 8–15.

1926–1931: Maximum discharge, 111 second-feet during period clock was not running, Apr. 10 to June 10, 1927; minimum, that of July 8–15, 1931.

REMARKS.—Records fair. No diversions or regulation above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930–31

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

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	8	6	6.5	400
November.....	27	5	8.5	506
December.....	8	6	6.9	424
January.....	7	6	6.7	412
February.....	6	6	6.0	333
March.....	9	6	7.5	461
April.....	16	10	11.0	655
May.....	15	5	8.1	498
June.....	6	5	5.3	315
July.....	5	4	4.7	289
August.....	6	5	5.5	338
September.....			5.0	298
The year.....	27	4	6.8	4,930

* Estimated.

SOUTH FORK OF LITTLE BUTTE CREEK NEAR LAKECREEK, OREG.

LOCATION.—Water-stage recorder in SE. ¼ sec. 29, T. 36 S., R. 2 E., a quarter of a mile above intake of Rogue River Valley Canal and 1½ miles southeast of Lakecreek.

RECORDS AVAILABLE.—April, 1921, to September, 1931. At station in sec. 11, T. 37 S., R. 2 E., 5 miles above Lakecreek, November, 1910, to April, 1913.

EXTREMES.—Maximum discharge during year, 130 second-feet Apr. 1 (gage height, 1.92 feet); minimum, 2 second-feet Aug. 10 (gage height, 0.97 foot). 1910-1913, 1921-1931: Maximum discharge (very uncertain), 3,000 second-feet Dec. 30, 1924 (gage height, 5.25 feet); minimum, that of Aug. 10, 1931.

REMARKS.—Records good. Diversions for irrigation above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	15	17	17	20	43	103	40	8	8	5	5
2	15	14	20	22	19	43	94	49	7	8	5	5
3	14	14	24	24	19	41	79	40	8	8	4	4
4	14	14	23	22	22	41	71	33	8	7	4	4
5	14	14	20	26	23	36	70	28	9	7	3	5
6	14	14	19	25	23	33	71	26	9	5	3	6
7	14	14	16	24	23	31	71	23	8	5	3	8
8	17	14	16	22	22	31	66	22	8	6	4	8
9	17	14	16	18	22	34	58	18	8	5	3	9
10	14	14	16	18	22	33	57	17	9	5	3	9
11	14	14	17	17	20	37	57	16	8	5	3	9
12	14	15	20	17	20	41	55	15	8	4	4	9
13	14	24	40	17	19	54	62	14	8	3	5	5
14	14	19	31	17	23	50	57	23	9	3	5	5
15	14	18	24	18	24	47	52	23	10	4	6	5
16	14	40	25	25	20	49	47	18	18	5	5	10
17	14	37	24	22	19	47	46	16	19	4	6	6
18	14	26	23	19	22	68	44	13	14	5	6	6
19	14	23	24	18	36	64	43	12	14	4	5	5
20	13	19	20	17	28	73	40	12	14	4	5	5
21	13	17	20	17	30	90	37	11	12	3	5	10
22	13	18	19	17	28	108	37	12	11	3	6	10
23	13	19	18	19	44	83	36	11	9	3	7	10
24	14	19	18	23	43	73	36	11	8	4	6	9
25	16	18	17	23	36	66	34	10	7	3	6	9
26	16	18		23	31	62	31	9	9	3	6	9
27	15	18		23	43	58	29	8	15	4	5	9
28	14	19	17	22	41	60	28	8	15	4	4	9
29	14	17		22		58	24	9	13	5	5	10
30	14	17		22		55	40	9	11	5	4	10
31	15		17	22		60		9		6		

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	17	13	14.3	879
November	40	14	18.5	1,100
December	40	16	20.3	1,250
January	26	17	20.6	1,270
February	44	19	26.5	1,470
March	108	31	53.8	3,310
April	103	24	52.5	3,120
May	49	8	18.2	1,120
June	19	7	10.5	625
July	8	3	4.8	295
August	7	3	4.7	289
September		4	8.5	506
The year	108	3	21.0	15,200

FISH LAKE RESERVOIR NEAR LAKECREEK, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 3, T. 37 S., R. 4 E., at reservoir outlet 18 miles east of Lakecreek. Gage graduated to read elevation above sea level, irrigation company datum.

DRAINAGE AREA.—17 square miles.

RECORDS AVAILABLE.—December, 1915, to September, 1931.

EXTREMES.—Maximum contents during year, 3,806 acre-feet May 24–26 (elevation, 4,815.90 feet); minimum, 87 acre-feet Aug. 16, 29 (elevation, 4,800.82 feet).

1915–1931: Maximum contents, 7,527 acre-feet June 2–5, 1928 (elevation, 4,826.00 feet); minimum, practically zero.

REMARKS.—Records good. Water is diverted during summer from Fourmile Lake in Klamath River Basin through Cascade Canal into Fish Lake. Records furnished by State engineer.

Monthly stage and contents of Fish Lake Reservoir near Lakecreek, Oreg., 1930–31

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	4,802.54	261	-----	May 31.....	4,815.42	3,648	+272
Oct. 31.....	4,806.75	1,114	+853	June 30.....	4,808.40	1,540	-2,108
Nov. 30.....	4,809.38	1,808	+694	July 31.....	4,800.98	99	-1,441
Dec. 31.....	4,811.05	2,288	+480	Aug. 31.....	4,800.84	88	-11
Jan. 31.....	4,812.19	2,629	+341	Sept. 30.....	-----	* 88	0
Feb. 28.....	4,813.00	2,877	+248				
Mar. 31.....	4,813.85	3,142	+265				
Apr. 30.....	4,814.58	3,376	+234	The year.....	-----	-----	-173

* Estimated.

NORTH FORK OF LITTLE BUTTE CREEK AT FISH LAKE, NEAR LAKECREEK, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 4, T. 37 S., R. 4 E., at outlet of Fish Lake, 18 miles east of Lakecreek.

DRAINAGE AREA.—18 square miles.

RECORDS AVAILABLE.—October, 1914, to September, 1931; incomplete prior to 1917.

EXTREMES.—Maximum discharge during year, 98 second-feet July 9 (gage height, 3.47 feet); practically no flow at times in October, November.

1914-1931: Maximum discharge, 158 second-feet July 10, 1930; practically no flow at times.

REMARKS.—Records fair. Flow regulated by storage in Fish Lake Reservoir. Cascade Canal diverts water from Fournile Lake in Klamath River Basin into Fish Lake Basin; no diversions from creek above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Mar.	Apr.	May	June	July	Aug.	Sept
1	6	7	10	55	* 34	20	17
2	6	7	11	54	* 39	20	17
3	6	7	12	66	* 44	19	17
4	6	7	12	76	* 57	20	16
5	6	7	12	76	60	21	16
6	6	6	13	74	66		15
7	6	7	14	72	64		14
8	6	7	21	70	72		13
9	6	7	29	68	86		15
10	6	7	32	66	85		17
11	6	7	34	66	82		18
12	6	7	33	76	76	* 21	17
13	6	7	36	76	75		17
14	6	7	24	73	69		16
15	6	7	16	66	62		17
16	6	7	17	29	52		17
17	6	7	18	15	41		17
18	6	7	20	23	29		18
19	6	7	29	23	25		18
20	6	7	29	23	23		19
21	6	8	29	23	23	21	18
22	6	8	29	23	24	21	18
23	6	8	29	25	21	21	19
24	6	8	29	26	21	20	20
25	6	9	29	38	20	20	19
26	6	9	30	42	19	20	19
27	6	9	33	42	19	21	18
28	6	9	36	* 40	20	19	17
29	6	9	38	* 38	19	17	19
30	6	10	48	* 36	19	17	19
31	6		53		20	17	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October			* 0.2	12
November			* 1.0	60
December			* 2.0	123
January			* 4.0	246
February			* 5.0	278
March	6	6	6.0	369
April	10	6	7.5	446
May	53	10	28.0	1,600
June	76	15	49.3	2,330
July	86	19	44.1	2,710
August		17	20.3	1,250
September	20	13	17.2	1,020
The year	86		15.3	11,000

* Estimated.

NORTH FORK OF LITTLE BUTTE CREEK ABOVE INTAKE OF ROGUE RIVER VALLEY CANAL,
NEAR LAKECREEK, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 21, T. 36 S., R. 2 E., one-eighth of a mile above intake of Rogue River Valley Canal and 1 mile east of Lakecreek.

RECORDS AVAILABLE.—April, 1916, to September, 1919, incomplete; April, 1921, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 169 second-feet June 16 (gage height, 1.78 feet); minimum, 5 second-feet May 5-8.

1916-1919, 1921-1931: Maximum discharge, 1,560 second-feet Dec. 30, 1924 (gage height, 5.42 feet); minimum, that of May 5-8, 1931.

REMARKS.—Records good except those for period Dec. 28 to Jan. 2, which are fair. Flow regulated by storage in Fish Lake Reservoir. Diversions for irrigation above gage. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	10	12	" 23	18	27	71	12	61	38	9	11
2	11	9	14	" 23	18	27	43	8	60	32	9	12
3	11	9	14	23	18	28	36	7	63	40	10	11
4	11	9	14	21	18	29	33	6	81	42	10	9
5	12	9	14	22	19	26	32	6	84	50	9	8
6	12	9	14	22	19	21	31	5	84	54	9	9
7	13	9	" 14	20	20	21	32	6	84	56	14	10
8	14	9	" 14	19	21	21	31	7	88	63	15	9
9	13	9	" 14	18	19	23	30	19	84	82	16	8
10	12	9	" 14	18	19	22	29	27	84	93	15	8
11	12	9	" 16	18	19	22	29	36	82	90	13	9
12	12	14	" 19	18	19	22	27	36	97	91	12	10
13	12	13	22	18	20	22	29	37	103	84	10	
14	11	12	18	18	22	22	28	54	104	90	13	
15	11	18	18	19	23	22	28	16	114	75	14	
16	11	49	22	20	22	21	28	14	91	60		" 11
17	11	25	19	18	23	24	27	13	16	46		
18	11	18	19	18	31	31	27	12	24	30		
19	11	14	21	18	34	28	27	22	22	23	" 14	
20	11	14	19	16	24	30	23	25	21	20		
21	11	14	18	17	23	38	22	29	21	17		12
22	11	14	17	16	22	33	22	25	20	16	14	12
23	11	13	17	19	38	29	23	25	21	14	14	9
24	12	13	17	19	27	28	23	30	18	18	12	9
25	12	13	16	19	25	27	22	27	28	16	12	10
26	12	13	16	21	25	27	18	26	41	14	13	8
27	12	12	23	21	36	26	18	32	64	14	13	6
28	12	13	" 23	21	29	27	8	34	52	14	13	8
29	12	13	" 23	20		28	9	36	41	13	12	10
30	9	12	" 23	19		29	8	28	38	12	10	8
31	10		" 23	19		31		57		12	11	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	14	9	11.5	707
November	49	9	13.6	809
December	23	12	17.6	1,080
January	23	16	19.4	1,190
February	38	18	23.2	1,290
March	38	21	26.2	1,610
April	71	8	27.1	1,610
May	57	5	23.1	1,420
June	114	16	59.7	3,550
July	93	12	42.5	2,610
August	16	9	12.5	769
September	12	6	9.8	583
The year	114	5	23.8	17,200

• Estimated.

DIVERSIONS FROM LITTLE BUTTE CREEK NEAR LAKECREEK, OREG.

Hanley South and Hanley North Canals divert from North Fork of Little Butte Creek in SE. $\frac{1}{4}$ sec. 26, T. 36 S., R. 2 E.; water used to irrigate land on both sides of Little Butte Creek near Lakecreek. Rogue River Valley Canal diverts from South Fork of Little Butte Creek in SE. $\frac{1}{4}$ sec. 29, T. 36 S., R. 2 E. and from North Fork of Little Butte Creek 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 creek below Phoenix. Eagle Point Canal diverts from Little Butte Creek in SE. $\frac{1}{4}$ sec. 31, T. 35 S., R. 1 E.; water used for irrigation of lands near Eagle Point. There are many other smaller diversions from Little Butte Creek and tributaries.

Records are available from April, 1929, to September, 1931; records of some of the canals published separately prior to 1929.

Records furnished by State engineer.

Monthly diversions, in acre-feet, from Little Butte Creek near Lakecreek, Oreg., March to September, 1931

Month	Hanley South Canal	Hanley North Canal	Rogue River Val- ley Canal below junc- tion of intakes	Eagle Point Canal
March.....			1,920	
April.....	* 69	* 96	1,270	* 188
May.....	390	602	1,600	781
June.....	402	637	3,400	797
July.....	448	494	1,830	627
August.....	371	492	218	541
September.....	322	528	298	643
The period.....	2,002	2,849	10,536	3,577

* Apr. 21-30; no record Apr. 1-20 but probably some flow.

NOTE.—No record for months for which discharge is not given.

EMIGRANT GAP RESERVOIR NEAR ASHLAND, OREG.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 20, T. 39 S., R. 2 E., at Emigrant Gap Dam of Talent Irrigation District, 6 miles southeast of Ashland. Gage graduated to read sea-level elevation.

RECORDS AVAILABLE.—December, 1924, to September, 1931.

EXTREMES.—Maximum contents during year, 2,385 acre-feet Apr. 22 (elevation, 2,135.4 feet); no storage most of fall and winter.

1924-1931: Maximum contents, 8,748 acre-feet Feb. 20, 1927 (elevation, 2,175.2 feet); no storage at times.

REMARKS.—Records fair. Emigrant Gap Reservoir was completed in 1924 by the Talent Irrigation District to provide water for lands under East and Talent laterals in vicinity of Talent, Oreg. Natural flow into reservoir may be augmented by water stored in Hyatt Prairie Reservoir and released through Keene Creek Canal in Klamath River Basin, records of which are published in Water-Supply Paper 721. Records furnished by State engineer.

Monthly stage and contents of Emigrant Gap Reservoir, near Ashland, Oreg., 1930-31

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....		0		June 30.....		* 1	-866
Jan. 31.....		* 683	^b +683	July 31.....		0	-1
Feb. 28.....		* 1,180	+497	Aug. 31.....		0	0
Mar. 31.....		* 2,119	+939	Sept. 30.....		0	0
Apr. 30.....	2,129.9	1,906	-213				
May 31.....		* 867	-1,039	The year.....			0

* Interpolated from gage readings about once a week.

^b From Sept. 30.

* Estimated.

EMIGRANT CREEK NEAR ASHLAND, OREG.

LOCATION.—Water-stage recorder in SE. ¼ sec. 20, T. 39 S., R. 2 E., 500 feet below Emigrant Gap Reservoir Dam and 6 miles southeast of Ashland.

RECORDS AVAILABLE.—January, 1920, to May, 1924, incomplete; October, 1924, to September, 1931.

EXTREMES.—Maximum discharge during period, 29 second-feet June 16 (gage height, 1.38 feet); practically no flow at times.

1920–1931: Maximum discharge, 5,260 second-feet Feb. 20, 1927; no flow at times.

REMARKS.—Records fair. Diversions for irrigation above station; principal canals are Ashland lateral and East lateral. Keene Creek Canal diverts water into Emigrant Creek from Klamath River Basin. Flow regulated since December, 1924, by storage in Emigrant Gap Reservoir. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1931

Day	April	May	June	Day	April	May	June
1.....			2.0	16.....		0.5	10.0
2.....			2.0	17.....		.5	0
3.....			3.0	18.....		.5	6.5
4.....			3.0	19.....		.5	14.0
5.....			2.5	20.....		.5	22.0
6.....			2.0	21.....		.5	22.0
7.....			.5	22.....		1.0	21.0
8.....			0	23.....		1.0	19.0
9.....			.5	24.....		1.0	17.0
10.....			2.0	25.....		1.0	15.0
11.....			1.5	26.....		1.0	14.0
12.....			1.5	27.....		1.5	11.0
13.....			1.0	28.....		2.0	5.0
14.....			1.0	29.....		1.5	1.0
15.....			2.0	30.....		2.0	.5
				31.....		2.0	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
April.....			0.2	12
May.....	2.0		.72	44
June.....	22	0	6.75	402
The period.....				458

• Estimated.

NOTE.—No record October to March; probably little or no flow. No flow during July, August, September.

BEAR CREEK AT MEDFORD, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 30, T. 37 S., R. 1 W., just above Main Street Bridge in Medford.

RECORDS AVAILABLE.—March, 1915, to April, 1927, incomplete; May, 1927, to September, 1931.

EXTREMES.—Maximum discharge recorded during year, 41 second-feet Oct. 29 (gage height, 0.84 foot); minimum, 0.3 second-foot July 31 (gage height, -0.04 foot). Maximum discharge may have been greater during period of no record, Oct. 17-28.

1915-1931: Maximum discharge, 10,200 second-feet Feb. 20, 1927 (gage height, 10.15 feet); practically no flow at times.

REMARKS.—Records fair except those estimated, which are poor. Diversions for irrigation above station. Flow partly regulated since December, 1924, by storage in Emigrant Gap Reservoir. Record furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5	10	17	17	17	7.2	12	1.7	0.8	2.2		
2	5	8.4	16	20	17	7.2	9.6	1.6	.7	1.8		
3	4	7.6	17	20	16	7.2	7.6	1.6	.7	1.8		
4	4	7.2	18	19	17	8.0	7.2	2.2	.7	1.8		
5	4	7.6	17	20	16	8.8	6.4	1.5	.7	1.7		
6	4		17	24	16	8.8	6.0	1.3	.7	1.5		
7	5		17	23	16	8.8	5.6	1.2	.9	1.5		
8	5		17	20	16	8.4	5.3	1.2	.8	1.3		
9	5		17	18	15	9.6	5.0	1.5	.8	1.3		
10	6	* 8.0	17	17	16	9.6	4.6	1.3	.8	1.5		
11	7		19	17	14	11	5.0	1.3	.8			
12	8	11		17	14	9.6	5.0	1.2	.7			
13	9			17	10	14	5.0	1.3	.8			
14	9			17	6.8	14	5.0	1.5	2.2	* 1.1		
15	8		* 22	17	6.8	15	5.0	1.5	2.5		* 0.5	* 0.7
16	8			20	6.8	16	5.3	2.2	3.2			
17				19	6.8	16	5.3	2.2	3.9	.7		
18			20	17	7.2	18	5.0	2.4	4.2	.7		
19			20	17	7.2	19	4.6	2.0	3.2	.6		
20		* 20	20	17	8.4	20	4.2	1.6	3.2	.6		
21			19	17	8.8	20	3.9	1.5	3.6	.9		
22		* 20	18	17	9.2	19	3.6	1.5	2.1	.6		
23			18	17	9.6	23	3.6	1.3	2.1	.6		
24			17	21	12	23	3.2	1.7	2.0	.6		
25			* 16	20	9.6	20	2.8	1.5	2.0	.6		
26			14	19	8.8	16	2.5	1.1	2.4	.6		
27		19	14	18	7.2	14	2.4	1.0	3.2	.5		
28		18	14	18	7.2	13	2.1	.9	3.2	.4		
29	39	19	14	18		14	2.0	.8	5.0	.4		
30	28	19	15	18		13	1.7	.8	5.6	.4		
31	15		16	19		13		.8		.3		

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October		4	13.5	830
November		7.2	15.2	904
December		14	17.9	1,100
January	24	17	18.5	1,140
February	17	6.8	11.5	639
March	23	7.2	13.7	842
April	12	1.7	4.88	290
May	2.4	0.8	1.46	90
June	5.6	.7	2.12	126
July	2.2	.3	1.02	63
August			* .5	31
September			* .7	42
The year			8.42	6,100

* Estimated.

DIVERSIONS IN BEAR CREEK BASIN, OREG.

Ashland lateral of Talent Irrigation District diverts from Sampson Creek in SW. ¼ sec. 26, T. 39 S., R. 2 E., for irrigation of lands near Ashland; most of flow is contributed by Keene Creek Canal, which diverts from Keene Creek in Klamath River Basin. East lateral of Talent Irrigation District diverts from Emigrant Gap Reservoir in SE. ¼ sec. 20, T. 39 S., R. 2 E., for irrigation of lands chiefly on the east side of Bear Creek Valley above Medford. Talent lateral of Talent Irrigation District diverts from Bear Creek in SW. ¼ sec. 33, T. 38 S., R. 1 E., for irrigation of lands near Talent. Phoenix Canal diverts from Bear Creek in NW. ¼ sec. 23, T. 38 S., R. 1 W., to supplement flow of Medford Irrigation District canal for irrigation of lands west of Bear Creek. Bear Creek Canal diverts from Bear Creek at Medford for irrigation of lands west of Bear Creek near Central Point. Numerous smaller diversions from Bear Creek and tributaries.

Records are available from April, 1929, to September, 1931; records for some of the canals published separately prior to 1929.

Records furnished by State engineer.

Monthly diversions, in acre-feet, in Bear Creek Basin, Oreg., 1931

Month	Ashland lateral	East lateral	Talent lateral	Phoenix Canal	Bear Creek Canal
February.....		0	a 177	324	
March.....	a 42	0	a 557	281	
April.....	49	470	174	189	b 167
May.....	381	1,100	31	146	c 92
June.....	199	910	393	170	179
July.....	0	0	44	a 57	135
August.....	0	0	0	a 17	a 55
September.....	0	0	0	c 30	c 89
The period.....	671	2,480	1,376	1,214	717

a Partly estimated.

b Apr. 6-30 (partly estimated); no record Apr. 1-5.

c Estimated.

NOTE.—Probably little or no flow in months for which no record is given, except in Phoenix Canal.

WEST FORK OF ASHLAND CREEK NEAR ASHLAND, OREG.

LOCATION.—Water-stage recorder in sec. 32, T. 39 S., R. 1 E., three-quarters of a mile above confluence with East Fork and 4 miles south of Ashland.

DRAINAGE AREA.—9.4 square miles.

RECORDS AVAILABLE.—September, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 15 second-feet Nov. 16 (gage height, 1.02 feet); minimum, 1.3 second-feet Aug. 29 (gage height, 0.38 foot).

1924-1931: Maximum discharge, 281 second-feet Feb. 20, 1927 (gage height, 3.15 feet); minimum, that of Aug. 29, 1931.

REMARKS.—Records good. Discharge estimated Dec. 26-28. No diversions or regulation above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	2.4	3.4	3.2	4.0	3.7	5.8	7.3	2.7	2.4	1.7	1.5
2	2.7	2.3	3.5	3.2	3.8	3.8	4.9	6.7	2.7	2.4	1.7	1.5
3	2.4	2.3	3.4	3.0	3.8	4.0	4.4	6.2	2.7	2.3	1.7	1.5
4	2.3	2.3	3.2	3.0	3.7	3.8	4.2	5.8	2.6	2.3	1.7	1.5
5	2.2	2.4	3.0	3.5	3.8	3.7	4.7	5.8	2.6	2.3	1.7	1.5
6	2.3	2.6	3.0	3.2	3.4	3.5	5.1	5.6	2.4	2.3	1.6	1.8
7	2.6	2.4	2.9	3.2	3.4	3.4	5.1	5.4	2.3	2.3	1.6	2.2
8	3.7	2.9	2.9	3.0	3.5	3.5	4.9	5.1	2.3	2.3	1.6	2.6
9	3.0	2.6	2.9	2.9	3.5	3.5	4.5	4.9	2.3	2.3	1.5	2.6
10	2.9	2.6	3.8	3.0	3.5	3.7	4.4	4.7	2.3	2.3	1.5	2.0
11	2.9	2.4	4.2	3.0	3.5	5.6	4.7	4.7	2.3	2.2	1.6	1.9
12	2.9	4.4	5.3	3.2	3.4	5.1	4.5	4.7	2.3	2.2	1.6	1.9
13	2.6	3.7	5.3	3.2	3.2	4.9	4.5	4.9	2.3	2.3	1.6	1.9
14	2.6	3.0	4.0	3.0	3.4	4.5	4.5	5.4	3.5	2.3	1.6	1.9
15	2.6	3.4	3.8	3.4	3.2	4.5	4.2	4.7	7.1	2.2	1.6	2.0
16	2.6	7.3	3.8	3.4	3.0	4.5	4.2	4.5	7.6	2.2	1.6	1.9
17	2.4	4.0	3.5	3.0	3.0	4.5	4.2	4.4	4.9	2.0	1.6	1.9
18	2.4	3.4	3.4	3.2	3.7	7.1	4.0	4.2	3.8	2.0	1.6	2.6
19	2.4	3.4	3.2	3.2	3.7	5.8	4.0	3.8	3.5	1.9	1.6	3.2
20	2.4	3.2	2.9	3.2	3.4	6.9	4.2	3.8	3.4	1.8	1.5	2.2
21	2.4	3.4	3.2	3.2	3.2	8.0	4.4	3.8	3.0	1.7	1.5	2.0
22	2.4	3.5	3.2	4.0	3.2	7.6	4.4	3.7	3.0	1.8	1.6	2.1
23	2.3	3.5	3.2	6.7	3.8	6.7	4.2	3.7	2.9	1.8	1.5	2.1
24	2.7	3.5	3.2	4.4	3.5	6.0	4.0	3.7	2.9	1.9	1.5	2.2
25	2.7	3.5	3.2	4.2	3.4	5.4	4.0	3.7	2.7	2.0	1.5	2.2
26	2.6	3.4	3.2	4.5	3.4	5.1	4.2	3.5	2.9	2.1	1.6	2.1
27	2.6	3.4	3.1	4.4	3.4	4.7	4.4	3.5	3.8	2.0	1.5	2.1
28	2.4	3.2	3.0	4.4	3.5	4.7	4.5	3.4	3.0	2.0	1.4	2.1
29	2.4	3.2	3.0	4.4	-----	4.5	5.6	3.2	3.0	1.8	1.4	2.2
30	2.4	3.2	3.0	4.2	-----	4.5	6.2	3.0	2.7	1.8	1.4	2.1
31	2.4	-----	3.0	4.2	-----	4.9	-----	2.9	-----	1.7	1.5	-----

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3.7	2.2	2.58	159
November	7.3	2.3	3.23	192
December	5.3	2.9	3.41	210
January	6.7	2.9	3.60	221
February	4.0	3.0	3.47	193
March	8.0	3.4	4.91	302
April	6.2	4.0	4.56	271
May	7.3	2.9	4.54	279
June	7.6	2.3	3.18	189
July	2.4	1.7	2.09	129
August	1.7	1.4	1.57	97
September	3.2	1.5	2.04	121
The year	8.0	1.4	3.26	2,360

EAST FORK OF ASHLAND CREEK NEAR ASHLAND, OREG.

LOCATION.—Water-stage recorder in sec. 28, T. 39 S., R. 1 E., a quarter of a mile above confluence with West Fork, 100 yards above diversion for power plant, and 3½ miles south of Ashland.

DRAINAGE AREA.—7.8 square miles.

RECORDS AVAILABLE.—September, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 16 second-feet Mar. 18 (gage height, 1.12 feet); minimum, 1.0 second-foot Aug. 29 to Sept. 4.

1924-1931: Maximum discharge, 292 second-feet Feb. 20, 1927 (gage height, 3.5 feet); minimum, that of Aug. 29 to Sept. 4, 1931.

REMARKS.—Records fair. Discharge estimated Dec. 26-28. No regulation or diversions above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1-----	3.0	2.0	3.0	3.0	3.0	3.0	5.5	7.5	4.0	3.0	1.5	1.0
2-----	3.0	2.0	3.0	3.0	3.0	3.5	4.5	7.0	4.0	3.0	1.5	1.0
3-----	2.5	2.0	3.0	3.0	3.0	3.5	4.0	6.5	3.5	3.0	1.5	1.0
4-----	2.5	2.0	3.0	3.0	3.5	3.5	4.0	6.0	3.5	3.0	1.5	1.0
5-----	2.5	2.0	2.5	3.5	3.5	3.0	4.5	6.0	3.5	2.5	1.5	1.5
6-----	2.5	2.0	2.5	3.0	3.0	3.0	5.5	6.0	3.5	2.5	1.5	1.5
7-----	3.0	2.0	2.5	3.0	3.0	3.0	5.0	6.0	3.5	2.5	1.5	2.0
8-----	3.5	3.0	2.5	2.5	3.0	3.0	4.5	5.5	3.5	2.5	1.5	2.5
9-----	3.0	2.5	2.5	3.0	3.0	3.0	4.5	5.5	3.5	2.5	1.5	2.5
10-----	2.5	2.5	3.5	3.0	3.0	3.0	4.5	5.5	3.5	2.0	1.5	2.0
11-----	2.0	2.5	4.5	3.0	3.0	5.5	4.5	5.5	3.5	2.5	1.5	1.5
12-----	2.5	3.5	4.5	3.0	3.0	5.0	4.5	5.5	3.0	2.5	1.5	1.5
13-----	2.5	3.5	4.5	3.0	2.5	5.0	4.5	6.0	3.0	2.5	1.5	1.5
14-----	2.0	2.5	3.5	2.5	3.0	4.5	4.0	7.0	4.0	2.5	1.5	1.5
15-----	2.0	2.5	3.5	2.5	3.0	4.5	4.0	6.5	8.0	2.0	1.5	1.5
16-----	2.0	6.0	3.5	2.5	2.5	4.5	4.0	6.0	8.5	2.0	1.5	1.5
17-----	2.0	3.5	3.0	2.5	3.0	5.0	4.5	6.0	5.5	2.0	1.5	1.5
18-----	2.0	3.0	3.0	2.5	4.0	9.0	4.0	6.0	4.5	2.0	1.5	2.5
19-----	2.0	3.0	3.0	2.5	4.0	7.0	4.5	5.5	4.5	2.0	1.5	2.5
20-----	2.0	3.0	3.0	2.5	3.5	8.5	4.5	5.5	4.0	1.5	1.5	2.0
21-----	2.0	2.5	3.0	2.5	3.0	9.0	4.5	5.0	4.0	1.5	1.5	1.5
22-----	1.5	3.0	3.0	3.5	3.0	8.5	5.0	5.0	4.0	1.5	1.5	1.5
23-----	1.5	3.0	3.0	6.0	4.0	7.0	4.5	5.0	3.5	1.5	1.5	1.5
24-----	1.5	3.0	3.0	3.5	3.5	6.5	4.0	5.0	3.5	1.5	1.5	1.5
25-----	1.5	3.0	2.5	3.5	3.5	5.5	4.0	5.0	3.5	1.5	1.5	1.5
26-----	1.5	3.0	2.5	3.5	3.0	5.0	4.5	4.5	3.5	1.5	1.5	1.5
27-----	1.5	3.0	3.0	3.5	3.0	5.0	4.5	4.5	4.5	1.5	1.5	1.5
28-----	1.5	3.0	3.0	3.0	3.0	5.0	5.0	4.5	3.5	1.5	1.5	2.0
29-----	2.0	3.0	3.0	3.0	---	5.0	6.0	4.0	3.5	1.5	1.0	2.0
30-----	2.0	3.0	2.5	3.0	---	5.0	6.5	4.0	3.0	1.5	1.0	2.0
31-----	2.0	---	2.5	3.0	---	5.0	---	4.0	---	1.5	1.0	---

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October-----	3.5	1.5	2.18	134
November-----	6.0	2.0	2.82	168
December-----	4.5	2.5	3.06	188
January-----	6.0	2.5	3.06	188
February-----	4.0	2.5	3.16	176
March-----	9.0	3.0	5.05	311
April-----	6.5	4.0	4.60	274
May-----	7.5	4.0	5.53	340
June-----	8.5	3.0	4.03	240
July-----	3.0	1.5	2.08	128
August-----	1.5	1.0	1.45	89
September-----	2.5	1.0	1.67	99
The year-----	9.0	1.0	3.22	2,340

APPLEGATE RIVER NEAR RUCH, OREG.

LOCATION.—Water-stage recorder in sec. 15, T. 39 S., R. 3 W., at Cameron Bridge, $1\frac{1}{2}$ miles above mouth of Little Applegate River and $4\frac{1}{2}$ miles south of Ruch.

RECORDS AVAILABLE.—June, 1911, to September, 1914; September, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,950 second-feet Mar. 18 (gauge height, 3.71 feet); minimum, 8.4 second-feet Sept. 8 (gauge height, 0.29 foot).
• 1911-1914, 1925-1931: Maximum discharge (estimated), 20,000 second-feet Feb. 20, 1927 (gauge height, 16.0 feet); minimum, 7 second-feet Sept. 2, 1929 (gauge height, 0.26 foot).

REMARKS.—Records good except those estimated, which are fair. Diversions for irrigation above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	36		• 80	64	239	208	858	356	60	57	21	9.8
2.....	35		• 86	62	222	215	642	308	60	55	19	11
3.....	32		• 76		205	225	518	270	55	55	18	11
4.....	29				199	239	470	246	48	50	16	11
5.....	29			• 288	192	235	482	232	46	48	15	9.8
6.....	28		• 66		183	225	584	225	46	43	14	9.8
7.....	23			112	169	222	636	205	46	39	14	9.0
8.....	24			99	155	218	524	192	52	35	13	9.0
9.....	28		55	88	142	218	464	177	55	35	12	9.8
10.....	27	• 74	58	82	134	205	420	171	52	37	12	11
11.....	25		228	78	132	426	400	163	50	39	12	12
12.....	28		174	76	132	616	356	155	48	35	11	12
13.....	32		400	76	129	459	342	157	48	29	11	11
14.....	33		202	72	144	365	312	171	68	30	11	11
15.....	30		152	72	144	324	287	169	129	30	11	11
16.....	32		132	108	142	312	272	149	169	30	11	11
17.....	30		115	93	160	338	268	142	139	28	11	11
18.....	30		103	82	218	1,320	264	132	106	28	11	11
19.....	29	82	99	78	352	865	249	119	101	28	11	13
20.....	30	82	95	74	260	1,140	246	119	98	27	11	15
21.....	30	78	88	74	239	1,140	253	112	80	27	11	14
22.....	30	78	86	110	228	888	272	106	64	24	11	14
23.....	30	78	84	873	253	655	239	103	66	23	11	14
24.....	33	78	82	500	235	536	215	101	60	22	11	15
25.....	37	78	80	347	228	459	199	99	48	22	11	15
26.....	36	78	74	338	232	410	196	90	45	23	11	15
27.....	36	76	66	334	225	370	208	82	66	25	11	14
28.....	35	78	66	312	208	347	253	72	70	23	11	14
29.....	33	78	66	291		308	320	70	62	22	11	14
30.....	• 33	78	68	272		300	442	66	58	21	11	14
31.....	• 32		68	253		442		64		21	11	
Month	Maximum		Minimum		Mean		Run-off in acre-feet					
October.....	37		23		30.8		1,890					
November.....					75.8		4,510					
December.....	400				104		6,400					
January.....	873		62		199		12,200					
February.....	352		129		196		10,900					
March.....	1,320		205		459		28,200					
April.....	868		196		373		22,200					
May.....	356		64		156		9,590					
June.....	169		45		69.7		4,150					
July.....	57		21		32.6		2,000					
August.....	21		11		12.5		769					
September.....	15		9.0		12.1		720					
The year.....	1,320		9.0		143		104,000					

• Estimated.

ILLINOIS RIVER AT KERBY, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 4, T. 39 S., R. 8 W., at Kerby.

RECORDS AVAILABLE.—March, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 9,000 second-feet Jan. 5 (gage height, 8.00 feet); minimum, 15 second-feet Aug. 18 to Sept. 3, Sept. 7, 8 (gage height, 0.00 foot).

1926-1931: Maximum discharge (estimated), 50,000 second-feet Feb. 20, 1927 (gage height, 19.6 feet); minimum, that of August, September, 1931.

REMARKS.—Records good except those for Jan. 5, 23, Mar. 12-31, which are fair.

Diversions for irrigation above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	40	45	188	590	950	1,050	5,200	366	92	89	18	15
2.....	39	45	200	3,380	850	1,000	2,590	366	89	75	18	15
3.....	38	45	188	2,400	670	850	1,700	342	85	72	17	15
4.....	37	43	175	4,190	630	760	1,580	319	75	66	18	16
5.....	39	46	175	9,000	630	670	1,190	297	75	85	18	16
6.....	37	46	164	2,240	550	630	1,070	275	72	75	18	16
7.....	37	47	153	1,510	510	590	1,020	254	69	63	18	15
8.....	37	60	143	900	475	590	965	244	66	54	18	15
9.....	37	72	133	950	475	690	825	233	66	45	18	16
10.....	38	100	133	850	440	715	780	222	69	42	17	16
11.....	38	94	950	715	405	1,580	780	202	63	42	17	17
12.....	46	85	850	670	373	8,910	739	191	60	30	17	17
13.....	46	62	3,180	630	373	2,450	780	191	57	28	17	17
14.....	43	57	1,650	630	342	1,530	780	202	89	28	17	17
15.....	43	85	950	630	358	1,250	739	202	125	28	17	17
16.....	46	85	805	1,450	358	1,070	702	191	180	28	17	17
17.....	45	227	630	1,160	630	1,020	668	202	170	28	16	17
18.....	43	950	510	950	850	7,700	638	170	149	28	15	17
19.....	43	670	475	900	1,730	3,750	609	170	149	28	15	17
20.....	43	550	440	715	1,270	4,550	580	160	139	28	15	17
21.....	45	475	373	715	1,050	3,380	552	149	72	28	15	18
22.....	45	475	342	1,810	900	2,320	524	149	121	28	15	18
23.....	43	440	326	7,500	850	1,790	496	139	110	28	15	19
24.....	49	405	311	3,180	760	1,450	468	139	106	28	15	19
25.....	50	342	268	2,100	715	1,190	441	139	92	28	15	19
26.....	50	282	254	1,900	670	1,020	415	121	92	26	15	19
27.....	52	268	254	1,510	760	1,020	415	118	106	24	15	19
28.....	49	227	227	1,390	1,110	1,070	390	114	106	22	15	20
29.....	47	227	200	1,160	-----	1,020	390	106	99	22	15	20
30.....	46	200	188	1,050	-----	1,020	390	103	92	20	15	19
31.....	45	-----	227	950	-----	1,890	-----	92	-----	18	15	-----
Month	Maximum		Minimum		Mean		Run-off in acre-feet					
October.....	52		37		43.1		2,650					
November.....	950		43		225		13,400					
December.....	3,180		133		486		29,900					
January.....	9,000		590		1,860		114,000					
February.....	1,730		342		703		39,000					
March.....	7,700		590		1,820		112,000					
April.....	5,200		390		941		56,000					
May.....	366		92		199		12,200					
June.....	180		57		97.8		5,820					
July.....	89		18		40.1		2,470					
August.....	18		15		16.3		1,000					
September.....	20		15		17.2		1,020					
The year.....	9,000		15		539		389,000					

COQUILLE RIVER BASIN

SOUTH FORK OF COQUILLE RIVER AT POWERS, OREG.

LOCATION.—Wire gage in sec. 13, T. 31 S., R. 12 W., at bridge at Powers.

DRAINAGE AREA.—169 square miles.

RECORDS AVAILABLE.—September, 1916, to September, 1926; October, 1928, to September, 1931. Prior to 1923 at station half a mile upstream.

EXTREMES.—Maximum discharge during year, 5,870 second-feet Mar. 12 (gage height, 8.20 feet); minimum, 14 second-feet Sept. 4, 5 (gage height, 0.55 foot).
1916-1926, 1928-1931: Maximum discharge, 25,300 second-feet Oct. 31, 1924 (gage height, 17.5 feet at former gage); minimum, 13 second-feet Nov. 30 to Dec. 3, 1929.

REMARKS.—Records good. Discharge estimated Mar. 17, July 11-13. No diversions or regulation above gage.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	30	100	1,020	450	840	3,840	153	57	55	23	16
2	33	30	110	2,170	355	690	2,360	158	57	52	23	15
3	31	28	114	2,860	345	590	1,750	153	57	52	23	15
4	31	30	110	1,910	308	495	1,080	139	55	50	22	14
5	30	28	121	5,310	290	428	1,020	180	52	47	21	14
6	29	28	114	2,560	255	385	960	134	47	45	21	22
7	31	26	103	1,530	255	345	790	134	50	41	20	31
8	60	43	96	1,260	240	325	900	117	50	39	20	28
9	55	290	100	840	225	590	840	114	50	39	20	28
10	45	225	96	690	210	590	690	114	50	35	18	30
11	43	117	365	540	195	1,990	540	110	50	34	18	24
12	35	100	290	495	182	5,870	540	103	47	33	18	23
13	33	107	1,530	428	182	2,960	615	103	47	32	18	23
14	31	100	1,020	405	168	1,530	590	103	93	31	18	22
15	30	89	640	365	163	1,140	565	100	93	31	18	20
16	30	2,760	565	840	182	960	518	100	103	30	18	18
17	28	1,140	518	900	290	1,000	450	100	86	30	18	18
18	28	740	405	740	450	5,170	365	103	80	30	18	24
19	28	495	495	565	1,830	2,660	365	89	107	28	17	57
20	28	365	366	495	1,080	2,080	345	86	83	26	18	47
21	28	308	325	450	900	1,750	290	80	65	26	20	39
22	28	272	290	840	690	1,460	290	77	60	26	17	31
23	28	240	255	3,840	640	1,020	255	80	57	26	17	26
24	39	210	255	2,360	590	900	225	80	65	26	17	24
25	52	168	225	1,600	518	790	225	80	57	25	17	21
26	50	163	225	1,260	518	790	225	80	57	24	16	20
27	41	143	210	1,020	1,080	690	195	74	103	24	16	20
28	37	125	182	900	840	900	195	68	83	24	16	20
29	35	117	168	690	-----	900	182	63	63	24	16	20
30	31	110	158	590	-----	960	168	60	60	24	16	18
31	31	-----	153	495	-----	1,320	-----	57	-----	23	16	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	60	28	35.3	0.209	0.24	2,170
November	2,760	26	238	1.70	1.90	17,100
December	1,830	96	323	1.91	2.20	19,900
January	5,310	365	1,290	7.63	8.80	79,300
February	1,830	163	481	2.85	2.97	26,700
March	5,870	325	1,370	8.11	9.35	84,200
April	3,840	168	712	4.21	4.70	42,400
May	158	57	101	.598	.69	6,210
June	107	47	66.1	.391	.44	3,980
July	55	23	33.3	.197	.23	2,050
August	23	16	18.5	.109	.13	1,140
September	57	14	24.3	.144	.16	1,450
The year	5,870	14	396	2.34	31.81	287,000

MIDDLE FORK OF COQUILLE RIVER NEAR BRIDGE, OREG.

LOCATION.—Chain gage in or near sec. 36, T. 29 S., R. 11 W., at private road bridge 4 miles east of Bridge.

DRAINAGE AREA.—182 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 3,530 second-feet Apr. 11 (gage height, 7.24 feet); minimum, 1 second-foot several days during year.

1928-1931: Maximum discharge, 4,430 second-feet Apr. 14, 1929 (gage height, 8.2 feet); minimum, 1 second-foot several days during each year.

REMARKS.—Records fair. Daily discharge not sufficiently accurate for publication. No diversions above station. Flow regulated completely during low-water periods and to some extent at all times by logging ponds above gage.

Monthly discharge, in second-feet, 1930-31

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	37	1	6.6	0.036	0.04	406
November.....	1,510	1	197	1.08	1.20	11,700
December.....	2,490	1	283	1.55	1.79	17,400
January.....	2,320	113	585	3.21	3.70	36,000
February.....	1,750	6	243	1.34	1.40	13,500
March.....	2,070	47	666	3.66	4.22	41,000
April.....	3,530	15	647	3.55	3.96	38,500
May.....	2,320	22	124	.681	.79	7,620
June.....	1,040	1	51.1	.281	.31	3,040
July.....	17	1	6.0	.033	.04	369
August.....	225	2	13.9	.076	.09	855
September.....	24	2	8.5	.047	.05	506
The year.....	3,530	1	236	1.30	17.59	171,000

MIDDLE FORK OF COQUILLE RIVER NEAR MYRTLE POINT, OREG.

LOCATION.—Water-stage recorder in S. ½ sec. 26, T. 29 S., R. 12 W., a third of a mile below mouth of Indian Creek and ¾ miles southeast of Myrtle Point. Staff gage used prior to Dec. 3.

DRAINAGE AREA.—305 square miles.

RECORDS AVAILABLE.—October, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year, 7,030 second-feet Mar. 12 (gage height, 13.77 feet); minimum discharge, 1 second-foot July 16, 17; minimum stage, 1.15 feet July 16.

Maximum stage known, 25.8 feet, probably Oct. 31, 1924.

REMARKS.—Records good except those between 30 and 300 second-feet and those estimated for Apr. 6–12, which are fair, and those for October and November, which are poor. Flow regulated completely during low-water periods and to some extent at all times by logging ponds above gage. No diversions above gage.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....		5	79	433	369	1,010	5,290	244	41	13	9	8
2.....		5	74	1,560	178	710	3,910	75	22	466	163	10
3.....		5	34	2,900	29	588	2,320	23	10	42	16	11
4.....		6	6	1,940	582	555	1,550	396	14	3	15	12
5.....		6	6	4,530	206	429	1,210	84	16	3	14	13
6.....		6	283	2,900	194	339		101	14	3	14	12
7.....		6	46	1,500	74	420		86	18	4	46	14
8.....		7	6	1,130	302	289		86	20	5	66	16
9.....		8	34	902	127	462		83	24	3	18	13
10.....		8	265	675	215	400	840	98	22	4	10	19
11.....		10	42	535	152	1,800		210	12	4	10	12
12.....		12	344	444	114	4,810		129	444	4	11	10
13.....		29	1,450	410	116	3,060	492	93	93	256	11	8
14.....		7	1,060	390	237	1,940	647	87	3	23	11	9
15.....	10	10	500	469	144	1,300	468	97	4	7	11	9
16.....		2,000	895	745	53	1,350	433	93	12	1	11	6
17.....		1,000	754	1,060	13	894	349	98	375	1	11	82
18.....		860	487	820	598	2,150	531	86	42	2	12	12
19.....		468	622	570	1,340	2,000	400	267	9	3	12	3
20.....		152	570	411	962	1,600	262	49	311	3	13	4
21.....		261	272	666	745	1,350	23	49	38	4	13	8
22.....		289	644	369	552	1,260	599	51	3	4	12	10
23.....		261	77	1,140	468	920	182	52	4	4	11	46
24.....		155	592	1,550	188	978	298	53	6	4	12	55
25.....		60	289	1,160	619	861	201	55	184	4	12	24
26.....		53	261	800	587	762	270	17	10	6	12	16
27.....		120	226	728	1,660	710	153	9	4	6	12	14
28.....	4	91	206	505	1,300	988	34	164	3	5	11	14
29.....	5	75	189	411		1,210	257	71	8	5	8	13
30.....	5	50	176	608		1,350	59	55	11	6	10	13
31.....	5		191	364		1,940		45		8	10	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....			9.3	0.030	0.04	572
November.....	2,000	5	201	.659	.74	12,000
December.....	1,450	6	345	1.13	1.30	21,200
January.....	4,530	364	1,050	3.44	3.97	64,600
February.....	1,660	18	433	1.42	1.48	24,000
March.....	4,810	289	1,240	4.07	4.69	76,200
April.....	5,290	23	861	2.82	3.15	51,200
May.....	396	9	100	.328	.38	6,150
June.....	444	3	59.3	.194	.22	3,530
July.....	466	1	29.2	.096	.11	1,800
August.....	163	8	19.6	.064	.07	1,210
September.....	82	3	16.7	.055	.06	994
The year.....	5,290	1	364	1.19	16.21	263,000

* Estimated.

ROCK CREEK NEAR REMOTE, OREG.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 35, T. 29 S., R. 10 W., just above back water of logging pond, $1\frac{1}{4}$ miles above mouth, and $2\frac{1}{4}$ miles east of Remote.

DRAINAGE AREA.—23 square miles.

RECORDS AVAILABLE.—October, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year, 513 second-feet Apr. 1 (gage height, 3.80 feet): minimum, 3 second-feet Sept. 3 (gage height, 0.04 foot).

REMARKS.—Records good. No diversions or regulation above station. Gage-height record furnished by A. L. Houghtaling.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	* 5	6	23	158	36	106	513	31	13	17	* 6	* 3
2.....		6	23	166	33	68	336	28	* 13	* 16	* 6	* 3
3.....		6	21	241	32	58	277	27	* 13	14	* 5	3
4.....		5	28	158	31	50	207	26	* 13	* 13	* 5	* 4
5.....		5	23	259	30	46	150	25	13	* 13	5	* 5
6.....	* 5	5	21	207	27	42	128	24	* 13	12	* 5	6
7.....		5	22	174	26	38	174	24	* 12		* 5	* 22
8.....		7	21	128	25	40	136	23	12		* 5	38
9.....		15	20	99	24	42	113	23	* 12	* 11	5	* 26
10.....		13	20	80	23	43	99	23	* 12		* 5	14
11.....	7	9	30	63	22	74	99	22	12	* 10	* 4	* 10
12.....	7	12	74	53	21	207	80	22	14		4	5
13.....	6	25	158	54	21	224	86	22	16			
14.....	6	18	99	46	22	158	86	25	20		* 4	
15.....	6	23	63	58	24	106	80	23	23		* 4	* 5
16.....	5	296	99	99	23	99	74	22	27	* 10	* 4	
17.....	5	182	74	92	22	92	63	23	* 26		* 4	
18.....	5	99	68	80	25	158	63	22	* 26		4	5
19.....	5	80	63	68	74	136	54	* 21	25		* 4	* 5
20.....	5	80	58	63	50	128	50	20	* 24		* 4	* 5
21.....	5	68	50	54	46	136	50	* 19	22	* 8	* 4	* 5
22.....	5	63	46	50	42	128	46	* 18	* 22	* 8	* 4	5
23.....	5	54	43	92	42	120	46	17	* 21	* 7	4	* 5
24.....	8	45	42	74	39	99	43	15	* 21	* 7	* 5	* 5
25.....	15	38	39	74	43	92	40	* 15	* 20		* 4	* 4
26.....	10	32	32	63	74	80	39	* 15	20		* 4	* 4
27.....	8	26	30	54	128	80	38	* 14	54	* 7		4
28.....	7	24	28	50	113	106	35	* 14	* 43	* 6		* 4
29.....	7	23	26	46		113	33	14	* 32	* 6	* 3	* 5
30.....	6	22	25	42		224	32	* 14	21	6	* 3	5
31.....	6		25	39		277		* 13		* 6	* 3	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	15		6. 10	0. 265	0. 31	375
November.....	296	5	43. 1	1. 87	2. 09	2, 560
December.....	158	20	45. 0	1. 96	2. 26	2, 770
January.....	259	39	96. 4	4. 19	4. 83	5, 930
February.....	128	21	39. 9	1. 73	1. 80	2, 220
March.....	277	58	109	4. 74	5. 46	6, 700
April.....	513	32	109	4. 74	5. 29	6, 490
May.....	31	13	20. 8	. 904	1. 04	1, 280
June.....	54	12	20. 5	. 891	. 99	1, 220
July.....	17	6	9. 77	. 425	. 49	601
August.....	6	3	4. 29	. 187	. 22	264
September.....	38	3	7. 50	. 326	. 36	446
The year.....	513	3	42. 6	1. 85	25. 14	30, 900

* Estimated.

NORTH FORK OF COQUILLE RIVER NEAR MYRTLE POINT, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 36, T. 28 S., R. 12 W., a quarter of a mile below junction with East Fork and $\frac{4}{4}$ miles northeast of Myrtle Point. Zero of gage is 12.22 feet above mean sea level.

DRAINAGE AREA.—276 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931. Prior to October, 1930, at site $3\frac{1}{2}$ miles downstream.

EXTREMES.—Maximum discharge during year, 6,630 second-feet Apr. 1 (gage height, 26.55 feet); minimum, 22 second-feet Sept. 5.

1928-1931: Maximum discharge, that of Apr. 1, 1931; minimum, 17 second-feet Sept. 5, 1930.

Maximum stage known, 41.2 feet during winter of 1909-10.

REMARKS.—Records good October to March; fair April to September. Discharge for several days and periods when recorder was not operating computed from daily staff-gage readings at former station. No diversions above gage. Flow regulated by operation of logging ponds above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	46	296	424	483	990	5,940	331	129	152	49	25
2	43	44	318	870	518	832	5,080	331	124	134	42	24
3	41	40	358	2,120	424	718	3,270	296	97	140	43	25
4	* 40	38	238	1,730	449	644	2,400	252	118	118	43	23
5	40	33	259	3,100	406	590	2,210	252	140	113	41	22
6	41	36	231	3,300	350	536	2,040	278	108	85	43	36
7	39	36	205	2,350	390	483	1,940	387	98	103	39	61
8	146	38	276	1,660	318	466	2,150	291	113	98	36	42
9	96	60	213	1,280	350	536	1,810	252	86	93	35	* 44
10	91	93	213	1,040	296	536	* 1,530	252	118	93	40	47
11	71	150	239	890	318	1,240	* 1,250	224	200	88	37	76
12	* 56	162	401	775	266	3,060	970	226	103	88	36	35
13	41	212	1,310	699	296	2,730	* 950	226	182	68	35	* 30
14	39	205	988	662	259	1,810		213	129	58	35	
15	36	180	770	756	252	1,350		252	213	73	34	
16	38	2,500	835	1,310	358	1,110		226	265	78	33	
17	39	1,580	835	1,330	273	1,010		218	706	73	33	
18	37	1,570	738	1,040	358	2,200	690	198	444	73	32	72
19	34	* 1,230	786	1,420	1,300	2,350		194	415	68	32	
20	34	890	722	870	970	2,210		194	278	57	41	
21	33	756	658	794	737	2,210	572	213	174	66	34	76
22	34	644	626	718	572	2,120	610	200	194	61	33	54
23	33	* 564	554	851	590	1,710	504	183	213	60	* 31	44
24	40	483	536	1,470	518	1,370	459	164	200	59	29	37
25	56	432	500	1,220	483	1,350	504	164	164	58	32	33
26	87	406	449	1,010	572	1,110	474	129	129	93	29	32
27	105	415	406	851	1,450	970	415	170	265	97	30	31
28	74	358	374	756	1,280	1,440	374	146	265	44	27	30
29	55	310	342	680	-----	1,800	373	140	194	66	27	29
30	52	* 303	326	626	-----	2,110	373	134	140	67	25	30
31	48	-----	326	572	-----	4,000	-----	129	-----	68	26	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	146	33	53.7	0.195	0.22	3,300
November	2,500	36	461	1.67	1.86	27,400
December	1,310	205	494	1.79	2.06	30,400
January	3,300	424	1,200	4.35	5.02	73,800
February	1,450	252	530	1.92	2.00	29,400
March	4,000	466	1,470	5.33	6.14	90,400
April	5,940	373	1,410	5.11	5.70	83,900
May	387	129	222	.804	.93	13,600
June	706	86	230	.725	.81	11,900
July	152	44	83.6	.303	.35	5,140
August	49	25	34.9	.126	.15	2,150
September	119	22	40.9	.148	.17	2,430
The year	5,940	22	517	1.87	25.41	374,000

* Estimated.

UMPQUA RIVER BASIN

UMPQUA RIVER NEAR ELKTON, OREG.

LOCATION.—Staff gage in sec. 8, T. 23 S., R. 7 W., 4 miles south of Elkton.

DRAINAGE AREA.—3,680 square miles.

RECORDS AVAILABLE.—October, 1905, to September, 1931; incomplete prior to 1909.

EXTREMES.—Maximum discharge during year, 51,000 second-feet Apr. 1 (gage height, 17.4 feet); minimum, 663 second-feet Sept. 1-8 (gage height, 0.89 foot).

1905-1931: Maximum discharge, 172,000 second-feet Feb. 21, 1927 (gage height, 40.0 feet); minimum, 640 second-feet July 18, 1926.

REMARKS.—Records good. Some diversions for irrigation in South Umpqua River Basin, but low-water flow probably only slightly affected. No regulation.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	990	868	1,680	1,420	3,300	6,740	42,000	3,030	1,220	1,520	756	663
2.....	900	860	1,620	1,680	3,030	6,330	43,600	3,160	1,220	1,370	740	663
3.....	884	852	1,960	3,080	2,840	5,550	26,100	3,160	1,170	1,320	740	663
4.....	868	844	2,080	8,790	2,640	6,010	17,800	3,030	1,120	1,270	733	663
5.....	852	836	1,960	7,160	2,440	4,840	13,300	2,840	1,120	1,170	726	663
6.....	852	828	1,840	8,790	2,320	3,870	10,700	2,700	1,120	1,120	726	663
7.....	868	820	1,740	8,060	2,260	3,440	9,560	2,580	1,080	1,080	719	663
8.....	892	820	1,570	6,130	2,080	3,300	9,300	2,440	1,080	1,080	719	670
9.....	990	852	1,470	4,940	2,020	3,160	8,300	2,320	1,080	1,040	712	705
10.....	1,120	892	1,370	3,870	1,900	3,160	7,850	2,200	1,060	1,040	712	740
11.....	1,120	990	1,420	3,440	1,840	3,440	6,530	2,140	1,060	990	712	756
12.....	1,040	1,170	1,960	3,160	1,790	4,670	6,530	2,080	1,040	990	705	780
13.....	954	1,080	3,300	3,030	1,740	10,100	6,130	2,020	1,060	982	705	764
14.....	900	1,120	5,930	2,900	1,680	11,200	6,330	2,020	1,120	945	698	748
15.....	900	1,320	5,740	2,900	1,790	10,100	6,130	2,260	1,220	909	698	783
16.....	892	1,790	4,340	3,720	1,900	7,830	5,930	2,260	1,370	900	705	733
17.....	884	9,820	4,340	7,160	2,080	6,130	5,370	2,080	1,960	892	705	726
18.....	868	8,300	4,020	6,330	2,140	6,950	5,010	1,960	2,440	884	698	726
19.....	868	4,840	3,720	5,370	4,180	15,200	4,670	1,900	2,260	876	698	726
20.....	868	3,300	3,580	4,670	6,950	17,100	4,340	1,790	2,080	868	698	804
21.....	852	2,700	3,160	4,180	6,130	17,100	4,020	1,680	1,900	860	698	876
22.....	828	2,510	2,900	3,720	5,190	17,500	3,720	1,620	1,740	844	691	936
23.....	820	2,440	2,640	3,580	4,670	14,200	3,580	1,570	1,570	828	691	852
24.....	812	2,770	2,380	6,130	4,500	10,900	3,440	1,520	1,470	820	691	804
25.....	844	3,030	2,260	7,830	4,500	8,790	3,300	1,520	1,370	804	684	796
26.....	1,040	2,840	2,020	6,330	4,340	7,600	3,160	1,470	1,320	796	684	772
27.....	1,170	2,440	1,900	5,740	5,740	6,740	3,030	1,420	1,220	788	677	748
28.....	1,040	2,260	1,790	5,010	7,160	6,740	2,900	1,370	1,470	780	677	733
29.....	990	2,080	1,680	4,340	-----	7,830	2,900	1,370	1,790	772	670	719
30.....	954	1,840	1,620	4,020	-----	8,540	2,900	1,320	1,740	772	670	719
31.....	918	-----	1,520	3,580	-----	28,500	-----	1,270	-----	764	670	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	1,170	812	929	0.252	0.29	57,100
November.....	9,820	820	2,240	.609	.68	133,000
December.....	5,930	1,370	2,560	.696	.80	157,000
January.....	8,790	1,420	4,870	1.32	1.52	299,000
February.....	7,160	1,680	3,340	.908	.95	185,000
March.....	28,500	3,160	8,780	2.39	2.76	540,000
April.....	43,600	2,900	9,270	2.52	2.81	552,000
May.....	3,160	1,270	2,070	.562	.65	127,000
June.....	2,440	1,040	1,420	.386	.43	84,500
July.....	1,520	764	970	.264	.30	59,600
August.....	756	670	703	.191	.22	43,200
September.....	936	663	740	.201	.22	44,000
The year.....	43,600	663	3,150	.856	11.63	2,280,000

COW CREEK NEAR AZALEA, OREG.

LOCATION.—Staff gage in sec. 33, T. 31 S., R. 4 W., 4 miles northeast of Azalea.

RECORDS AVAILABLE.—April, 1926, to September, 1931; incomplete prior to 1931.

EXTREMES.—Maximum discharge during year, 395 second-feet Apr. 1 (gage height, 3.41 feet); minimum, 4 second-feet Aug. 26–28.

1926–1931: Maximum discharge (estimated), 2,800 second-feet Dec. 14, 1929 (gage height not determined); minimum, 4 second-feet Sept. 9–19, 1929, Aug. 26–28, 1931.

REMARKS.—Records good except those for discharges less than 10 second-feet, which are fair. Minor diversions for irrigation above station. Records furnished by State engineer.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	10	16	12	23	33	45	395	26	8	11	5	5
2.....	9	15	14	129	31	44	220	24	8	10	5	5
3.....	9	15	15	70	27	40	149	22	8	8	5	5
4.....	10	15	15	46	26	37	108	20	8	8	5	5
5.....	10	15	15	204	25	35	83	19	8	8	5	5
6.....	9	15	13	68	24	32	76	17	8	8	5	5
7.....	11	15	13	68	22	31	79	17	8	8	5	6
8.....	17	17	13	45	24	31	78	16	8	8	5	7
9.....	15	35	14	37	20	40	57	16	8	7	5	7
10.....	13	31	15	32	20	35	52	15	8	7	5	7
11.....	12	23	20	32	20	45	58	15	8	7	5	6
12.....	12	16	26	31	19	254	54	14	7	7	5	6
13.....	13	16	25	29	18	186	50	16	8	7	5	6
14.....	13	18	24	26	20	118	47	26	13	7	5	6
15.....	14	27	23	31	23	91	42	18	29	7	5	6
16.....	13	123	23	73	21	75	41	16	133	6	5	6
17.....	13	102	25	49	20	77	39	16	42	6	5	6
18.....	13	68	23	42	31	322	35	16	30	6	5	7
19.....	12	27	22	38	82	166	34	14	20	6	5	8
20.....	12	18	20	33	54	136	31	13	19	6	5	8
21.....	12	18	21	31	42	123	30	13	16	6	5	7
22.....	12	16	21	30	41	104	28	12	14	6	5	6
23.....	14	18	20	30	52	86	27	12	13	6	5	6
24.....	15	18	20	37	47	79	27	12	11	6	5	6
25.....	16	16	16	63	44	68	26	12	11	5	5	6
26.....	16	15	15	61	47	58	25	11	12	5	4	6
27.....	16	15	13	54	52	57	24	10	22	5	4	6
28.....	15	14	12	49	47	54	23	10	16	5	4	6
29.....	15	13	12	42	-----	54	22	10	12	5	5	6
30.....	15	13	14	38	-----	57	29	8	12	5	5	6
31.....	16	-----	14	36	-----	58	-----	8	-----	5	5	-----
Month	Maximum		Minimum		Mean		Run-off in acre-feet					
October.....	17		9		13.0		799					
November.....	123		13		26.1		1,650					
December.....	26		12		17.7		1,090					
January.....	204		23		50.9		3,130					
February.....	82		18		33.3		1,850					
March.....	322		31		85.1		5,230					
April.....	395		22		68.3		3,950					
May.....	26		8		15.3		941					
June.....	133		7		17.6		1,050					
July.....	11		5		6.7		412					
August.....	5		4		4.9		301					
September.....	8		5		6.1		363					
The year.....	395		4		28.5		20,700					

NORTH UMPQUA RIVER BELOW LAKE CREEK, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 13, T. 26 S., R. 5 E., 200 yards below mouth of Lake Creek and 30 miles southwest of Crescent.

DRAINAGE AREA.—175 square miles.

RECORDS AVAILABLE.—October, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 431 second-feet May 14 (gage height, 1.14 feet); minimum, 237 second-feet Sept. 30 (gage height, 0.69 foot).

1927-1931: Maximum discharge, 710 second-feet Dec. 19, 1929; minimum, that of Sept. 30, 1931.

REMARKS.—Records good. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	275	291	300	267	287	287	396	401	308	271	263	267
2.....	275	295	320	267	287	287	363	405	308	271	260	267
3.....	275	300	324	267	287	287	359	401	304	267	260	267
4.....	271	304	324	267	287	287	354	401	300	267	260	267
5.....	271	308	324	267	287	283	359	396	300	267	260	267
6.....	275	312	324	267	283	283	368	401	295	267	256	267
7.....	287	312	324	267	283	283	372	396	295	267	256	267
8.....	291	316	329	260	279	283	363	382	295	267	252	267
9.....	287	316	329	256	279	287	363	377	291	267	252	267
10.....	279	312	333	260	279	287	359	377	291	267	252	263
11.....	279	308	342	263	275	291	354	377	287	267	252	260
12.....	275	320	337	267	275	300	359	382	287	271	252	260
13.....	271	320	342	263	275	300	359	391	287	271	256	266
14.....	275	312	333	263	279	295	350	410	295	271	256	252
15.....	275	312	329	267	279	295	350	392	291	271	260	252
16.....	275	300	324	267	283	300	345	377	291	275	256	248
17.....	271	283	320	260	287	320	350	368	291	271	260	248
18.....	271	308	312	260	291	342	354	369	291	271	260	260
19.....	267	300	312	260	291	346	350	350	287	271	260	263
20.....	267	312	287	263	291	359	350	346	283	271	263	252
21.....	271	308	291	260	287	346	354	342	279	275	260	244
22.....	271	304	291	271	287	308	359	337	279	275	260	244
23.....	271	300	300	253	287	300	359	333	275	275	263	244
24.....	279	295	291	279	283	295	354	329	275	275	263	244
25.....	279	295	283	291	287	295	354	324	275	271	263	244
26.....	279	300	283	295	287	291	350	320	275	271	256	244
27.....	279	300	283	295	287	295	354	316	291	271	256	240
28.....	275	300	283	291	287	295	363	312	279	267	256	240
29.....	275	304	271	291	-----	291	372	312	275	267	263	240
30.....	279	300	260	287	-----	329	382	312	271	267	267	237
31.....	287	-----	263	287	-----	350	-----	308	-----	263	-----	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	291	267	276	1.68	1.82	17,000
November.....	320	283	305	1.74	1.94	18,100
December.....	342	260	309	1.77	2.04	19,000
January.....	295	256	271	1.55	1.79	16,700
February.....	291	275	284	1.62	1.69	15,800
March.....	359	283	303	1.73	1.99	18,600
April.....	396	346	359	2.05	2.29	21,400
May.....	410	308	362	2.07	2.39	22,300
June.....	308	271	288	1.65	1.84	17,100
July.....	275	263	270	1.54	1.78	16,600
August.....	267	252	259	1.48	1.71	15,900
September.....	267	237	255	1.46	1.63	15,200
The year.....	410	237	295	1.69	22.91	214,000

NORTH UMPQUA RIVER AT TOKETEE FALLS, OREG.

LOCATION.—Water-stage recorder in T. 26 S., R. 3 E. (unsurveyed), one-eighth of a mile below mouth of Clearwater River, half a mile above Toketee Falls, and 30 miles east of Hoaglin. Zero of gage is 2,373.0 feet above mean sea level.

DRAINAGE AREA.—337 square miles.

RECORDS AVAILABLE.—February, 1908, to July, 1909; December, 1914, to November, 1917, incomplete; July, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,810 second-feet Apr. 1 (gage height, 3.75 feet); minimum recorded, 496 second-feet Sept. 28–30, probably lower about Sept. 1.

1908–9, 1914–17, 1924–1931: Maximum discharge, 4,000 second-feet Feb. 20, 1927 (gage height, 4.65 feet); minimum recorded, that of Sept. 28–30, 1931.

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	544	544	564	552	600	600	2,350	940	625	* 570		
2	540	544	587	556	596	615	1,680	940	620	* 565		
3	540	540	596	560	592	625	1,380	910	615	560		
4	540	540	587	560	592	620	1,180	910	610	560		
5	540	540	582	560	592	615	1,150	910	600	560		
6	540	540	574	560	592	610	1,150	880	596	556		* 500
7	560	540	564	548	587	605	1,120	880	596	556		
8	569	548	560	544	582	610	1,040	860	596	556		
9	560	556	560	540	578	615	1,010	820	596	552		
10	556	560	564	548	578	610	975	820	600	552		
11	552	556	610	552	574	630	940	820	592	548		
12	552	578	600	552	574	680	940	820	587	548		
13	552	569	640	552	564	680	910	850	592	548		504
14	552	560	605	556	564	655	910	880	605	544		504
15	552	578	600	564	569	655	880	820	605	544		504
16	552	680	605	578	564	655	880	790	625	544	* 510	500
17	552	582	596	569	569	705	880	760	620	544		500
18	552	574	587	564	592	975	850	732	610	540		532
19	552	574	582	560	600	1,040	850	705	600	540		532
20	552	578	564	560	587	1,220	850		587	540		512
21	552	582	564	556	582	1,220	850	* 692	587	536		504
22	552	587	564	564	587	1,080	850			536		508
23	552	592	564	600	592	975	850			536		508
24	556	596	564	600	582	910	850			536		508
25	560	587	556	600	582	850	820	680		536		504
26	552	587	556	605	596	790	820	655	* 590	536		504
27	552	582	552	605	592	790	820	655				500
28	548	582	552	605	592	760	820	650				496
29	548	578	552	605		760	850	645			* 530	496
30	544	574	548	605		1,290	880	640				496
31	544		548	605		1,980		635				

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October	569	540	551	1.64	1.89	33,900
November	680	540	571	1.69	1.89	34,000
December	640	548	576	1.71	1.97	35,400
January	605	540	570	1.69	1.95	35,000
February	600	564	584	1.73	1.80	32,400
March	1,980	600	820	2.43	2.80	50,400
April	2,350	820	1,010	3.00	3.35	60,100
May	940	635	776	2.30	2.65	47,700
June	625		599	1.78	1.99	35,600
July	570		535	1.62	1.87	33,500
August			* 510	1.51	1.74	31,400
September	532	496	504	1.50	1.67	30,000
The year	2,350	496	635	1.88	25.57	459,000

* Estimated.

NORTH UMPQUA RIVER ABOVE ROCK CREEK, NEAR GLIDE, OREG.

LOCATION.—Water-stage recorder in NW. ¼ sec. 12, T. 26 S., R. 3 W., half a mile above mouth of Rock Creek and 5 miles northeast of Glide.

DRAINAGE AREA.—886 square miles.

RECORDS AVAILABLE.—June, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 23,900 second-feet Apr. 1 (gage height, 12.40 feet); minimum, 552 second-feet Aug. 28 (gage height, 1.95 feet).

1924-1931: Maximum discharge, 61,000 second-feet Feb. 20, 1927 (gage height, 20.18 feet); minimum, that of Aug. 28, 1931.

REMARKS.—Records excellent. No irrigation diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	646	619	970	850	1,240	2,300	18,200	1,810	850	850	619	560
2.....	632	610	1,100	1,170	1,170	2,360	9,620	1,810	850	822	614	563
3.....	624	606	1,240	2,050	1,100	2,200	6,320	1,680	822	795	610	563
4.....	614	594	1,140	1,720	1,060	1,950	4,650	1,600	822	770	606	563
5.....	610	594	1,030	1,480	1,060	1,680	3,840	1,560	822	745	602	563
6.....	614	594	970	1,640	1,000	1,520	3,540	1,520	795	745	602	570
7.....	655	590	910	1,480	970	1,400	3,330	1,480	795	745	602	594
8.....	822	614	880	1,280	940	1,320	3,130	1,360	795	745	602	602
9.....	795	700	850	1,140	910	1,360	2,880	1,280	795	722	598	628
10.....	700	795	850	1,030	910	1,320	2,640	1,240	850	700	598	610
11.....	646	745	1,680	1,030	880	1,360	2,460	1,240	795	700	594	594
12.....	606	722	1,680	1,200	850	2,700	2,300	1,240	795	700	594	582
13.....	570	1,000	3,060	1,200	850	3,260	2,410	1,200	770	700	594	570
14.....	563	795	2,300	1,200	880	2,410	2,410	1,480	850	700	594	570
15.....	570	1,360	1,720	1,480	940	2,050	2,300	1,320	910	700	594	566
16.....	578	6,180	1,720	2,410	970	2,000	2,150	1,240	1,140	700	594	563
17.....	578	2,580	1,640	2,100	1,000	2,000	2,050	1,200	1,320	678	594	563
18.....	582	1,560	1,520	1,760	1,400	6,150	1,900	1,170	1,100	678	598	614
19.....	602	1,200	1,400	1,560	2,820	5,730	1,810	1,100	1,060	678	594	722
20.....	610	1,100	1,280	1,440	2,150	6,740	1,720	1,060	970	678	590	678
21.....	614	1,100	1,140	1,360	1,760	6,530	1,680	1,030	910	655	586	614
22.....	619	1,240	1,100	1,320	1,640	5,920	1,720	1,030	850	655	582	590
23.....	624	1,520	1,060	1,680	1,720	4,480	1,600	1,000	850	650	578	586
24.....	678	1,520	1,000	2,150	1,680	3,470	1,560	970	822	646	570	582
25.....	822	1,400	940	1,900	1,560	2,880	1,480	970	795	642	566	578
26.....	770	1,360	940	2,000	1,600	2,520	1,440	940	822	637	566	578
27.....	700	1,240	880	1,860	2,250	2,460	1,480	940	1,100	632	560	574
28.....	700	1,140	850	1,640	2,150	3,060	1,480	910	1,140	628	556	566
29.....	678	1,030	822	1,520	-----	3,400	1,520	910	970	628	560	570
30.....	655	1,000	822	1,400	-----	6,770	1,680	880	880	628	560	570
31.....	637	-----	822	1,320	-----	14,600	-----	880	-----	619	563	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	822	563	649	0.732	0.84	39,900
November.....	6,180	590	1,300	1.35	1.51	71,400
December.....	3,060	822	1,240	1.40	1.61	70,200
January.....	2,410	850	1,530	1.73	1.99	94,100
February.....	2,820	850	1,340	1.51	1.57	74,400
March.....	14,600	3,480	3,480	3.95	4.53	214,000
April.....	18,200	1,440	3,180	3.59	4.00	189,000
May.....	1,810	880	1,220	1.39	1.60	75,600
June.....	1,320	770	902	1.02	1.14	53,700
July.....	850	619	696	.786	.91	42,800
August.....	619	556	588	.664	.77	30,200
September.....	722	560	638	.664	.74	35,000
The year.....	18,200	556	1,380	1.56	21.21	1,000,000

NORTH UMPQUA RIVER NEAR GLIDE, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 13, T. 26 S., R. 4 W., 1 mile west of Glide.

DRAINAGE AREA.—1,210 square miles.

RECORDS AVAILABLE.—September, 1915, to May, 1920; October, 1921, to October, 1922; October, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 33,800 second-feet Apr. 1 (gage height, 12.10 feet); minimum, 552 second-feet Aug. 27–30, Sept. 27.

1915–1920, 1921–22, 1927–1931: Maximum discharge, 50,000 second-feet Nov. 21, 1921 (gage height, 15.0 feet, present datum); minimum, that of Aug. 27–30, Sept. 27, 1931.

Maximum stage known, 22.6 feet, present datum, Nov. 22, 1909 (discharge, estimated, 90,000 second-feet).

REMARKS.—Records excellent below and fair above 10,000 second-feet. Discharge estimated Feb. 15–17. No diversions or regulation above gage.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	680	648	1,340	1,050	1,460	3,060	28,400	2,160	902	1,000	664	584
2.....	680	648	1,400	1,520	1,460	3,060	16,900	2,030	950	950	672	576
3.....	664	648	1,640	3,230	1,400	2,900	10,500	2,030	902	855	656	568
4.....	664	648	1,460	2,590	1,340	2,740	6,430	1,900	902	846	640	568
5.....	664	648	1,400	2,590	1,340	2,590	5,970	1,770	855	828	672	592
6.....	648	648	1,160	2,440	1,340	2,590	5,100	1,770	855	810	664	648
7.....	664	672	1,050	2,030	1,220	2,590	4,700	1,700	837	801	648	640
8.....	801	748	1,000	1,900	1,220	2,590	4,120	1,580	855	819	648	656
9.....	902	819	1,050	1,640	1,220	2,590	3,750	1,520	902	774	648	697
10.....	855	846	1,340	1,460	1,160	2,590	3,570	1,620	902	765	656	714
11.....	792	950	1,640	1,400	1,160	2,590	3,400	1,460	950	748	656	624
12.....	706	1,220	2,030	1,460	1,160	2,740	3,400	1,400	950	740	648	600
13.....	672	1,460	2,440	1,580	1,160	3,570	3,400	1,400	950	731	640	600
14.....	664	1,580	2,900	1,640	1,160	4,700	3,400	1,770	950	748	632	586
15.....	648	2,160	2,900	1,900	1,200	3,930	3,230	1,580	1,050	731	616	568
16.....	656	10,800	2,740	3,230	1,250	3,230	3,060	1,400	1,580	740	600	568
17.....	664	3,930	2,440	2,900	1,300	2,900	2,740	1,340	2,030	740	600	592
18.....	664	2,300	2,300	2,590	1,770	9,020	2,590	1,340	1,460	714	584	664
19.....	664	1,900	2,030	2,160	4,310	9,310	2,440	1,280	1,160	688	584	810
20.....	664	1,580	1,770	2,080	3,230	8,740	2,300	1,220	1,100	664	584	792
21.....	664	1,770	1,700	1,900	2,440	8,190	2,160	1,160	1,000	680	592	722
22.....	664	1,900	1,580	1,770	2,160	7,660	2,030	1,100	950	680	600	656
23.....	672	1,770	1,400	2,300	2,160	8,190	2,030	1,100	950	680	584	600
24.....	765	1,770	1,160	3,060	2,030	8,460	2,030	1,050	950	672	584	592
25.....	902	1,770	1,100	3,060	2,030	8,460	1,900	1,050	950	664	568	584
26.....	902	1,770	1,050	2,740	2,300	7,660	1,900	1,050	1,000	664	568	568
27.....	801	1,640	1,000	2,300	2,740	6,670	1,770	1,050	1,220	664	552	552
28.....	680	1,340	950	2,160	2,900	5,530	1,900	1,000	1,160	664	552	584
29.....	672	1,280	950	1,770	-----	5,530	1,900	1,000	1,160	672	552	600
30.....	664	1,280	950	1,520	-----	10,200	2,030	950	1,100	656	560	600
31.....	656	-----	950	1,460	-----	19,500	-----	950	-----	648	576	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	902	648	712	0.588	0.68	43,800
November.....	10,800	648	1,700	1.40	1.56	101,000
December.....	2,900	950	1,570	1.30	1.50	96,500
January.....	3,230	1,050	2,110	1.74	2.01	139,000
February.....	4,310	1,160	1,770	1.46	1.52	98,300
March.....	19,500	2,590	5,620	4.64	5.35	346,000
April.....	28,400	1,770	4,640	3.83	4.27	276,000
May.....	2,160	950	1,410	1.17	1.35	86,700
June.....	2,030	327	1,050	.868	.97	62,500
July.....	1,000	648	743	.614	.71	45,700
August.....	672	552	613	.507	.58	37,700
September.....	810	552	624	.516	.58	37,100
The year.....	28,400	552	1,880	1.55	21.08	1,360,000

LAKE CREEK AT DIAMOND LAKE, NEAR FORT KLAMATH, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 30, T. 27 S., R. 6 E., 50 yards below outlet of Diamond Lake and 35 miles north of Fort Klamath. Staff gage 100 yards downstream used prior to May 26, 1931.

DRAINAGE AREA.—57 square miles.

RECORDS AVAILABLE.—May, 1922, to September, 1925 (incomplete); October, 1926, to September, 1931.

EXTREMES.—Maximum discharge recorded during year, 50 second-feet Apr. 5, 12 (gage height, 1.50 feet); no flow Aug. 25–27.

1922–1925, 1926–1931: Maximum discharge, 146 second-feet June 1, 1925 (gage height, 2.13 feet); minimum, that of Aug. 25–27, 1931.

REMARKS.—Records fair. Gage not read on days when discharge is not given. Flow regulated by operation of fish racks at lake outlet and at times by collection of moss on racks. No diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					41	44		38	29	17	15	12
2								38	17	14	11	
3		18						38	29	18	13	10
4				11							12	16
5							50		28	18	12	12
6								38			12	11
7									21	19	13	12
8			34		36	41					14	12
9		18						38	23	18	12	13
10											11	12
11				15			50		22	18	12	13
12											12	13
13								38	22	19	12	13
14			35								13	13
15					36	48			21	22	12	13
16		22									12	12
17								38	22	17	11	13
18				20							12	13
19							44		23	21	12	16
20								36			12	14
21			35						17	19	12	14
22					42	28					13	14
23		38						35	16	19	12	13
24								33			12	13
25	19			32				32	16	19	0	13
26							36	30			0	
27								30	17	17	0	
28			32					31			10	10
29						36		30	16	16	10	10
30		11						29			19	
31								29		16	12	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October			17	0.298	0.34	1,050
November			21.4	.375	.42	1,270
December			34.0	.596	.69	2,090
January			19.5	.342	.39	1,200
February			38.8	.681	.71	2,150
March			39.4	.691	.80	2,420
April			45.0	.789	.88	2,680
May	38	29	35.6	.625	.72	2,190
June	29	16	21.5	.377	.42	1,280
July	22	16	18.2	.319	.37	1,120
August	19	0	11.2	.196	.23	689
September	16		12.4	.218	.24	738
The year		0	26.1	.458	6.21	18,900

* Estimated.

CLEARWATER RIVER ABOVE TRAP CREEK, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 1, T. 27 S., R. 4 E., 150 yards above mouth of Trap Creek and 40 miles east of Glide.

DRAINAGE AREA.—40 square miles.

RECORDS AVAILABLE.—October, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 189 second-feet Apr. 1 (gage height, 1.00 foot); minimum, 98 second-feet Sept. 14-17.

1927-1931: Maximum discharge, 273 second-feet Dec. 19, 1929 (gage height, 1.30 feet); minimum, that of Sept. 14-17, 1931.

REMARKS.—Records good except those for period November to March, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	116	111	115	111	100	105	173	166	119	110	104	99
2.....	116	111	115	111	100	105	154	164	118	108	102	99
3.....	118	111	115	111	100	105	147	161	118	108	102	99
4.....	116	111	113	110	102	105	144	157	116	108	102	99
5.....	116	111	113	110	102	104	144	157	116	110	102	99
6.....	116	111	111	108	102	104	152	157	115	110	102	99
7.....	122	111	113	110	102	104	151	154	115	110	102	99
8.....	123	111	113	108	102	104	146	146	115	110	102	99
9.....	120	113	113	108	102	104	142	144	116	110	102	99
10.....	118	113	115	107	100	104	142	146	115	110	102	99
11.....	118	111	118	107	100	105	139	149	113	110	102	99
12.....	116	116	118	105	100	107	139	151	111	110	102	99
13.....	116	113	118	103	100	107	139	156	113	110	102	99
14.....	116	111	116	103	102	107	134	161	115	110	102	98
15.....	116	116	115	103	101	107	132	147	116	110	102	98
16.....	116	123	115	102	101	108	132	147	118	110	102	98
17.....	116	116	113	102	101	110	134	140	119	108	102	98
18.....	115	115	113	100	102	127	132	135	118	108	102	100
19.....	115	115	113	100	104	123	131	132	115	108	102	104
20.....	115	115	111	100	102	127	131	132	113	107	102	99
21.....	115	115	111	99	102	135	132	131	113	107	102	99
22.....	115	115	111	100	102	132	136	131	113	107	101	101
23.....	115	115	111	103	104	127	139	129	111	105	101	99
24.....	116	115	111	100	104	124	139	129	111	105	101	99
25.....	116	115	111	100	104	123	140	127	110	105	101	99
26.....	115	115	111	100	105	119	142	127	113	105	101	99
27.....	115	115	110	100	105	118	144	126	118	105	99	99
28.....	115	115	110	99	105	116	147	124	111	105	99	101
29.....	113	115	110	99	-----	115	152	121	110	105	99	101
30.....	113	113	110	99	-----	127	157	121	110	105	99	101
31.....	113	-----	111	100	-----	135	-----	121	-----	105	99	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October.....	123	113	116	2.90	3.34	7,130
November.....	123	111	114	2.85	3.18	6,780
December.....	118	110	113	2.82	3.25	6,950
January.....	111	99	104	2.60	3.00	6,400
February.....	105	100	102	2.55	2.66	5,660
March.....	135	104	114	2.85	3.29	7,010
April.....	173	131	142	3.55	3.96	8,450
May.....	166	121	142	3.55	4.09	8,730
June.....	119	110	114	2.85	3.18	6,780
July.....	110	105	108	2.70	3.11	6,640
August.....	104	99	101	2.52	2.90	6,210
September.....	104	98	99.3	2.48	2.77	5,910
The year.....	173	98	114	2.85	38.73	82,600

* Estimated.

SIUSLEW RIVER BASIN

LAKE CREEK AT TRIANGLE LAKE, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 29, T. 16 S., R. 7 W., 500 feet below outlet of Triangle Lake.

DRAINAGE AREA.—50 square miles.

RECORDS AVAILABLE.—August to September, 1931.

EXTREMES.—Maximum discharge during period, 12 second-feet Sept. 20, 21 (gage height, 0.60 foot); minimum, 8 second-feet Aug. 27 to Sept. 8 (gage height, 0.46 foot).

Maximum stage known, about 6 feet, probably occurred Mar. 31, 1931.

REMARKS.—Records good. No diversions above gage. Flow regulated by natural storage in Triangle Lake.

Daily and monthly discharge, in second-feet, 1931

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1.....		8	11.....		11	21.....	9	12
2.....		8	12.....		11	22.....	9	11
3.....		8	13.....		11	23.....	9	11
4.....		8	14.....		11	24.....	9	10
5.....		8	15.....		11	25.....	9	10
6.....		8	16.....		10	26.....	9	10
7.....		8	17.....		10	27.....	8	9
8.....		8	18.....		11	28.....	8	9
9.....		9	19.....	10	11	29.....	8	10
10.....		10	20.....	9	12	30.....	8	11
						31.....	8	

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
August 19-31.....	10	8	8.69	0.174	0.08	224
September.....	12	8	9.83	.197	.22	585

SILETZ RIVER BASIN

SILETZ RIVER AT SILETZ, OREG.

LOCATION.—Wire gage in SW. $\frac{1}{4}$ sec. 9, T. 10 S., R. 10 W., at highway bridge three-quarters of a mile southwest of Siletz.

DRAINAGE AREA.—204 square miles.

RECORDS AVAILABLE.—November, 1905, to May, 1912; January to November, 1924 (incomplete); December, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 34,100 second-feet Mar. 31 (gage height, 26.71 feet); minimum, 60 second-feet Oct. 11.

1905-1912, 1924-1931: Maximum discharge, 34,600 second-feet Nov. 22, 1909; minimum, 51 second-feet Dec. 6, 7, 1929.

Maximum known flood, 40,800 second-feet Nov. 20, 1921 (gage height, about 30.9 feet at present gage).

REMARKS.—Records good except that for Mar. 31, which was estimated. No diversions for irrigation above station. Flow regulated slightly by operation of logging pond at Valsetz.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1.....	130	163	395	750	1,250	1,310	17,600	520	190	520	130	163
2.....	93	163	435	900	1,130	1,190	8,390	475	176	475	130	162
3.....	83	140	475	1,450	950	1,130	5,150	475	176	415	120	112
4.....	79	140	475	1,310	900	1,010	3,390	475	176	395	120	97
5.....	72	140	435	2,950	800	900	2,370	435	163	355	118	90
6.....	82	120	375	2,950	750	850	2,280	415	163	338	117	118
7.....	176	120	375	2,190	610	800	4,370	498	163	302	115	176
8.....	190	140	375	1,730	610	700	3,750	395	163	285	115	120
9.....	120	320	375	1,450	565	1,310	2,850	375	163	285	113	106
10.....	93	655	355	1,450	610	2,190	2,190	355	220	268	113	120
11.....	60	435	498	1,380	542	2,460	1,950	338	205	250	112	106
12.....	152	520	415	1,250	498	2,950	1,730	320	163	235	110	100
13.....	152	950	1,950	1,130	475	2,460	1,730	320	176	235	105	95
14.....	98	1,190	1,250	1,130	498	1,950	1,870	302	176	235	103	92
15.....	83	1,590	1,130	1,380	475	1,590	1,730	285	395	220	101	89
16.....	86	5,280	1,190	4,110	542	1,310	1,660	375	320	205	101	86
17.....	89	2,750	1,310	3,060	2,460	1,250	1,450	415	338	205	100	86
18.....	90	1,660	1,380	2,650	3,060	4,240	1,310	355	355	190	100	205
19.....	92	1,380	1,130	2,030	3,750	4,370	1,010	338	375	190	98	375
20.....	89	1,190	1,190	1,660	2,280	6,100	950	285	320	176	97	205
21.....	84	1,010	1,070	1,450	1,800	5,540	950	268	285	176	95	163
22.....	84	900	900	2,950	1,590	4,240	850	268	498	163	235	120
23.....	89	800	1,130	3,170	1,310	3,060	800	268	435	163	320	113
24.....	268	750	1,010	5,680	1,010	2,370	800	250	455	152	375	103
25.....	338	700	1,310	4,240	1,130	1,950	750	235	395	152	320	100
26.....	235	565	1,250	4,240	1,310	1,380	700	220	1,950	140	320	97
27.....	475	475	1,190	3,280	1,380	950	655	220	1,190	140	355	95
28.....	285	435	1,190	2,280	1,380	1,800	610	220	900	140	338	93
29.....	220	395	1,130	1,950	-----	2,030	610	205	700	140	205	110
30.....	190	355	700	1,660	-----	3,390	542	190	610	130	152	498
31.....	190	-----	565	1,380	-----	20,000	-----	190	-----	130	130	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acres-feet
October.....	475	60	147	0.721	0.83	9,040
November.....	5,280	120	848	4.16	4.64	50,500
December.....	1,950	355	870	4.26	4.91	53,500
January.....	5,680	750	2,230	10.9	12.57	137,000
February.....	3,750	475	1,200	5.88	6.12	66,600
March.....	20,000	700	2,800	13.7	15.79	172,000
April.....	17,600	542	2,500	12.3	13.72	149,000
May.....	520	190	332	1.63	1.88	20,400
June.....	1,950	163	400	1.96	2.19	23,800
July.....	520	130	239	1.17	1.35	14,700
August.....	475	95	163	.799	.92	10,000
September.....	498	86	140	.686	.77	8,330
The year.....	20,000	60	988	4.84	65.69	715,000

NESTUCCA RIVER BASIN

NESTUCCA RIVER NEAR McMinnville, OREG.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 8, T. 3 S., R. 6 W., half a mile below dam at outlet of Meadow Lake and 13 miles northwest of McMinnville.

DRAINAGE AREA.—12 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,600 second-feet Mar. 31 (gauge height, 4.84 feet); minimum, 1.3 second-feet Aug. 15 to Sept. 5.

1928-1931: Maximum discharge, that of Mar. 31, 1931; minimum, 1.0 second-foot Oct. 11, 1929.

REMARKS.—Records good. No diversions above gauge. Flow regulated to a small extent by dam at outlet of Meadow Lake.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	3.7	8.8	17	44	61	856	26	5.5	6.6	2.1	
2	2.4	3.6	10	25	39	57	314	24	5.0	6.1	2.0	
3	2.3	3.5	13	48	35	50	180	23	5.0	5.5	1.9	
4	2.2	3.4	13	71	32	45	126	22	4.9	4.9	1.8	
5	2.2	3.3	13	141	30	41	192	21	4.7	4.5	1.8	
6	2.3	3.2	12	138	27	37	89	19	4.6	4.0	1.8	
7	2.6	3.2	12	102	26	34	115	19	4.6	3.7	1.8	
8	2.9	3.6	11	73	24	33	112	18	4.5	3.4	1.8	
9	2.9	4.8	11	58	22	61	97	16	4.6	3.4	1.7	
10	2.9	6.2	11	49	21	86	86	14	5.0	3.2	1.6	
11	2.8	6.6	11	49	20	100	76	11	5.0	3.2	1.5	1.7
12	2.6	11	13	44	19	107	67	10	5.0	3.1	1.4	1.7
13	2.5	15	28	39	19	94	65	11	5.7	2.9	1.4	1.7
14	2.5	13	37	39	19	79	71	11	9.5	2.9	1.4	1.7
15	2.4	21	35	44	19	68	74	10	13	2.9	1.3	1.7
16	2.4	61	34	76	23	58	66	10	12	3.0	1.3	1.7
17	2.3	52	36	90	48	55	61	12	11	2.9	1.3	1.7
18	2.4	38	35	84	91	105	56	13	9.8	2.8	1.3	2.1
19	2.4	31	34	68	116	142	52	12	9.0	2.8	1.3	2.7
20	2.4	28	32	57	92	153	49	11	8.2	2.6	1.3	2.8
21	2.4	24	28	52	74	141	47	9.8	7.5	2.6	1.3	2.7
22	2.3	21	26	82	61	119	43	9.5	8.0	2.7	1.3	2.6
23	2.3	18	27	204	50	96	40	9.0	8.0	2.5	1.3	2.4
24	2.7	16	27	193	44	79	39	8.5	7.7	2.5	1.3	2.1
25	3.2	14	26	153	42	71	37	8.0	7.5	2.4	1.3	2.1
26	3.5	12	24	139	44	63	35	7.7	9.8	2.4	1.3	2.0
27	4.0	11	22	113	62	59	33	7.5	10	2.3	1.3	2.0
28	4.5	11	20	89	65	74	31	7.2	9.5	2.2	1.3	2.0
29	4.2	9.8	18	73	84	29	7.0	8.5	2.1	1.3	1.3	2.1
30	4.0	9.0	17	62	208	27	6.2	7.5	2.1	1.3	1.3	2.4
31	4.0	-----	16	52	-----	1,230	-----	5.9	-----	2.1	1.3	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	4.5	2.0	2.79	0.232	0.27	172
November	61	3.2	15.4	1.28	1.43	916
December	37	8.8	21.3	1.78	2.05	1,310
January	204	17	81.7	6.81	7.85	5,020
February	116	19	43.1	3.59	3.74	2,390
March	1,230	33	119	9.92	11.44	7,320
April	856	27	106	8.83	9.85	6,310
May	26	5.9	12.9	1.08	1.24	793
June	13	4.5	7.35	.612	.68	437
July	6.6	2.1	3.24	.270	.31	199
August	2.1	1.3	1.49	.124	.14	92
September	2.8	1.3	1.93	.161	.18	115
The year	1,230	1.3	34.6	2.88	39.18	25,100

• Estimated.

TRASK RIVER BASIN

TRASK RIVER NEAR TILLAMOOK, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 30, T. 1 S., R. 8 W., half a mile above Gold Creek and 6 miles east of Tillamook.

DRAINAGE AREA.—152 square miles.

RECORDS AVAILABLE.—July to September, 1931.

EXTREMES.—Maximum discharge during period, 321 second-feet Sept. 19 (gage height, 1.38 feet); minimum, 76 second-feet Aug. 31 to Sept. 4 (gage height, 0.60 foot).

Maximum stage known, about 17 feet, indicated by drift on bank, probably occurred during floods of November, 1921, or Mar. 31, 1931.

REMARKS.—Records good except those estimated, which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1931

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1.....	250	107	76	11.....	175	95	90	21.....	138	88	113
2.....		105	76	12.....	168	95	88	22.....	133	86	90
3.....		103	76	13.....	168	93	86	23.....	133	84	91
4.....		103	76	14.....	175	91	83	24.....	128	83	88
5.....		103	78	15.....	162	91	81	25.....	126	83	86
6.....	211	103	150	16.....	159	90	78	26.....	120	93	84
7.....		103	156	17.....	156	90	79	27.....	118	90	83
8.....		200	103	18.....	150	88	150	28.....	116	83	83
9.....		189	101	19.....	144	88	268	29.....	113	79	91
10.....		182	97	20.....	138	88	144	30.....	111	78	144
								31.....	111	76	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
July.....		111	169	1.11	1.28	10,400
August.....	107	76	92.3	.607	.70	5,680
September.....	268	76	104	.684	.76	6,190
The period.....						22,300

* Estimated.

WILSON RIVER BASIN

WILSON RIVER NEAR TILLAMOOK, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 18, T. 1 S., R. 8 W., 1 mile above North Fork and 7 miles east of Tillamook.

DRAINAGE AREA.—162 square miles.

RECORDS AVAILABLE.—July to September, 1931. December, 1914, to November, 1916, at site three-quarters of a mile downstream; incomplete.

EXTREMES.—Maximum discharge during period, 248 second-feet Sept. 18 (gage height, 1.26 feet); minimum, 78 second-feet Sept. 4 (gage height, 0.59 foot). 1914–1916, 1931: Maximum discharge recorded, 7,500 second-feet Jan. 14, 1915; minimum, that of Sept. 4, 1931.

Maximum known stage from high-water marks, 20.8 feet at former site in February, 1916.

REMARKS.—Records good. No diversions or regulation above gage.

Daily and monthly discharge, in second-feet, 1931

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1.....		118	80	11.....		100	104	21.....		90	132
2.....		116	80	12.....		100	96	22.....		88	112
3.....		114	80	13.....		100	92	23.....		88	108
4.....		112	78	14.....		98	88	24.....		86	100
5.....		110	92	15.....		98	84	25.....		86	96
6.....		112	230	16.....		96	84	26.....		94	96
7.....		108	155	17.....		96	84	27.....		90	96
8.....		108	128	18.....		94	248	28.....		86	96
9.....		106	108	19.....		92	248	29.....		84	155
10.....		104	108	20.....		92	145	30.....	124	84	223
								31.....	120	80	-----

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
July 30-31.....	124	120	122	0.753	0.06	484
August.....	118	80	97.7	.603	.70	6,010
September.....	248	78	121	.747	.83	7,200
The period.....						13,700

MISCELLANEOUS DISCHARGE MEASUREMENTS

In addition to the records of stream flow obtained at gaging stations and reported in the preceding pages, measurements of flow are made at a number of other points, as shown by the following tables:

Miscellaneous discharge measurements in Pacific slope drainage basins in Oregon and in lower Columbia River drainage basin during year ending Sept. 30, 1931

Walla Walla River Basin

Date	Stream	Tributary to or diverting from—	Locality	Gage height	Discharge
				Feet	Sec.-ft.
June 24	South Fork of Walla Walla River.	Walla Walla River.	Sec. 30, T. 5 N., R. 39 E., unsurveyed, 500 feet below mouth of Rough Creek, Oreg.	-----	36.1
July 13	.....do.....	do.....	do.....	-----	34.7
June 23	.....do.....	do.....	Sec. 31, T. 5 N., R. 39 E., unsurveyed, 1 mile below mouth of Rough Creek, Oreg.	-----	58
July 13	.....do.....	do.....	do.....	-----	49.8
June 22	.....do.....	do.....	Sec. 2, T. 4 N., R. 38 E., above mouth of Skiphorton Creek, Oreg.	-----	68
July 13	.....do.....	do.....	do.....	-----	52
June 17	.....do.....	do.....	Sec. 9, T. 4 N., R. 38 E., below mouth of Burnt Cabin Gulch, Oreg.	-----	115
22	.....do.....	do.....	do.....	-----	92
July 13	.....do.....	do.....	do.....	-----	70
17	.....do.....	do.....	SE. 14 sec. 22, T. 5 N., R. 36 E., at State engineer's gaging station just above Milton City power plant intake, Oreg.	0.39	84
4	North Fork of Walla Walla River.	do.....	Sec. 30, T. 5 N., R. 38 E., at junction of trail from Bear Creek with trail along North Fork of Walla Walla River, Oreg.	-----	1.91
Apr. 18	Mill Creek.....	do.....	Above diversion dam for city of Walla Walla water supply, near Walla Walla, Wash.	-----	148
18	Blue Creek.....	Mill Creek.....	In sec. 26, T. 7 N., R. 37 E., three-quarters of a mile above mouth, near Walla Walla, Wash.	-----	25.8

John Day River Basin

Dec. 16	Strawberry Creek...	John Day River.....	Former gaging station in S. ¼ sec. 8, T. 14 S., R. 34 E., at Nelson Bridge, near Prairie City, Oreg.	0.18	2.0
Feb. 5	.....do.....	do.....	do.....	.16	1.9
Mar. 23	.....do.....	do.....	do.....	.28	3.9
Apr. 3	.....do.....	do.....	do.....	.42	7.1
May 20	.....do.....	do.....	do.....	.88	46.4
May 26	.....do.....	do.....	do.....	.85	45.2
Aug. 26	.....do.....	do.....	do.....	.25	2.6
Sept. 26	.....do.....	do.....	do.....	.21	2.2
Oct. 10	South Fork of Strawberry Creek.	Strawberry Creek.....	At mouth, near Prairie City, Oreg.	-----	.8
May 14	Desolation Creek.....	North Fork of John Day River.	At mouth, at Dale, Oreg.	-----	266
22	.....do.....	do.....	do.....	-----	111
June 19	.....do.....	do.....	do.....	-----	76

Deschutes River Basin

Aug. 19	Shitike Creek.....	White River.....	Former gaging station at Warm Springs, Oreg.	-0.03	28.3
---------	--------------------	------------------	--	-------	------

Miscellaneous discharge measurements in Pacific slope drainage basins in Oregon and in lower Columbia River drainage basin during year ending Sept. 30, 1931—
Continued

White Salmon River Basin

Date	Stream	Tributary to or diverting from—	Locality	Gage height	Discharge
				Feet	Sec.-ft.
May 5	Trout Lake Water Co.'s ditch.	Trout Creek	NE. $\frac{1}{4}$ sec. 22, T. 6 N., R. 10 E., at intake, at Trout Lake, Wash.		17.1
June 17	do.	do.	do.		* 10
July 31	do.	do.	do.		13.8
May 5	Pearson and Peterson Ditch.	do.	NE. $\frac{1}{4}$ sec. 22, T. 6 N., R. 10 E., above lateral at Trout Lake, Wash.		5.8
June 17	do.	do.	do.		* 12
July 31	do.	do.	do.		7.1
May 5	Pearson and Olson Ditch.	White Salmon River	NW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 24, T. 6 N., R. 10 E., below lateral, Wash.		* 5
June 17	do.	do.	do.		* 7
July 31	do.	do.	do.		2.0
May 5	Pearson and Olson Ditch lateral.	Pearson and Olson Ditch.	do.		0
June 17	do.	do.	do.		* 4
July 31	do.	do.	do.		9.8
May 5	Coats Bros. Ditch	White Salmon River	SW. $\frac{1}{4}$ sec. 19, T. 6 N., R. 11 E., below wasteway, Wash.		20.5
June 17	do.	do.	do.		* 12
July 31	do.	do.	do.		11.4
May 5	Coats Bros. Ditch wasteway.	Coats Bros. Ditch	do.		0
June 17	do.	do.	do.		* 18
May 5	J. C. Hoak Ditch	White Salmon River	do.		30.6
June 17	do.	do.	do.		* 37
July 31	do.	do.	do.		12.6

Little White Salmon River Basin

Mar. 26	Little White Salmon River.	Columbia River	SE. $\frac{1}{4}$ sec. 26, T. 4 N., R. 9 E., at bridge below Moss Creek, Wash.		355
Aug. 7	do.	do.	do.		76
Mar. 26	Broughton Lumber Co.'s flume.	Little White Salmon River.	SW. $\frac{1}{4}$ sec. 36, T. 4 N., R. 9 E., at Willard ranger station, Wash.		18.7
Aug. 7	do.	do.	do.		27.4
Mar. 26	Lava Creek	do.	do.		135
Aug. 8	do.	do.	do.		* 3.3

Wind River Basin

Mar. 26	Wind River	Columbia River	Sec. 17, T. 3 N., R. 8 E., below Bear Creek, Wash.	3.09	1,570
Aug. 7	do.	do.	do.	.13	159

Washougal River Basin

Mar. 26	Washougal River	Columbia River	SE. $\frac{1}{4}$ sec. 23, T. 2 N., R. 4 E., 4 miles northeast of Washougal, Wash.		860
Aug. 7	do.	do.	do.		87

* Float measurement.

* Estimated.

Miscellaneous discharge measurements in Pacific slope drainage basins in Oregon and in lower Columbia River drainage basin during year ending Sept. 30, 1931—Continued

Willamette River Basin

Date	Stream	Tributary to or diverting from—	Locality	Gage height	Discharge
				<i>Feet</i>	<i>Sec.-ft.</i>
Sept. 17	Calapooya River....	Willamette River.....	1 mile above mouth, at Albany, Ore.	-----	16.1
15	South Santiam River	Santiam River.....	Below Dobbin Creek, at Cascadia, Ore.	-----	40.8
Aug. 2	Middle Fork of Santiam River.	South Santiam River.	Sec. 2, T. 13 S., R. 2 E., above Green Peter Creek, Ore.	-----	123
Sept. 16	Wiley Creek.....	do.....	2 miles above mouth, near Foster, Ore.	-----	8.0
7	Albany power canal.	do.....	Below waste canal at Albany, Ore.	-----	91
Aug. 29	North Santiam River.	Santiam River.....	Below diversions at Stayton, Ore.	-----	198
July 9	Silver Creek.....	Pudding River.....	1 mile southeast of Silverton, Ore.	-----	48.5
Sept. 12	Mill Creek.....	do.....	At mouth, at Aurora, Ore.	-----	5.4
June 25	Spring Creek.....	Oak Grove Fork.....	At mouth, above power plant intake, Ore.	-----	2.4
25	Kink Creek.....	do.....	do.....	-----	1.6

Clatskanie River Basin

May 18	Clatskanie River....	Columbia River.....	NW $\frac{1}{4}$ sec. 15, T. 7 N., R. 4 W., near Clatskanie, Ore.	-----	43.9
July 3	do.....	do.....	do.....	-----	42.7
Aug. 15	do.....	do.....	do.....	-----	11.7
May 18	Beaver Creek.....	Clatskanie River.....	SE $\frac{1}{4}$ sec. 12, T. 7 N., R. 4 W., near Clatskanie, Ore.	-----	7.4

Big Creek Basin

May 18	Big Creek.....	Columbia River.....	NW $\frac{1}{4}$ sec. 29, T. 8 N., R. 7 W., near Knappa, Ore.	0.18	65
June 27	do.....	do.....	do.....	.26	79
Aug. 17	do.....	do.....	do.....	-----	23.0

Rogue River Basin

Sept. 27	Prospect power canal.	Rogue River.....	Above forebay of power plant, near Prospect, Ore.	-----	314
May 22	Red Blanket Ditch..	Red Blanket Creek..	NE $\frac{1}{4}$ sec. 23, T. 32 S., R. 3 E., above gaging station on Red Blanket Creek near Prospect, Ore.	-----	7.2
July 1	do.....	do.....	do.....	-----	3.2
Sept. 3	do.....	do.....	do.....	-----	8.1
22	do.....	do.....	do.....	-----	7.1

Umpqua River Basin

Feb. 14	Fish Creek.....	North Umpqua River.	At road crossing above Camas Creek, near Hoaglin, Ore.	0.86	65
Apr. 16	do.....	do.....	do.....	1.36	222
May 26	do.....	do.....	do.....	1.05	97
July 3	do.....	do.....	do.....	.86	54
Sept. 12	do.....	do.....	do.....	.80	24.5
Dec. 18	Steamboat Creek..	do.....	At mouth, near Hoaglin, Ore.	-----	1,050
Feb. 17	do.....	do.....	do.....	-----	247
Apr. 10	do.....	do.....	do.....	-----	716

Trask River Basin

July 4	Trask River.....	Pacific Ocean.....	Sec. 21, T. 1 S., R. 8 W., 10 miles east of Tillamook, Ore.	-----	235
8	do.....	do.....	do.....	-----	188
18	do.....	do.....	do.....	-----	142
26	do.....	do.....	do.....	-----	119

INDEX

A

	Page
Accuracy of data and computed results.....	4-5
Acre-foot, definition of.....	2
Albany, Oreg., Willamette River at.....	74
Albany power canal, Oreg., discharge measurement of.....	162
near Lebanon, Oreg.....	86
Amboy, Wash., Canyon Creek near.....	107
Lewis River near.....	99
Applegate River near Ruch, Oreg.....	140
Appropriations, record of.....	1
Ariel, Wash., Lewis River at.....	100-101
Ashland, Oreg., East Fork of Ashland Creek near.....	139
Emigrant Creek near.....	135
Emigrant Gap Reservoir near.....	134
West Fork of Ashland Creek near.....	138
Ashland Creek, East Fork of, near Ashland, Oreg.....	139
West Fork of, near Ashland, Oreg.....	138
Astoria, Oreg., Youngs River near.....	118
Aurora, Oreg., Pudding River at.....	90
Azalea, Oreg., Cow Creek near.....	148

B

Bear Creek at Medford, Oreg.....	136
Bear Creek Basin, Oreg., diversions in.....	137
Beaver Creek, Oreg., discharge measurement of.....	162
Bend, Oreg., Deschutes River below.....	40
Deschutes River near.....	38-39
diversions from Deschutes River near.....	46
Tumalo Creek near.....	47
Big Bottom, Oreg., Clackamas River at.....	93
Big Butte Creek, South Fork of, near Butte Falls, Oreg.....	127
Big Creek below Skookum Meadow, Wash.....	102
Big Creek, Oreg., discharge measurements of.....	162
Big Creek Basin, Oreg., discharge measurements in.....	162
Big Elk ranger station, Oreg., South Fork of Little Butte Creek at.....	128
Biggs, Oreg., Deschutes River near.....	43
Birch Creek at Rieth, Oreg.....	20
Blue Creek, Wash., discharge measurement of.....	160
Bridge, Oreg., Middle Fork of Coquille River near.....	143
Brightwood, Oreg., Sandy River at.....	60
Broughton Lumber Co.'s flume, Wash., discharge measurements of.....	161
Bull Run, Oreg., Little Sandy River near.....	71
Sandy River near.....	62
Bull Run Reservoir near Bull Run, Oreg.....	68
Bull Run River below Bull Run Reservoir, Oreg.....	69
near Bull Run, Oreg.....	70
Butte Falls, Oreg., South Fork of Big Butte Creek near.....	127
Bybee Creek, Oreg., Rogue River above.....	119

C

	Page
Calapooya River, Oreg., discharge measurement of.....	162
Canby, Oreg., Molalla River near.....	89
Canyon Creek near Amboy, Wash.....	107
Castle Rock, Wash., Cowlitz River near.....	112
Cazadero, Oreg., Clackamas River near.....	95
Central Point, Oreg., Rogue River near.....	122
Cispus River near Randle, Wash.....	115
Clackamas River above Three Lynx Creek, Oreg.....	94
at Big Bottom, Oreg.....	93
near Cazadero, Oreg.....	95
Clatskanie River, Oreg., discharge measurements of.....	162
Clatskanie River Basin, Oreg., discharge measurements in.....	162
Clearwater River above Trap Creek, Oreg.....	154
Coats Bros. Ditch, Wash., discharge measurements of.....	161
Coats Bros. Ditch wasteway, Wash., discharge measurements of.....	161
Columbia River at The Dalles, Oreg.....	11-12
Computations, results of, accuracy of.....	4-5
Control, definition of.....	2
Cooperation, record of.....	10
Coquille River, Middle Fork of, near Bridge, Oreg.....	143
Middle Fork of, near Myrtle Point, Oreg.....	144
North Fork of, near Myrtle Point, Oreg.....	146
South Fork of, at Powers, Oreg.....	142
Coquille River Basin, Oreg., gaging-station records in.....	142-146
Cottonwood Creek near Monument, Oreg.....	33
Cougar, Wash., Lewis River near.....	97-98
Muddy River near.....	105
Swift Creek near.....	106
Cow Creek near Azalea, Oreg.....	148
Cowlitz River at Mossy Rock, Wash.....	111
at Packwood, Wash.....	110
Clear Fork of, near Packwood, Wash.....	113-114
near Castle Rock, Wash.....	112
Cowlitz River Basin, Wash., gaging-station records in.....	110-117
Crane Prairie Reservoir near Lapine, Oreg.....	34
Crescent Creek at Crescent Lake, near Crescent, Oreg.....	45-46
Crescent Lake Reservoir near Crescent, Oreg.....	45
Crooked River near Culver, Oreg.....	49
Culver, Oreg., Crooked River near.....	49

D

Dale, Oreg., North Fork of John Day River near.....	29
Data, accuracy of.....	4-5
explanation of.....	2-4
Dayville, Oreg., John Day River near.....	24
Deschutes River above Davis Creek, near Lapine, Oreg.....	36
at Benham Falls, near Bend, Oreg.....	38

	M	Page
McDonald Ferry, Oreg., John Day River at.....		26
McKay Creek near Pendleton, Oreg.....		19
near Pilot Rock, Oreg.....		17
McKay Reservoir near Pendleton, Oreg.....		18
McKenzie River at McKenzie Bridge, Oreg.....		77
near Vida, Oreg.....		78
McMinnville, Oreg., Haskins Creek near.....		88
Nestucca River near.....		157
Madras, Oreg., Deschutes River near.....		41
Marmot, Oreg., Sandy River near.....		6
Meadow Creek below Lone Butte Meadow, Wash.....		104
Medford, Oreg., Bear Creek at.....		136
Mehama, Oreg., Little North Santiam River near.....		83
North Santiam River at.....		82
Metolius River near Grandview, Oreg.....		50
Middle Santiam River near Foster, Oreg.....		85
Mill Creek, Oreg., discharge measurement of.....		162
near Prospect, Oreg.....		123
Mill Creek, Wash., discharge measurement of.....		160
Milton, Oreg., South Fork of Walla Walla River near.....		13
Molalla River near Canby, Oreg.....		89
Monroe, Oreg., Long Tom River at.....		80
Monument, Oreg., Cottonwood Creek near.....		33
North Fork of John Day River at.....		20
Morgan, Oreg., Willow Creek near.....		32
Mossy Rock, Wash., Cowlitz River at.....		111
Muddy River near Cougar, Wash.....		105
Myrtle Point, Oreg., Middle Fork of Coquille River near.....		144
North Fork of Coquille River near.....		146
N		
Nestucca River near McMinnville, Oreg.....		157
North Santiam River at Detroit, Oreg.....		81
at Mehama, Oreg.....		82
discharge measurement of.....		162
North Umpqua River above Rock Creek, near Glide, Oreg.....		151
at Toketee Falls, Oreg.....		150
below Lake Creek, Oreg.....		149
near Glide, Oreg.....		152
O		
Oak Grove Fork above power plant intake, Oreg.....		96
Olson and Pearson Ditch, Wash., discharge measurements of.....		161
Olson and Pearson Ditch lateral, Wash., dis- charge measurements of.....		161
Oswego Canal near Oswego, Oreg.....		92
P		
Pacific Power & Light Co.'s conduit near Hood River, Oreg.....		57
Packwood, Wash., Clear Fork of Cowlitz River near.....		113-114
Cowlitz River at.....		110
Pearson and Olson Ditch, Wash., discharge measurements of.....		161
Pearson and Olson Ditch lateral, Wash., dis- charge measurements of.....		161

Pearson and Peterson Ditch, Wash., discharge measurements of.....	Page 161
Pendleton, Oreg., McKay Creek near.....	19
McKay Reservoir near.....	18
Umatilla River near.....	14
Peterson and Pearson Ditch, Wash., discharge measurements of.....	161
Pilot Rock, Oreg., McKay Creek near.....	17
Pitt, Wash., Klickitat River at.....	54
Powers, Oreg., South Fork of Coquille River at.....	142
Prairie City, Oreg., John Day River at.....	23
Prairie power canal at.....	28
Strawberry Creek near.....	27
Prairie power canal at Prairie City, Oreg.....	28
Prospect, Oreg., Middle Fork of Rogue River near.....	125
Mill Creek near.....	123
Red Blanket Creek near.....	126
Rogue River above.....	120
Rogue River near.....	121
South Fork of Rogue River near.....	124
Prospect power canal, Oreg., discharge measurement of.....	162
Publications, information concerning obtaining or consulting of.....	5-9
on stream flow, lists of.....	6
7, 9,	
Pudding River at Aurora, Oreg.....	90
R	
Randle, Wash., Cispus River near.....	115
Red Blanket Creek near Prospect, Oreg.....	126
Red Blanket Ditch, Oreg., discharge measurements of.....	162
Remote, Oreg., Rock Creek near.....	145
Rhododendron, Oreg., Little Zigzag River near.....	63
Rieth, Oreg., Birch Creek at.....	20
Ritter, Oreg., Middle Fork of John Day River at.....	31
Rock Creek near Remote, Oreg.....	145
Rogue River above Bybee Creek, Oreg.....	119
above Prospect, Oreg.....	120
at Raygold, near Central Point, Oreg.....	122
below South Fork of Rogue River, near Prospect, Oreg.....	121
Middle Fork of, near Prospect, Oreg.....	125
South Fork of, near Prospect, Oreg.....	124
Rogue River Basin, Oreg., discharge measurements in.....	162
gaging-station records in.....	119-141
Ruch, Oreg., Applegate River near.....	140
Run-off in inches, definition of.....	2
Rush Creek above falls, Wash.....	103
S	
Saginaw, Oreg., Coast Fork of Willamette River at.....	76
St. Helen, Wash., North Fork of Toutle River at.....	116
Salem, Oreg., Willamette River at.....	75
Salmon River at Welches, Oreg.....	67
below Linney Creek, Oreg.....	68
near Government Camp, Oreg.....	65
Sandy River above Salmon River, at Brightwood, Oreg.....	60

