

UNITED STATES DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, Secretary
GEOLOGICAL SURVEY
Director

Water-Supply Paper 694

SURFACE WATER SUPPLY *of the* UNITED STATES

1929

PART XII

NORTH PACIFIC SLOPE DRAINAGE BASINS

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

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Prepared in cooperation with the States of
OREGON and WASHINGTON



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1932

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ILLUSTRATION

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

SURFACE WATER SUPPLY OF PACIFIC SLOPE BASINS IN OREGON AND LOWER COLUMBIA RIVER BASIN, 1929

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting records of measurements of flow made on streams in the United States during the year ending September 30, 1929.

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, 1895-1930

| | | | | | |
|-------------|---------------|-------------|----------------|-----------|----------------|
| 1895----- | \$12, 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 | | |
| 1907----- | 150, 000. 00 | 1924-1925.. | 170, 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 5,830 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1929, 2,240 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, 1928, and ending September 30, 1929. 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 supplement the gage heights and discharge measurements in determining the daily flow. The records of stage are obtained either

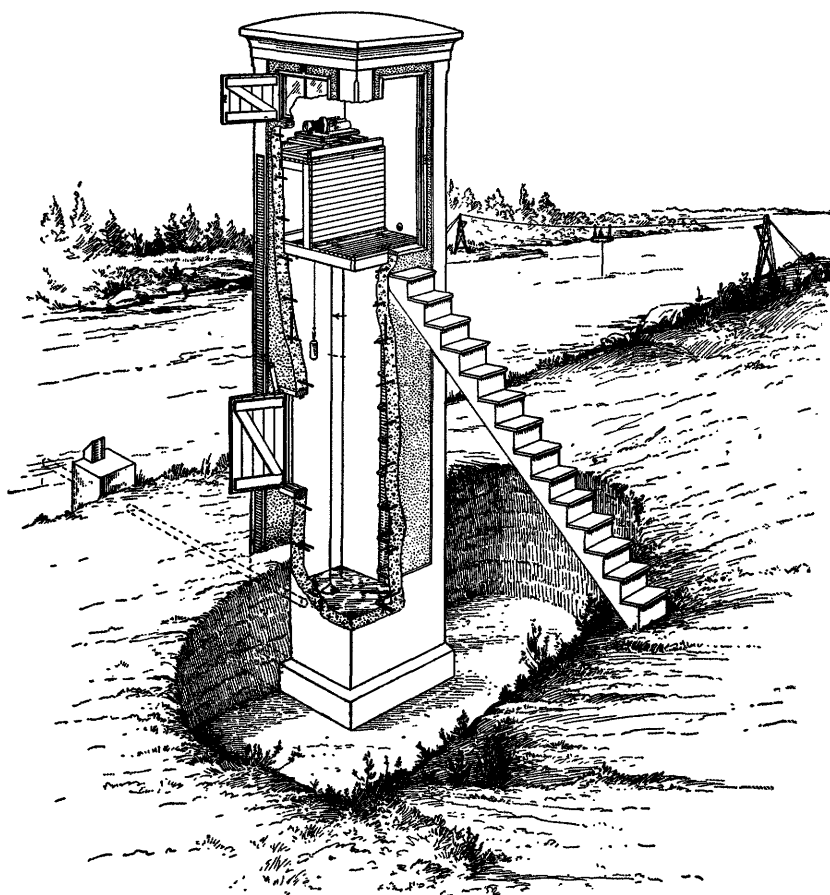


FIGURE 1.—Typical river-measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car

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.

From the discharge measurements rating tables are prepared that give the discharge for any stage. 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 unless 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 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 powers, 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 I. North Atlantic slope basins (St. John River to York River).

II. South Atlantic slope and eastern Gulf of Mexico basins (James River to the Mississippi).

III. Ohio River Basin.

IV. St. Lawrence River Basin.

V. Hudson Bay and upper Mississippi River basins.

VI. Missouri River Basin.

VII. Lower Mississippi River Basin.

VIII. Western Gulf of Mexico basins.

IX. Colorado River Basin.

X. The Great Basin.

XI. Pacific slope basins in California.

XII. North Pacific slope 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., 506 Broadway-Arcade Building.
 Trenton, N. J., 710 Trenton Trust Building.
 Harrisburg, Pa., 366 State Capital.
 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.
 Chicago, Ill., 1503 Consumers Building.
 Madison, Wis., 337N State Capitol.
 St. Paul, Minn., 202 Old State Capitol.
 Topeka, Kans., 23 Federal Building.
 Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
 Fort Smith, Ark., Post Office Building.
 Austin, Tex., State Capitol.
 Tucson, Ariz., 210 Post Office Building.
 Denver, Colo., 403 Post Office Building.
 Salt Lake City, Utah, 313 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 5,830 points in the United States, and the data obtained have been published in the reports tabulated on pages 7 and 9.

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----- | 1897. |
| W 16----- | Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte, 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. |

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

1929. 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 III 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.

[For basins included see p. 5.]

| Year | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII-A | XII-B | XII-C |
|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1899- | 35 | 35, 36 | 36 | 36 | 36 | 36, 37 | 37 | 37 | 37, 38 | 38, 39 | 38, 39 | 38 | 38 | 38 |
| 1900- | 47, 48 | 48, 49 | 48, 49 | 49 | 49 | 49, 50 | 50 | 50 | 50 | 51 | 51 | 51 | 51 | 51 |
| 1901- | 65, 75 | 65, 75 | 65, 75 | 65, 75 | 65, 75 | 65, 75 | 65, 75 | 65, 75 | 65, 75 | 66, 75 | 66, 75 | 66, 75 | 66, 75 | 66, 75 |
| 1902- | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 82 | 85 | 85 | 85 | 85 | 85 |
| 1903 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 97 | 100 | 100 | 100 | 100 | 100 |
| 1904 | 125, 126 | 125, 126 | 125, 126 | 125, 126 | 125, 126 | 125, 126 | 125, 126 | 125, 126 | 125, 126 | 133 | 133 | 133 | 133 | 133 |
| 1905 | 167, 168 | 167, 168 | 167, 168 | 167, 168 | 167, 168 | 167, 168 | 167, 168 | 167, 168 | 167, 168 | 176, 177 | 176, 177 | 176, 177 | 176, 177 | 176, 177 |
| 1906 | 203 | 203 | 203 | 203 | 203 | 203 | 203 | 203 | 203 | 212, 213 | 212, 213 | 212, 213 | 212, 213 | 212, 213 |
| 1907-8 | 201, 202 | 201, 202 | 201, 202 | 201, 202 | 201, 202 | 201, 202 | 201, 202 | 201, 202 | 201, 202 | 250, 251 | 250, 251 | 250, 251 | 250, 251 | 250, 251 |
| 1909 | 261 | 261 | 261 | 261 | 261 | 261 | 261 | 261 | 261 | 270, 271 | 270, 271 | 270, 271 | 270, 271 | 270, 271 |
| 1910 | 281 | 281 | 281 | 281 | 281 | 281 | 281 | 281 | 281 | 280 | 280 | 280 | 280 | 280 |
| 1911 | 301 | 301 | 301 | 301 | 301 | 301 | 301 | 301 | 301 | 310 | 310 | 310 | 310 | 310 |
| 1912 | 321 | 321 | 321 | 321 | 321 | 321 | 321 | 321 | 321 | 311 | 311 | 311 | 311 | 311 |
| 1913 | 351 | 351 | 351 | 351 | 351 | 351 | 351 | 351 | 351 | 332-A | 332-A | 332-A | 332-A | 332-A |
| 1914 | 381 | 381 | 381 | 381 | 381 | 381 | 381 | 381 | 381 | 362-B | 362-B | 362-B | 362-B | 362-B |
| 1915 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 401 | 391 | 391 | 391 | 391 | 391 |
| 1916 | 431 | 431 | 431 | 431 | 431 | 431 | 431 | 431 | 431 | 410 | 410 | 410 | 410 | 410 |
| 1917 | 451 | 451 | 451 | 451 | 451 | 451 | 451 | 451 | 451 | 440 | 440 | 440 | 440 | 440 |
| 1918 | 471 | 471 | 471 | 471 | 471 | 471 | 471 | 471 | 471 | 460 | 460 | 460 | 460 | 460 |
| 1919-20 | 501 | 501 | 501 | 501 | 501 | 501 | 501 | 501 | 501 | 480 | 480 | 480 | 480 | 480 |
| 1921 | 521 | 521 | 521 | 521 | 521 | 521 | 521 | 521 | 521 | 510 | 510 | 510 | 510 | 510 |
| 1922 | 541 | 541 | 541 | 541 | 541 | 541 | 541 | 541 | 541 | 530 | 530 | 530 | 530 | 530 |
| 1923 | 561 | 561 | 561 | 561 | 561 | 561 | 561 | 561 | 561 | 550 | 550 | 550 | 550 | 550 |
| 1924 | 581 | 581 | 581 | 581 | 581 | 581 | 581 | 581 | 581 | 570 | 570 | 570 | 570 | 570 |
| 1925 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 601 | 590 | 590 | 590 | 590 | 590 |
| 1926 | 621 | 621 | 621 | 621 | 621 | 621 | 621 | 621 | 621 | 610 | 610 | 610 | 610 | 610 |
| 1927 | 641 | 641 | 641 | 641 | 641 | 641 | 641 | 641 | 641 | 630 | 630 | 630 | 630 | 630 |
| 1928 | 661 | 661 | 661 | 661 | 661 | 661 | 661 | 661 | 661 | 650 | 650 | 650 | 650 | 650 |
| 1929 | 681 | 681 | 681 | 681 | 681 | 681 | 681 | 681 | 681 | 670 | 670 | 670 | 670 | 670 |

• Rating table 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 IV.
 • James River only.
 • Gallatin River.
 • Green and Gunnison Rivers and Grand River above junction with Gunnison.
 • Mohave River only.
 • Kings and Kern Rivers and South Pacific slope drainage basins.
 • 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.
 • Tables of monthly discharge for 1900 in Twenty-second Annual Report, Part IV.
 • Wisselickon and Schuykill Rivers to James River.
 • Sedoto River.
 • Leup and Platte Rivers, near Columbus, Nebr., and all tributaries below junction with the Platte.
 • Tributaries of the Mississippi from east.
 • Lake Ontario and tributaries to St. Lawrence River proper.
 • Hudson Bay only.
 • New England rivers only.
 • Susquehanna River to Delaware River, inclusive.
 • Susquehanna River to Yackin River, inclusive.
 • Platte and Kansas Rivers.
 • Great Basin in California, except Truckee and Carson River Basins.
 • Below junction with Gila.
 • Rogue, Umpqua, and Siletz Rivers only.

COOPERATION

The work was done in cooperation with the States as follows: In Oregon with Rhea Luper, State engineer; and in Washington with the Department of Conservation and Development, Erle J. Barnes, director, and R. K. Tiffany, supervisor of hydraulics.

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

Financial assistance was also rendered by the following cities, 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.; and Portland Electric Power Co., and in Washington by the Northwestern Electric Co., Walla Walla Chamber of Commerce, and Backus Brooks Co.

DIVISION OF WORK

Data for stations in Oregon and those in Washington, except on Touchet and Cowlitz Rivers, 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, H. M. Orem, and W. T. Miller, except for stations noted in station descriptions for which data were collected by State of Oregon under supervision of Rhea Luper, State engineer. These records, computed in office of Oregon State engineer, were reviewed and prepared for publication by G. H. Canfield, K. N. Phillips, and A. H. Williams.

The data for stations on Touchet and Cowlitz Rivers 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, M. C. Boyer, H. C. Woster, L. I. Meyer, R. J. Swanson, and A. P. Martinson.

The manuscript was assembled and reviewed by Otto Lauterhahn.

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, 1929. Maximum stages 1858 to 1877.

EXTREMES.—Maximum discharge during year, 460,000 second-feet June 19 (gage height, 27.7 feet); minimum, 43,200 second-feet January 31 (gage height, 89.2 feet on gage above Celilo Falls).

1858–1928: Maximum discharge, 1,170,000 second-feet June 6, 1894 (gage height, 59.6 feet); minimum, that of January 31, 1929.

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, January 21 to February 19, September 3–11, 22–30. Quantity of water diverted for irrigation is large in the aggregate but only a small proportion of the total flow; low-water flow, which comes in winter, is little affected. Gage-height record furnished by United States Weather Bureau.

Daily discharge, in second-feet, of Columbia River at The Dalles, Oreg., 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 88,400 | 86,600 | 70,600 | 69,000 | 44,100 | 76,600 | 92,200 | 150,000 | 300,000 | 320,000 | 158,000 | 111,000 |
| 2 | 87,500 | 85,600 | 69,800 | 69,800 | 45,100 | 73,400 | 91,300 | 159,000 | 308,000 | 310,000 | 156,000 | 109,000 |
| 3 | 85,600 | 83,800 | 68,200 | 68,200 | 52,100 | 79,300 | 90,300 | 155,000 | 315,000 | 300,000 | 155,000 | 110,000 |
| 4 | 83,800 | 83,800 | 67,500 | 67,500 | 56,600 | 79,300 | 90,300 | 150,000 | 323,000 | 290,000 | 153,000 | 108,000 |
| 5 | 83,800 | 84,700 | 66,100 | 66,800 | 58,200 | 79,300 | 90,300 | 150,000 | 326,000 | 284,000 | 151,000 | 105,000 |
| 6 | 83,800 | 83,800 | 64,700 | 66,800 | 56,600 | 79,300 | 91,300 | 153,000 | 330,000 | 277,000 | 150,000 | 105,000 |
| 7 | 83,800 | 82,900 | 64,700 | 66,100 | 55,000 | 80,200 | 92,200 | 152,000 | 328,000 | 266,000 | 148,000 | 105,000 |
| 8 | 83,800 | 82,000 | 64,700 | 65,400 | 55,000 | 81,100 | 93,200 | 152,000 | 338,000 | 258,000 | 148,000 | 105,000 |
| 9 | 83,800 | 83,800 | 64,000 | 63,400 | 59,900 | 82,000 | 93,200 | 155,000 | 342,000 | 251,000 | 146,000 | 105,000 |
| 10 | 83,800 | 88,400 | 64,000 | 60,700 | 52,100 | 85,600 | 92,200 | 151,000 | 386,000 | 244,000 | 143,000 | 105,000 |
| 11 | 84,700 | 86,600 | 65,400 | 60,000 | 52,100 | 88,400 | 92,200 | 152,000 | 400,000 | 238,000 | 142,000 | 103,000 |
| 12 | 84,700 | 83,800 | 66,800 | 59,300 | 46,100 | 93,200 | 93,200 | 156,000 | 414,000 | 231,000 | 141,000 | 98,100 |
| 13 | 84,700 | 82,000 | 66,800 | 59,300 | 55,000 | 102,000 | 93,200 | 158,000 | 425,000 | 223,000 | 139,000 | 96,200 |
| 14 | 87,500 | 82,900 | 66,100 | 59,300 | 46,100 | 100,000 | 93,200 | 163,000 | 427,000 | 219,000 | 138,000 | 94,200 |
| 15 | 89,400 | 82,900 | 66,100 | 59,300 | 46,100 | 96,200 | 93,200 | 175,000 | 432,000 | 214,000 | 138,000 | 92,200 |
| 16 | 89,400 | 82,900 | 66,100 | 59,300 | 47,200 | 91,300 | 93,200 | 196,000 | 437,000 | 210,000 | 137,000 | 90,300 |
| 17 | 89,400 | 82,000 | 66,800 | 60,700 | 50,800 | 77,500 | 98,100 | 208,000 | 441,000 | 203,000 | 136,000 | 87,500 |
| 18 | 89,400 | 82,000 | 66,800 | 61,300 | 52,100 | 82,900 | 103,000 | 211,000 | 455,000 | 199,000 | 135,000 | 86,600 |
| 19 | 90,300 | 81,100 | 66,100 | 60,700 | 56,600 | 81,100 | 107,000 | 217,000 | 460,000 | 193,000 | 134,000 | 85,600 |
| 20 | 92,200 | 79,300 | 65,400 | 59,300 | 69,000 | 82,900 | 108,000 | 231,000 | 455,000 | 186,000 | 132,000 | 84,700 |
| 21 | 92,200 | 76,600 | 64,700 | 56,600 | 73,900 | 84,700 | 111,000 | 234,000 | 448,000 | 183,000 | 131,000 | 82,900 |
| 22 | 91,300 | 73,900 | 64,000 | 56,600 | 68,200 | 86,600 | 116,000 | 243,000 | 432,000 | 181,000 | 130,000 | 86,400 |
| 23 | 90,300 | 73,100 | 62,700 | 53,500 | 67,500 | 92,200 | 119,000 | 261,000 | 416,000 | 177,000 | 129,000 | 84,100 |
| 24 | 88,400 | 72,300 | 61,300 | 52,100 | 69,000 | 92,200 | 121,000 | 281,000 | 403,000 | 173,000 | 128,000 | 81,800 |
| 25 | 88,400 | 71,400 | 60,700 | 50,800 | 70,600 | 92,200 | 122,000 | 308,000 | 393,000 | 172,000 | 127,000 | 81,800 |
| 26 | 87,500 | 70,600 | 62,700 | 48,300 | 72,300 | 92,200 | 127,000 | 335,000 | 383,000 | 172,000 | 124,000 | 84,100 |
| 27 | 87,500 | 70,600 | 64,000 | 49,500 | 73,900 | 91,300 | 128,000 | 340,000 | 368,000 | 172,000 | 122,000 | 86,400 |
| 28 | 87,500 | 71,400 | 64,700 | 50,800 | 74,800 | 91,300 | 131,000 | 332,000 | 358,000 | 170,000 | 120,000 | 86,400 |
| 29 | 86,600 | 70,600 | 66,100 | 46,100 | ----- | 88,400 | 135,000 | 318,000 | 348,000 | 167,000 | 118,000 | 86,400 |
| 30 | 86,600 | 69,000 | 68,200 | 52,100 | ----- | 86,600 | 142,000 | 308,000 | 332,000 | 166,000 | 115,000 | 86,400 |
| 31 | 86,600 | ----- | 69,000 | 43,200 | ----- | 90,300 | ----- | 300,000 | ----- | 162,000 | 113,000 | ----- |

Monthly discharge of Columbia River at The Dalles, Oreg., 1928-29

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|---------|-----------------|---------|------------|
| | | | | | Inches | Acre-feet |
| October..... | 92,200 | 83,800 | 87,200 | 0.368 | 0.42 | 5,360,000 |
| November..... | 88,400 | 69,000 | 79,700 | .336 | .37 | 4,740,000 |
| December..... | 70,600 | 60,700 | 65,600 | .277 | .32 | 4,030,000 |
| January..... | 69,800 | 43,200 | 58,800 | .248 | .29 | 3,620,000 |
| February..... | 74,800 | 44,100 | 58,100 | .245 | .26 | 3,230,000 |
| March..... | 102,000 | 76,600 | 86,600 | .365 | .42 | 5,320,000 |
| April..... | 142,000 | 90,300 | 105,000 | .443 | .49 | 6,250,000 |
| May..... | 340,000 | 150,000 | 215,000 | .907 | 1.05 | 13,200,000 |
| June..... | 460,000 | 300,000 | 384,000 | 1.62 | 1.81 | 22,800,000 |
| July..... | 320,000 | 162,000 | 220,000 | .928 | 1.07 | 13,500,000 |
| August..... | 158,000 | 113,000 | 137,000 | .578 | .67 | 8,420,000 |
| September..... | 111,000 | 81,800 | 94,400 | .398 | .44 | 5,620,000 |
| The year..... | 460,000 | 43,200 | 133,000 | .561 | 7.61 | 96,100,000 |

TRIBUTARIES OF COLUMBIA RIVER BELOW MOUTH OF SNAKE RIVER.

WALLA WALLA RIVER BASIN

WALLA WALLA RIVER NEAR MILTON, OREG.

LOCATION.—Water-stage recorder in sec. 21, T. 5 N., R. 36 E., half a mile below junction of North and South Forks and 4 miles above Milton.

RECORDS AVAILABLE.—February, 1903, to December, 1908; March, 1918, to September, 1929; discontinued. Records incomplete.

EXTREMES.—Maximum discharge during year, 940 second-feet Mar. 21 (gage height, 2.88 feet); minimum, 25 second-feet Aug. 18 and 23.

1903-1906, 1918-1929: Maximum discharge, about 8,130 second-feet May 30, 1906, determined by slope-area method; minimum, that of Aug. 18 and 23, 1929.

REMARKS.—Records fair. Discharge estimated Dec. 5-15 and Jan. 30 to Feb. 10. Small amount of diversion for irrigation above station. Milton power conduit diverts from 43 to 63 second-feet around station. Flow regulated to some extent at low water. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 67 | 57 | 74 | 76 | 85 | 149 | 220 | 295 | 318 | 74 | 34 | 30 |
| 2..... | 70 | 55 | 74 | 92 | | 132 | 216 | 299 | 287 | 65 | 34 | 31 |
| 3..... | 72 | 58 | 74 | 107 | | 299 | 234 | 302 | 266 | 65 | 35 | 31 |
| 4..... | 69 | 61 | 72 | 107 | | 326 | 230 | 291 | 258 | 72 | 34 | 32 |
| 5..... | 69 | 64 | | 97 | | 334 | 227 | 287 | 252 | 65 | 34 | 32 |
| 6..... | 69 | 64 | | 87 | 85 | 314 | 206 | 266 | 272 | 64 | 34 | 32 |
| 7..... | 69 | 61 | | 81 | | 258 | 197 | 266 | 266 | 55 | 32 | 32 |
| 8..... | 69 | 60 | | 76 | | 244 | 187 | 276 | 302 | 64 | 31 | 33 |
| 9..... | 58 | 72 | | 76 | | 377 | 183 | 285 | 291 | 52 | 32 | 36 |
| 10..... | 60 | 79 | 72 | 76 | | 645 | 180 | 299 | 276 | 51 | 32 | 36 |
| 11..... | 60 | 76 | | 76 | 83 | 446 | 183 | 334 | 262 | 52 | 31 | 34 |
| 12..... | 61 | 70 | | 76 | 104 | 314 | 180 | 385 | 234 | 52 | 33 | 34 |
| 13..... | 72 | 72 | | 72 | 97 | 244 | 180 | 476 | 220 | 52 | 31 | 34 |
| 14..... | 60 | 74 | | 72 | 83 | 213 | 255 | 468 | 213 | 51 | 29 | 32 |
| 15..... | 67 | 72 | | 72 | 61 | 216 | 342 | 405 | 262 | 49 | 30 | 32 |
| 16..... | 81 | 81 | 72 | 72 | 69 | 258 | 318 | 314 | 295 | 49 | 30 | 32 |
| 17..... | 74 | 94 | 72 | 76 | 70 | 255 | 302 | 326 | 262 | 49 | 31 | 32 |
| 18..... | 69 | 85 | 72 | 83 | 70 | 258 | 291 | 345 | 244 | 49 | 30 | 32 |
| 19..... | 69 | 83 | 72 | 74 | 70 | 252 | 302 | 373 | 230 | 48 | 28 | 32 |
| 20..... | 74 | 81 | 70 | 102 | 83 | 287 | 291 | 409 | 206 | 44 | 28 | 33 |
| 21..... | 70 | 79 | 69 | 110 | 97 | 820 | 295 | 430 | 187 | 39 | 28 | 38 |
| 22..... | 69 | 79 | 70 | 87 | 102 | 459 | 314 | 455 | 174 | 38 | 28 | 39 |
| 23..... | 67 | 76 | 70 | 90 | 115 | 326 | 338 | 442 | 152 | 38 | 26 | 42 |
| 24..... | 65 | 76 | 70 | 87 | 129 | 272 | 302 | 455 | 132 | 40 | 26 | 47 |
| 25..... | 65 | 72 | 70 | 90 | 143 | 238 | 302 | 389 | 110 | 41 | 28 | 47 |
| 26..... | 65 | 72 | 72 | 85 | 123 | 210 | 322 | 342 | 104 | 42 | 32 | 55 |
| 27..... | 67 | 72 | 72 | 76 | 115 | 206 | 361 | 306 | 104 | 40 | 30 | 54 |
| 28..... | 65 | 72 | 72 | 87 | 117 | 289 | 409 | 272 | 90 | 36 | 30 | 54 |
| 29..... | 65 | 70 | 76 | 92 | | 310 | 363 | 252 | 87 | 35 | 30 | 52 |
| 30..... | 67 | 70 | 81 | 90 | | 276 | 338 | 248 | 79 | 35 | 30 | 49 |
| 31..... | 58 | | 83 | 90 | | 244 | | 255 | | 34 | 30 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| October..... | 81 | 58 | 67.2 | 4,130 |
| November..... | 94 | 55 | 71.9 | 4,280 |
| December..... | 83 | 69 | 72.6 | 4,460 |
| January..... | 110 | 72 | 85 | 5,230 |
| February..... | 143 | 61 | 92.2 | 5,120 |
| March..... | 820 | 132 | 303 | 18,600 |
| April..... | 409 | 180 | 270 | 16,100 |
| May..... | 476 | 248 | 341 | 21,000 |
| June..... | 318 | 79 | 214 | 12,700 |
| July..... | 74 | 34 | 49.4 | 3,040 |
| August..... | 35 | 26 | 30.7 | 1,890 |
| September..... | 55 | 30 | 37.6 | 2,240 |
| The year..... | 820 | 26 | 136 | 98,800 |

TOUCHET RIVER AT BOLLES, WASH.

LOCATION.—Water-stage recorder in sec. 8, T. 9 N., R. 37 E., half a mile above highway bridge, three-fourths mile southeast of Bolles, and 3 miles west of Waitsburg.

DRAINAGE AREA.—284 square miles.

RECORDS AVAILABLE.—February, 1924, to October, 1929; discontinued.

EXTREMES.—Maximum discharge during year, 879 second-feet Mar. 10 (gage height, 3.67 feet); minimum, 6 second-feet Aug. 17 (gage height, 1.08 feet).
1924-1929: Maximum discharge, 4,470 second-feet Jan. 13, 1928 (gage height, 7.04 feet); minimum, 1.4 second feet July 30, 1926 (gage height, 0.42 foot).

REMARKS.—Records good except those estimated (Oct. 4-6, Dec. 4-8, 22, Jan. 2-12, 14-19, 21-31, Apr. 15-20, 30, May 1-4, and Sept. 9-14), which are poor. Numerous small ditches divert water above gage for irrigation. Considerable fluctuation in stage at extremely low water caused by operation of flour mill at Waitsburg.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. |
|-----|------|------|------|------|------|------|-----|------|------|------|-------|------|
| 1 | 40 | 61 | 69 | 72 | | 238 | 350 | 168 | 50 | 20 | 15 | 55 |
| 2 | 43 | 64 | 70 | | | 224 | 337 | 152 | 48 | 18 | 17 | 52 |
| 3 | 48 | 64 | 67 | | | 214 | 324 | 141 | 46 | 19 | 17 | 50 |
| 4 | 49 | 66 | 67 | | | 210 | 311 | 132 | 52 | 20 | 17 | 48 |
| 5 | 50 | 66 | 68 | | | 218 | 298 | 128 | 50 | 22 | 17 | |
| 6 | 51 | 64 | 68 | | | 210 | 306 | 130 | 50 | 19 | 17 | |
| 7 | 52 | 61 | 68 | 70 | 392 | 200 | 290 | 132 | 47 | 17 | 18 | |
| 8 | 50 | 64 | 69 | | 376 | 181 | 272 | 139 | 50 | 14 | 18 | |
| 9 | 54 | 84 | 69 | | 450 | 174 | 268 | 152 | 50 | 18 | | |
| 10 | 52 | 94 | 70 | | 739 | 168 | 287 | 132 | 43 | 24 | | |
| 11 | 52 | 86 | 72 | | 583 | 181 | 283 | 125 | 42 | 17 | 20 | |
| 12 | 48 | 77 | 70 | | 404 | 181 | 302 | 119 | 42 | 12 | | |
| 13 | 43 | 72 | 70 | 67 | 321 | 184 | 336 | 112 | 40 | 11 | | |
| 14 | 54 | 72 | 70 | 67 | 279 | 218 | 352 | 106 | 43 | 12 | | |
| 15 | 54 | 70 | 70 | 68 | 272 | | 317 | 114 | 43 | 13 | 21 | |
| 16 | 64 | 72 | 69 | 68 | 298 | | 298 | 134 | 40 | 17 | 22 | |
| 17 | 64 | 77 | 66 | 69 | 306 | 360 | 283 | 134 | 40 | 11 | 24 | |
| 18 | 61 | 72 | 64 | 69 | 290 | | 264 | 134 | 42 | 18 | 24 | |
| 19 | 61 | 68 | 66 | 70 | 275 | | 257 | 128 | 40 | 42 | 28 | |
| 20 | 57 | 61 | 67 | 70 | 283 | | 260 | 123 | 38 | 43 | 31 | |
| 21 | 59 | 64 | 66 | | 420 | 396 | 268 | 119 | 38 | 36 | 38 | |
| 22 | 61 | 66 | 65 | | 408 | 376 | 272 | 110 | 36 | 30 | 39 | |
| 23 | 59 | 66 | 64 | | 336 | 376 | 268 | 99 | 33 | 19 | 43 | |
| 24 | 57 | 68 | 63 | | 283 | 336 | 253 | 91 | 30 | 16 | 48 | |
| 25 | 66 | 68 | 67 | | 242 | 309 | 232 | 80 | 31 | 16 | 55 | |
| 26 | 64 | 64 | 67 | 70 | 214 | 306 | 218 | 70 | 28 | 18 | 62 | |
| 27 | 64 | 68 | 70 | | 246 | 321 | 210 | 67 | 31 | 16 | 66 | |
| 28 | 61 | 68 | 67 | | 333 | 344 | 197 | 63 | 22 | 14 | 63 | |
| 29 | 57 | 70 | 69 | | 380 | 376 | 200 | 55 | 20 | 14 | 59 | |
| 30 | 59 | 67 | 73 | | 317 | 363 | 200 | 53 | 17 | 17 | 56 | |
| 31 | 61 | | 75 | | 272 | | 184 | | 22 | 16 | | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|------------|---------|---------|------|----------------------|
| October | 66 | 40 | 55.3 | 3,400 |
| November | 94 | 61 | 69.5 | 4,140 |
| December | 75 | 63 | 68.2 | 4,190 |
| January | | 67 | 69.7 | 4,290 |
| March 7-31 | 739 | 214 | 349 | 17,300 |
| April | | 168 | 282 | 16,800 |
| May | 352 | 184 | 275 | 16,900 |
| June | 168 | 53 | 115 | 6,840 |
| July | 52 | 17 | 38.8 | 2,390 |
| August | 43 | 11 | 19.3 | 1,190 |
| September | 66 | 15 | 31.2 | 1,860 |

NOTE.—No records Feb. 1 to Mar. 8.

UMATILLA RIVER BASIN

UMATILLA RIVER ABOVE MCKAY CREEK, NEAR PENDLETON, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 8, T. 2 N., R. 32 E., one-fourth mile above mouth of McKay Creek and 2 miles west of Pendleton.

RECORDS AVAILABLE.—May, 1921, to September, 1929. Records at Pendleton, February, 1891, to July, 1892, and May, 1903, to March, 1906, are directly comparable.

EXTREMES.—Maximum discharge during year, 4,680 second-feet Mar. 21 (gage height, 7.56 feet); minimum, 13 second-feet Aug. 15 (gage height, 1.88 feet). 1891–92, 1903–1906, 1921–1929: Maximum discharge, 7,920 second-feet Jan. 13, 1928 (gage height, 9.43 feet); minimum, 7 second-feet Aug. 14, 1924 (gage height, 1.87 feet).

REMARKS.—Records good except those estimated (Oct. 1–11 and Jan. 23 to Feb. 12), which are fair. Small amount of diversion for irrigation above station. Considerable regulation at low stages caused by operation of mills at Pendleton. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|-------|-------|-------|------|------|------|-------|
| 1 | | 80 | 87 | 97 | | 984 | 880 | 1,100 | 410 | 120 | 23 | 20 |
| 2 | | 72 | 85 | 101 | | 1,240 | 810 | 1,020 | 419 | 107 | 22 | 24 |
| 3 | | 72 | 85 | 130 | | 1,160 | 775 | 1,100 | 386 | 97 | 27 | 25 |
| 4 | | 69 | 84 | 140 | | 1,040 | 775 | 1,060 | 358 | 92 | 24 | 29 |
| 5 | | 70 | 78 | 136 | | 1,000 | 782 | 950 | 338 | 85 | 22 | 27 |
| 6 | 50 | 72 | 78 | 130 | 100 | 1,040 | 761 | 915 | 374 | 80 | 22 | 29 |
| 7 | | 69 | 78 | 122 | | 1,040 | 734 | 845 | 398 | 78 | 20 | 29 |
| 8 | | 72 | 78 | 116 | | 928 | 688 | 880 | 424 | 78 | 18 | 26 |
| 9 | | 78 | 77 | 110 | | 1,040 | 645 | 950 | 582 | 67 | 20 | 29 |
| 10 | | 85 | 80 | 105 | | 2,190 | 621 | 985 | 532 | 62 | 22 | 27 |
| 11 | | 84 | 80 | 105 | | 1,910 | 610 | 985 | 480 | 57 | 20 | 27 |
| 12 | 55 | 82 | 78 | 101 | | 1,220 | 610 | 1,100 | 432 | 55 | 20 | 25 |
| 13 | 55 | 80 | 78 | 97 | 105 | 845 | 615 | 1,260 | 390 | 52 | 18 | 25 |
| 14 | 57 | 82 | 82 | 97 | 105 | 682 | 621 | 1,220 | 366 | 50 | 16 | 24 |
| 15 | 60 | 80 | 77 | 96 | 105 | 675 | 1,020 | 1,060 | 362 | 48 | 18 | 25 |
| 16 | 68 | 82 | 77 | 92 | 128 | 845 | 1,220 | 950 | 510 | 46 | 21 | 25 |
| 17 | 69 | 94 | 77 | 94 | 132 | 1,020 | 1,260 | 915 | 544 | 44 | 22 | 25 |
| 18 | 64 | 90 | 77 | 94 | 132 | 985 | 1,300 | 845 | 510 | 43 | 18 | 25 |
| 19 | 63 | 84 | 77 | 94 | 132 | 950 | 1,300 | 810 | 480 | 41 | 18 | 25 |
| 20 | 62 | 84 | 75 | 96 | 143 | 950 | 1,300 | 845 | 428 | 40 | 20 | 28 |
| 21 | 62 | 80 | 75 | 101 | 188 | 3,170 | 1,380 | 845 | 382 | 39 | 20 | 32 |
| 22 | 60 | 78 | 75 | 105 | 195 | 2,620 | 1,430 | 845 | 330 | 38 | 18 | 31 |
| 23 | 55 | 82 | 75 | | 208 | 1,760 | 1,610 | 810 | 299 | 36 | 18 | 32 |
| 24 | 56 | 82 | 75 | | 291 | 1,380 | 1,610 | 775 | 264 | 34 | 20 | 38 |
| 25 | 66 | 72 | 75 | | 423 | 1,100 | 1,430 | 708 | 235 | 34 | 20 | 44 |
| 26 | 64 | 80 | 75 | 90 | 337 | 880 | 1,430 | 657 | 210 | 33 | 25 | 49 |
| 27 | 60 | 84 | 75 | | 381 | 747 | 1,520 | 505 | 186 | 33 | 23 | 49 |
| 28 | 57 | 85 | 78 | | 389 | 708 | 1,660 | 446 | 161 | 33 | 22 | 49 |
| 29 | 57 | 84 | 80 | | | 845 | 1,610 | 410 | 144 | 32 | 22 | 46 |
| 30 | 66 | 84 | 87 | | | 985 | 1,380 | 386 | 135 | 30 | 22 | 48 |
| 31 | 80 | | 97 | | | 950 | | 378 | | 25 | 22 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|----------------------|
| October | 80 | | 57.6 | 3,540 |
| November | 94 | 69 | 79.7 | 4,740 |
| December | 97 | 75 | 79.2 | 4,870 |
| January | 140 | | 102 | 6,270 |
| February | 423 | | 164 | 9,110 |
| March | 3,170 | 675 | 1,190 | 73,200 |
| April | 1,660 | 610 | 1,080 | 64,300 |
| May | 1,260 | 378 | 857 | 52,700 |
| June | 582 | 135 | 369 | 22,000 |
| July | 120 | 25 | 55.1 | 3,390 |
| August | 27 | 16 | 20.7 | 1,270 |
| September | 49 | 20 | 31.2 | 1,860 |
| The year | 3,170 | | 341 | 247,000 |

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 one-fourth mile above Campbell and 5 miles above Yoakum.

RECORDS AVAILABLE.—June, 1915, to September, 1929.

EXTREMES.—Maximum discharge during year, 4,690 second-feet Mar. 21 (gage height, 6.90 feet); minimum, 87 second-feet Dec. 8-10 (gage height, 1.50 feet).

1915-1929: Maximum discharge, 10,000 second-feet Jan. 3, 1921 (gage height, 9.9 feet); minimum, 14 second-feet Aug. 17, 1926 (gage height, 1.17 feet).

REMARKS.—Records good except those estimated (Jan. 19 to Feb. 21, and Mar. 23-28), which are fair. Diversions for irrigation above station. Some regulation at low stages. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|
| 1..... | 212 | 256 | 96 | 187 | 115 | 1,120 | 1,040 | 1,460 | 495 | 153 | 184 | 125 |
| 2..... | 233 | 252 | 100 | 125 | | 2,120 | 960 | 1,320 | 510 | 141 | 181 | 127 |
| 3..... | 248 | 248 | 96 | 139 | | 1,390 | 1,040 | 1,420 | 480 | 170 | 181 | 127 |
| 4..... | 294 | 244 | 94 | 151 | | 1,350 | 1,140 | 1,350 | 442 | 240 | 178 | 130 |
| 5..... | 233 | 236 | 91 | 222 | | 1,420 | 1,100 | 1,280 | 424 | 276 | 175 | 136 |
| 6..... | 202 | 244 | 91 | 226 | | 1,420 | 1,000 | 1,180 | 442 | 284 | 178 | 205 |
| 7..... | 202 | 272 | 100 | 205 | | 1,280 | 854 | 1,100 | 480 | 230 | 181 | 292 |
| 8..... | 199 | 402 | 89 | 132 | 115 | 1,210 | 782 | 1,100 | 505 | 233 | 178 | 307 |
| 9..... | 196 | 433 | 87 | 123 | | 1,540 | 730 | 1,180 | 712 | 222 | 172 | 307 |
| 10..... | 190 | 480 | 92 | 117 | | 2,780 | 700 | 1,210 | 659 | 216 | 170 | 298 |
| 11..... | 187 | 451 | 92 | 113 | | 2,230 | 724 | 1,210 | 588 | 268 | 170 | 298 |
| 12..... | 187 | 446 | 91 | 109 | | 1,500 | 762 | 1,320 | 525 | 272 | 172 | 292 |
| 13..... | 187 | 442 | 92 | 105 | | 1,100 | 750 | 1,540 | 470 | 272 | 212 | 284 |
| 14..... | 190 | 446 | 92 | 105 | | 860 | 821 | 1,580 | 442 | 276 | 208 | 256 |
| 15..... | 193 | 402 | 94 | 103 | 106 | 821 | 1,500 | 1,390 | 451 | 264 | 199 | 252 |
| 16..... | 199 | 451 | 92 | 105 | | 1,000 | 1,620 | 1,240 | 615 | 199 | 170 | 252 |
| 17..... | 199 | 451 | 94 | 103 | | 1,210 | 1,620 | 1,180 | 654 | 205 | 132 | 252 |
| 18..... | 196 | 446 | 94 | 107 | | 1,180 | 1,580 | 1,070 | 615 | 212 | 148 | 248 |
| 19..... | 196 | 433 | 94 | 108 | 175 | 1,140 | 1,660 | 1,040 | 588 | 222 | 132 | 248 |
| 20..... | 193 | 402 | 94 | 110 | | 1,140 | 1,660 | 1,040 | 525 | 226 | 132 | 240 |
| 21..... | 202 | 123 | 92 | 112 | | 3,300 | 1,820 | 1,040 | 470 | 199 | 132 | 230 |
| 22..... | 205 | 107 | 162 | 114 | 233 | 2,960 | 1,820 | 1,040 | 420 | 196 | 130 | 230 |
| 23..... | 199 | 100 | 172 | | 236 | | 2,040 | 1,000 | 370 | 196 | 130 | 233 |
| 24..... | 193 | 100 | 98 | | 374 | | 1,870 | 930 | 320 | 193 | 130 | 240 |
| 25..... | 199 | 96 | 91 | | 500 | | 1,740 | 860 | 264 | 193 | 132 | 144 |
| 26..... | 226 | 96 | 91 | 110 | 415 | 1,820 | 730 | 244 | 196 | 134 | 252 | |
| 27..... | 226 | 98 | 91 | | 438 | 1,910 | 642 | 222 | 208 | 134 | 252 | |
| 28..... | 226 | 100 | 92 | | 490 | 2,090 | 560 | 196 | 205 | 132 | 248 | |
| 29..... | 230 | 96 | 96 | | | 1,620 | 2,040 | 510 | 178 | 193 | 130 | 248 |
| 30..... | 236 | 94 | 101 | | | 1,460 | 1,820 | 485 | 167 | 190 | 130 | 252 |
| 31..... | 256 | | 119 | | | 1,240 | | 470 | | 187 | 127 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|----------------------|
| October..... | 294 | 187 | 211 | 13,000 |
| November..... | 480 | 94 | 282 | 10,800 |
| December..... | 172 | 87 | 99.0 | 6,090 |
| January..... | 226 | 103 | 126 | 7,750 |
| February..... | 500 | 106 | 195 | 10,800 |
| March..... | 3,300 | 821 | 1,510 | 92,800 |
| April..... | 2,090 | 700 | 1,370 | 81,500 |
| May..... | 1,580 | 470 | 1,080 | 66,400 |
| June..... | 712 | 167 | 449 | 20,700 |
| July..... | 284 | 141 | 217 | 13,300 |
| August..... | 212 | 127 | 158 | 9,720 |
| September..... | 307 | 125 | 237 | 14,100 |
| The year..... | 3,300 | 87 | 496 | 359,000 |

UMATILLA RIVER NEAR UMATILLA, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 21, T. 5 N., R. 28 E., $1\frac{1}{2}$ miles below diversion for West Division Main Canal of Umatilla project and 2 miles above Umatilla and mouth of river.

DRAINAGE AREA.—2,130 square miles.

RECORDS AVAILABLE.—October, 1903, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,600 second-feet Mar. 22 (gage height, 5.30 feet); minimum, 13 second-feet Oct. 17–22 (gage height, 2.09 feet).

REMARKS.—Records poor. 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 of Oregon.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|-------|-------|-------|-------|-----|-------|------|------|-------|
| 1 | • 15 | • 99 | • 76 | • 164 | 140 | 1,010 | 950 | 830 | 14 | 21 | 22 | • 22 |
| 2 | • 15 | • 101 | 89 | • 164 | • 123 | 1,580 | 720 | 620 | 14 | • 21 | • 22 | • 26 |
| 3 | 15 | 103 | • 138 | • 164 | • 106 | 2,050 | 720 | 720 | • 14 | • 21 | 22 | 29 |
| 4 | • 15 | • 112 | 188 | 164 | 89 | 1,150 | 830 | 620 | • 14 | 21 | • 22 | • 26 |
| 5 | 15 | 122 | • 188 | • 152 | • 71 | 1,150 | 620 | 620 | 14 | • 21 | • 22 | 23 |
| 6 | • 15 | • 155 | • 188 | 140 | 53 | 1,290 | 720 | 460 | • 14 | 21 | 22 | • 32 |
| 7 | 15 | 188 | 188 | • 152 | • 58 | 1,290 | 620 | 460 | • 14 | 21 | • 22 | 40 |
| 8 | • 15 | • 207 | • 164 | 164 | 64 | 1,010 | 530 | 530 | 14 | 30 | • 21 | 47 |
| 9 | • 15 | • 226 | 140 | 142 | • 68 | 1,890 | 530 | 530 | 43 | 37 | 21 | 103 |
| 10 | 15 | 245 | • 134 | • 132 | • 72 | 2,050 | 390 | 620 | 103 | 30 | 19 | 97 |
| 11 | • 15 | • 245 | • 128 | 122 | 75 | 2,530 | 390 | 620 | 53 | 24 | 22 | 110 |
| 12 | • 14 | 245 | 122 | • 122 | • 70 | 2,050 | 280 | 620 | 75 | 22 | • 22 | 71 |
| 13 | 14 | • 230 | • 122 | 122 | 64 | 1,430 | 230 | 620 | 183 | 23 | • 22 | 89 |
| 14 | • 14 | 216 | • 122 | • 116 | • 77 | 1,430 | 230 | 950 | 162 | 23 | 22 | 81 |
| 15 | 14 | • 238 | 122 | • 110 | • 90 | 1,150 | 206 | 830 | 64 | • 22 | • 22 | 71 |
| 16 | • 14 | 260 | • 116 | 103 | 103 | 1,010 | 830 | 620 | 53 | • 21 | • 22 | 64 |
| 17 | • 13 | • 256 | • 110 | • 98 | 122 | 780 | 950 | 530 | 89 | 21 | 22 | 64 |
| 18 | 13 | 252 | 103 | • 94 | 188 | 1,010 | 950 | 460 | 162 | • 21 | • 20 | 45 |
| 19 | • 13 | • 260 | • 103 | 89 | 245 | 1,290 | 830 | 280 | 206 | 22 | 18 | 50 |
| 20 | 13 | • 268 | 103 | • 89 | 245 | 1,150 | 720 | 230 | 140 | • 22 | 30 | 51 |
| 21 | • 13 | 275 | • 103 | • 89 | 545 | 1,150 | 950 | 230 | 103 | • 26 | • 31 | 50 |
| 22 | 13 | • 220 | 103 | 89 | 680 | 3,600 | 1,220 | 230 | 89 | 30 | • 32 | 47 |
| 23 | 37 | 164 | • 103 | • 96 | 410 | 2,060 | 1,080 | 230 | 37 | • 30 | 34 | 50 |
| 24 | 47 | 103 | • 103 | 103 | 500 | 1,550 | 950 | 183 | 30 | 30 | • 28 | 37 |
| 25 | 50 | 75 | • 103 | • 89 | 890 | 1,220 | 1,380 | 140 | 23 | • 31 | 23 | 40 |
| 26 | 43 | • 75 | 103 | 75 | 780 | 830 | 1,550 | 122 | 23 | • 32 | 18 | 45 |
| 27 | 47 | 75 | • 122 | 122 | 410 | 830 | 1,380 | 53 | 21 | 34 | • 18 | 45 |
| 28 | 81 | • 74 | 140 | • 128 | 245 | 950 | 1,080 | 37 | 21 | • 32 | 18 | 45 |
| 29 | • 86 | • 68 | 140 | • 134 | ----- | 950 | 1,550 | 23 | 21 | 29 | • 18 | 50 |
| 30 | • 91 | 64 | • 152 | 140 | ----- | 1,080 | 1,220 | 18 | 20 | • 26 | • 18 | 53 |
| 31 | 97 | ----- | 164 | • 140 | ----- | 1,220 | ----- | 15 | ----- | • 24 | 18 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|----------------------|
| October | 97 | 13 | 28.8 | 1,770 |
| November | ----- | 64 | 174 | 10,400 |
| December | ----- | ----- | 128 | 7,870 |
| January | ----- | 75 | 123 | 7,560 |
| February | 890 | 53 | 235 | 13,100 |
| March | 3,600 | 780 | 1,410 | 86,700 |
| April | 1,550 | 206 | 820 | 43,800 |
| May | 950 | 15 | 421 | 25,900 |
| June | 206 | 14 | 61.1 | 3,640 |
| July | 37 | 21 | 25.4 | 1,660 |
| August | 34 | ----- | 22.4 | 1,380 |
| September | 110 | ----- | 53.4 | 3,180 |
| The year | 3,600 | 13 | 293 | 212,000 |

• Estimated.

MCKAY CREEK NEAR PILOT ROCK, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 23, T. 1 N., R. 32 E., at county road bridge 1 mile above backwater from McKay Dam and 5 miles northeast of Pilot Rock.

RECORDS AVAILABLE.—May to August, 1921; October, 1926, to July, 1929.

EXTREMES.—Maximum discharge during year, 910 second-feet Mar. 21 (gage height, 6.72 feet); minimum, 5 second-feet July 4 (gage height, 3.70 feet).

1921, 1926-1929: Maximum discharge, 910 second-feet Jan. 13, 1928, and Mar. 21, 1929; no flow at times during summer.

REMARKS.—Records good, December to April; fair, May and June. Numerous small diversions for irrigation above station; none between station and McKay Reservoir. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July |
|-----|------|------|-------|------|-------|-----|-------|-------|
| 1 | | 14 | 14 | 160 | 289 | 244 | 20 | 7.4 |
| 2 | | 16 | 14 | 470 | 278 | 217 | 20 | 6.8 |
| 3 | | 29 | 14 | 479 | 274 | 210 | 18 | 5.9 |
| 4 | | 44 | 14 | 502 | 274 | 204 | 17 | 5.0 |
| 5 | | 41 | 14 | 492 | 270 | 200 | 15 | ----- |
| 6 | | 39 | 14 | 452 | 259 | 197 | 14 | ----- |
| 7 | | 41 | 14 | 358 | 244 | 190 | 13 | ----- |
| 8 | | 26 | 14 | 331 | 217 | 187 | 12 | ----- |
| 9 | | 22 | 14 | 461 | 217 | 184 | 12 | ----- |
| 10 | | 18 | 14 | 610 | 227 | 179 | 12 | ----- |
| 11 | | 16 | 14 | 474 | 234 | 168 | 12 | ----- |
| 12 | | 15 | 14 | 341 | 270 | 160 | 12 | ----- |
| 13 | | 14 | 14 | 289 | 282 | 150 | 12 | ----- |
| 14 | | 14 | 14 | 213 | 394 | 142 | 12 | ----- |
| 15 | | 14 | 14 | 182 | 538 | 139 | 11 | ----- |
| 16 | | 14 | 14 | 187 | 488 | 111 | 15 | ----- |
| 17 | | 14 | 15 | 217 | 452 | 105 | 21 | ----- |
| 18 | | 14 | 24 | 224 | 412 | 94 | 21 | ----- |
| 19 | | 14 | 25 | 220 | 425 | 81 | 22 | ----- |
| 20 | 8.0 | 14 | 28 | 280 | 456 | 73 | 22 | ----- |
| 21 | 8.0 | 14 | 45 | 810 | 461 | 65 | 22 | ----- |
| 22 | 8.0 | 14 | 82 | 560 | 430 | 58 | 21 | ----- |
| 23 | 8.0 | 14 | 86 | 402 | 430 | 50 | 20 | ----- |
| 24 | 8.0 | 14 | 89 | 314 | 380 | 46 | 17 | ----- |
| 25 | 8.0 | 14 | 120 | 285 | 344 | 39 | 15 | ----- |
| 26 | 8.0 | 14 | 113 | 274 | 327 | 36 | 13 | ----- |
| 27 | 8.0 | 14 | 102 | 274 | 318 | 34 | 12 | ----- |
| 28 | 8.8 | 14 | 96 | 348 | 293 | 29 | 11 | ----- |
| 29 | 9.6 | 14 | ----- | 335 | 289 | 26 | 10 | ----- |
| 30 | 11 | 14 | ----- | 314 | 266 | 24 | 8.4 | ----- |
| 31 | 11 | 14 | ----- | 297 | ----- | 21 | ----- | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|----------------------|
| December 20-31 | 11 | ----- | 8.7 | 207 |
| January | 44 | 14 | 18.9 | 1,160 |
| February | 120 | 14 | 37.5 | 2,080 |
| March | 810 | 160 | 360 | 22,100 |
| April | 538 | 217 | 335 | 19,900 |
| May | 244 | 21 | 118 | 7,260 |
| June | 22 | 8.4 | 15.4 | 918 |
| July 1-4 | 7.4 | ----- | 6.28 | 50 |
| The period | ----- | ----- | ----- | 53,700 |

NOTE.—No records Oct. 1 to Dec. 19, and July 5 to Sept. 30.

McKAY CREEK NEAR PENDLETON, OREG.

LOCATION.—Water-stage recorder in sec. 34, T. 2 N., R. 32 E., just above irrigation diversion dam, one-fourth mile below McKay Dam, and 5 miles south of Pendleton.

RECORDS AVAILABLE.—November, 1918, to September, 1923, and October, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, 392 second-feet Nov. 9 (gauge height, 1.52 feet); no flow at times.

1918-1929: Maximum discharge, 3,250 second-feet Feb. 10, 1921; no flow at times.

REMARKS.—Records good except those for estimated period (Oct. 12-17), which are fair. Discharge records include flow diverted by irrigation canal at gage. Diversions for irrigation above McKay Reservoir use total summer flow. Discharge records include flow diverted by irrigation canal at gage. Flow regulated since 1927 by storage above McKay Dam. Record furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | April | May | June | July | Aug. | Sept. |
|-----------|------|------|------|------|------|---------|---------|------|-------------------------|------|-------|
| 1 | 206 | 176 | 0 | 76 | 19 | 0 | 34 | 29 | 26 | 164 | 122 |
| 2 | 225 | 176 | 0 | 0 | 19 | 0 | 34 | 29 | 26 | 161 | 122 |
| 3 | 232 | 176 | 0 | 0 | 19 | 0 | 34 | 29 | 92 | 161 | 122 |
| 4 | 232 | 170 | 0 | 56 | 18 | 0 | 33 | 29 | 170 | 161 | 122 |
| 5 | 199 | 167 | 0 | 115 | 18 | 0 | 33 | 29 | 210 | 161 | 136 |
| 6 | 176 | 170 | 0 | 117 | 19 | 0 | 33 | 29 | 192 | 161 | 170 |
| 7 | 176 | 236 | 0 | 59 | 19 | 0 | 33 | 29 | 159 | 161 | 186 |
| 8 | 173 | 330 | 0 | 0 | 19 | 0 | 33 | 27 | 161 | 161 | 195 |
| 9 | 170 | 364 | 0 | 0 | 19 | 0 | 33 | 25 | 161 | 161 | 202 |
| 10 | 161 | 369 | 0 | 0 | 19 | 0 | 33 | 25 | 173 | 161 | 249 |
| 11 | 151 | 342 | 0 | 0 | 19 | 0 | 33 | 24 | 217 | 161 | 266 |
| 12 | | 342 | 0 | 0 | 19 | 0 | 33 | 24 | 221 | 170 | 275 |
| 13 | | 336 | 0 | 0 | 19 | 0 | 32 | 24 | 221 | 202 | 271 |
| 14 | | 358 | 52 | 0 | 12 | 0 | 34 | 24 | 221 | 202 | 254 |
| 15 | 151 | 309 | 131 | 0 | 0 | 0 | 38 | 24 | 199 | 199 | 254 |
| 16 | | 364 | 82 | 0 | 0 | 0 | 38 | 24 | 159 | 131 | 254 |
| 17 | | 358 | 0 | 0 | 0 | 0 | 38 | 24 | 170 | 126 | 254 |
| 18 | 151 | 342 | 0 | 0 | 0 | 0 | 38 | 25 | 176 | 138 | 254 |
| 19 | 148 | 336 | 0 | 0 | 0 | 0 | 38 | 25 | 192 | 120 | 254 |
| 20 | 146 | 220 | 0 | 0 | 0 | 0 | 38 | 25 | 176 | 120 | 232 |
| 21 | 146 | 0 | 0 | 0 | 0 | 0 | 40 | 25 | 161 | 120 | 225 |
| 22 | 154 | 0 | 0 | 0 | 0 | 0 | 40 | 25 | 161 | 122 | 225 |
| 23 | 154 | 0 | 0 | 8 | 0 | 0 | 32 | 24 | 161 | 122 | 225 |
| 24 | 148 | 0 | 0 | 18 | 2 | 0 | 36 | 25 | 161 | 122 | 225 |
| 25 | 159 | 0 | 0 | 18 | 1 | 0 | 36 | 25 | 161 | 122 | 225 |
| 26 | 181 | 0 | 0 | 19 | 0 | 0 | 37 | 25 | 164 | 122 | 225 |
| 27 | 181 | 0 | 0 | 19 | 0 | 0 | 33 | 25 | 176 | 122 | 225 |
| 28 | 178 | 0 | 0 | 19 | 0 | 0 | 28 | 25 | 167 | 122 | 225 |
| 29 | 178 | 0 | 0 | 19 | | 0 | 29 | 25 | 164 | 122 | 225 |
| 30 | 178 | 0 | 0 | 19 | | 13 | 29 | 26 | 164 | 122 | 225 |
| 31 | 176 | | 62 | 19 | | | 29 | | 164 | 122 | |
| Month | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | |
| October | | | | | | 232 | 146 | 170 | 10,500 | | |
| November | | | | | | 369 | 0 | 188 | 11,200 | | |
| December | | | | | | 131 | 0 | 10.5 | 646 | | |
| January | | | | | | 117 | 0 | 18.8 | 1,160 | | |
| February | | | | | | 19 | 0 | 9.3 | 516 | | |
| April | | | | | | 13 | 0 | 0.4 | 24 | | |
| May | | | | | | 40 | 28 | 34.3 | 2,110 | | |
| June | | | | | | 29 | 24 | 25.8 | 1,540 | | |
| July | | | | | | 221 | 26 | 165 | 10,100 | | |
| August | | | | | | 202 | 120 | 146 | 8,980 | | |
| September | | | | | | 275 | 122 | 215 | 12,800 | | |
| The year | | | | | | 369 | 0 | 82.3 | 59,600 | | |

NOTE.—No flow during March.

BIRCH CREEK AT RIETH, OREG.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 13, T. 2 N., R. 31 E., one-fourth mile above mouth and 1 mile southwest of Rieth. Water-stage recorder used formerly, washed out on Jan. 29, 1928.

RECORDS AVAILABLE.—May, 1921, to September, 1923; April, 1927, to June, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 265 second-feet Apr. 28 and 29; no flow at times.

1921–1923, 1927–1929: Maximum discharge, 1,640 second-feet Jan. 29, 1928 (gage height, 6.00 feet); no flow at times.

REMARKS.—Records fair. Diversions for irrigation above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Nov. | Dec. | Jan. | Feb. | Mar. | April | May | June |
|-----|------|------|------|------|------|-------|------|------|
| 1 | | 12 | 15 | 14 | 42 | 153 | 206 | |
| 2 | | 12 | 16 | 15 | 126 | 134 | 144 | * 30 |
| 3 | | 12 | 17 | 16 | 134 | 118 | 144 | |
| 4 | | 12 | 17 | 16 | 173 | 134 | 134 | |
| 5 | 1.2 | 12 | 17 | 16 | 195 | 134 | 126 | 20 |
| 6 | 3.2 | 12 | 17 | 17 | 173 | 118 | 118 | |
| 7 | 2.4 | 9.3 | 17 | 8.7 | 134 | 103 | 110 | |
| 8 | 2.8 | 12 | 17 | 11 | 118 | 96 | 103 | |
| 9 | 3.2 | 11 | 17 | 14 | 126 | 89 | 110 | * 27 |
| 10 | 3.8 | 13 | 17 | 14 | 218 | 77 | 126 | |
| 11 | 4.4 | 13 | 17 | 13 | 195 | 83 | 126 | |
| 12 | 5.0 | 13 | 17 | 13 | 144 | 77 | 134 | 30 |
| 13 | 5.6 | 14 | 17 | 13 | 118 | 77 | 153 | 30 |
| 14 | 5.6 | 14 | 16 | 14 | 96 | 77 | 173 | 29 |
| 15 | 5.2 | 14 | 16 | 14 | 83 | 103 | 144 | 24 |
| 16 | 6.0 | 14 | 16 | 16 | 96 | 118 | 126 | |
| 17 | 6.6 | 14 | 16 | 18 | 96 | 118 | 110 | |
| 18 | 8.1 | 14 | 16 | 18 | 96 | 134 | 95 | * 25 |
| 19 | 8.1 | 14 | 15 | 18 | 89 | 153 | 75 | |
| 20 | 8.4 | 14 | 12 | 24 | 89 | 153 | 75 | |
| 21 | 9.0 | 14 | 14 | 24 | 206 | 184 | 58 | 26 |
| 22 | 9.0 | 14 | 13 | 27 | 230 | 184 | 58 | 22 |
| 23 | 9.6 | 14 | 10 | 37 | 184 | 218 | 53 | 14 |
| 24 | 9.6 | 14 | 13 | 53 | 153 | 218 | 49 | 9.5 |
| 25 | 10 | 14 | 14 | 56 | 118 | 195 | 49 | 4.5 |
| 26 | 10 | 14 | 15 | 41 | 96 | 218 | | 2.0 |
| 27 | 11 | 14 | 15 | 40 | 96 | 253 | | 1.4 |
| 28 | 11 | 14 | 9.6 | 40 | 163 | 265 | * 40 | 1.4 |
| 29 | 9 | 14 | 10 | | 218 | 265 | | 1.0 |
| 30 | 11 | 15 | 11 | | 195 | 241 | | 0 |
| 31 | | 15 | 12 | | 173 | | | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|---------------|---------|---------|-------|----------------------|
| November 5–30 | 11 | 1.2 | 6.88 | 355 |
| December | 15 | 9.3 | 13.3 | 818 |
| January | 17 | 9.6 | 14.9 | 916 |
| February | 56 | 8.7 | 22.2 | 1,230 |
| March | 230 | 42 | 141 | 8,670 |
| April | 265 | 77 | 150 | 8,930 |
| May | 206 | | 98.0 | 6,030 |
| June | 30 | 0 | 20.7 | 1,230 |
| July | | | * 1.0 | 61 |
| August | | | * .3 | 18 |
| The period | | | | 28,300 |

* Estimated.

NOTE.—No records Oct. 1 to Nov. 4 and July 1 to Sept. 30.

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. $\frac{1}{4}$ 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. $\frac{1}{4}$ 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. $\frac{1}{4}$ sec. 28, T. 4 N., R. 28 E. West Division Main Canal diverts from left bank of Umatilla River in SW. $\frac{1}{4}$ 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 $1\frac{1}{2}$ 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 Irrigon. Records are available from March, 1926, to September, 1929; records for some of the canals published separately prior to 1926.

Records furnished by State engineer of Oregon.

Monthly diversions, in acre-feet, 1928-29

| Month | Furnish Canal | Crayne-Lisle Canal | Slusher and Taylor ditches ^a | Wilson-Ramos ditches | Umatilla project feed canal | Western Land and Irrigation Co.'s canal | Allen Canal | Dillon Canal | Maxwell Canal | West Division Main Canal | Brownell Canal | Total |
|-----------------|---------------|--------------------|-----------------------------------------|----------------------|-----------------------------|-----------------------------------------|-------------|--------------|---------------|--------------------------|----------------|--------|
| October..... | | | | | 10,600 | | | | | 5,490 | 251 | ----- |
| November..... | | | | | 11,100 | | | | | 2,460 | | ----- |
| December..... | | | | | 4,960 | | | | | 203 | | ----- |
| January..... | | | | | 4,980 | | | | | 0 | | ----- |
| February..... | | | | | 678 | | | | | 0 | | ----- |
| March..... | | | | | 14,000 | 603 | | | | 1,490 | | ----- |
| April..... | 4,270 | 690 | | 312 | 14,300 | 7,260 | 1,010 | 177 | 3,060 | 6,600 | 629 | 38,300 |
| May..... | 5,730 | 664 | | 395 | 10,800 | 12,200 | 1,260 | 593 | 4,910 | 8,550 | 959 | 46,100 |
| June..... | 4,460 | 555 | | 494 | 7,860 | 8,570 | 922 | 335 | 2,050 | 7,910 | 833 | 34,000 |
| July..... | 4,980 | 246 | 202 | 90 | 15 | 8,240 | 830 | 400 | 1,350 | 8,420 | 1,120 | 26,000 |
| August..... | 2,389 | | | 64 | 18 | 6,460 | 781 | 48 | 1,410 | 8,360 | 972 | 20,500 |
| September..... | 0 | 0 | 0 | 0 | 4,150 | 4,080 | 1,080 | 0 | 1,440 | 7,500 | 791 | 19,000 |
| The period..... | 21,800 | 2,160 | | 1,360 | 483,500 | 47,400 | 5,880 | 1,550 | 14,200 | 57,000 | 5,560 | ----- |

^a Incomplete records indicate only a small amount diverted in June, July, and August.

^b March 26-31; some water in canal earlier in month.

^c Partly estimated because record is incomplete.

^d A small amount, probably not more than 100 acre-feet, was returned to Umatilla River through Echo mill tailrace at Echo; the tailrace was used only 3 or 4 days in 1929, no record being obtained.

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, 1929.

EXTREMES.—Maximum discharge during year, 1,330 second-feet Mar. 10 (gage height, 3.90 feet); no flow at times.

1921, 1928–29: Extremes, those of 1929.

REMARKS.—Records fair. Discharge interpolated Nov. 28 to Dec. 3. Diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----------|------|------|------|------|------|---------|---------|------|----------------------|------|------|-------|
| 1 | 0.5 | 1 | 1 | 1 | 6 | 18 | 99 | 62 | 9 | 2 | 0.2 | 0.0 |
| 2 | .5 | 1 | 1 | 2 | | 86 | 83 | 62 | 9 | .8 | .2 | 0 |
| 3 | .5 | 1 | 1 | 5 | | 126 | 83 | 56 | 9 | 1 | .2 | 0 |
| 4 | .8 | 1 | 1 | 5 | | 808 | 76 | 62 | 9 | 1 | .2 | 0 |
| 5 | .8 | 1 | 1 | 6 | | 875 | 76 | 62 | 8 | .8 | .2 | 0 |
| 6 | .8 | 1 | 1 | 6 | | 710 | 69 | 62 | 9 | .8 | .2 | 0 |
| 7 | .8 | 1 | 1 | 4 | | 558 | 69 | 62 | 20 | .8 | .2 | .3 |
| 8 | .8 | 1 | 1 | 4 | | 215 | 62 | 56 | 18 | .8 | .2 | .3 |
| 9 | .8 | 1 | 1 | 5 | | 330 | 56 | 56 | 20 | .3 | .2 | .3 |
| 10 | .5 | 1 | 1 | 6 | | 980 | 50 | 50 | 20 | .3 | .2 | .3 |
| 11 | .5 | 1 | 1 | 4 | 8 | 425 | 50 | 47 | 18 | .3 | .1 | .3 |
| 12 | .5 | 1 | 1 | 4 | | 450 | 50 | 43 | 16 | .3 | 0 | .3 |
| 13 | .5 | 1 | 1 | 3 | | 215 | 50 | 35 | 15 | .3 | 0 | .3 |
| 14 | .5 | 1 | 1 | 3 | | 146 | 50 | 54 | 18 | .5 | 0 | .3 |
| 15 | .8 | 1 | 1 | 3 | | 126 | 199 | 56 | 18 | .3 | 0 | .3 |
| 16 | .8 | 1 | 1 | 2 | | 199 | 135 | 50 | 30 | .3 | 0 | .2 |
| 17 | .8 | 1 | 1 | 2 | | 232 | 116 | 50 | 31 | .3 | 0 | .2 |
| 18 | .8 | 1 | 1 | 2 | | 153 | 108 | 45 | 27 | .3 | 0 | .3 |
| 19 | .8 | 1 | 1 | 2 | | 21 | 146 | 108 | 40 | .3 | 0 | .3 |
| 20 | .8 | 1 | 1 | 2 | | 20 | 157 | 83 | 37 | .3 | 0 | .2 |
| 21 | .8 | 1 | 1 | 8 | 18 | 330 | 170 | 35 | 18 | .3 | 0 | .1 |
| 22 | .8 | 1 | 1 | | 14 | 310 | 135 | 35 | 13 | .3 | 0 | .1 |
| 23 | .8 | 1 | 1 | | 14 | 199 | 126 | 31 | 13 | .3 | 0 | .3 |
| 24 | .8 | 1 | 1 | | 16 | 146 | 108 | 27 | 10 | .3 | 0 | .5 |
| 25 | .8 | 1 | 1 | | 16 | 113 | 96 | 27 | 7 | .3 | 0 | .5 |
| 26 | .8 | 1 | 1 | | 2 | 18 | 108 | 83 | 27 | 4 | .1 | 0 |
| 27 | .8 | 1 | 1 | 13 | | 102 | 76 | 26 | 3 | .1 | 0 | .5 |
| 28 | .8 | 1 | 1 | 13 | | 120 | 69 | 15 | 2 | .1 | 0 | .5 |
| 29 | .8 | 1 | 1 | 157 | | 72 | 11 | 1 | .1 | 0 | .5 | |
| 30 | 1 | 1 | 1 | 131 | | 86 | 9 | 1 | .2 | 0 | .5 | |
| 31 | 1 | 1 | 1 | 102 | | 9 | 9 | 1 | .2 | 0 | | |
| Month | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | | |
| October | | | | | | 1 | 0.5 | 0.74 | 46- | | | |
| November | | | | | | 1 | 1 | 1.0 | 60 | | | |
| December | | | | | | 1 | 1 | 1.0 | 61 | | | |
| January | | | | | | 6 | .8 | 2.93 | 180 | | | |
| February | | | | | | 21 | | 11.1 | 616 | | | |
| March | | | | | | 980 | 18 | 263 | 17,400 | | | |
| April | | | | | | 199 | 50 | 89.8 | 5,340 | | | |
| May | | | | | | 62 | 9 | 41.9 | 2,580 | | | |
| June | | | | | | 31 | 1 | 14.0 | 833 | | | |
| July | | | | | | 2 | .1 | .45 | 28 | | | |
| August | | | | | | .2 | 0 | .07 | 4 | | | |
| September | | | | | | .5 | 0 | .26 | 15 | | | |
| The year | | | | | | 980 | 0 | 37.5 | 27,200 | | | |

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-fourths mile southwest of Prairie City.

RECORDS AVAILABLE.—October, 1926, to September, 1929. Record below outlet or Prairie power canal, October, 1916, to September, 1917, and March, 1925, to September, 1926.

EXTREMES.—Maximum discharge during year, 760 second-feet Mar. 10 (gage height, 3.10 feet); minimum, 7 second-feet Aug. 16, 21-24, and 28.
1926-1929: Maximum daily discharge (estimated), 900 second-feet June 9, 1927; minimum, 6 second-feet Aug. 20-22, 1927.

REMARKS.—Records good except those for Jan. 20-23, and Feb. 8-15, which were interpolated. Diversions above station for irrigation and for Prairie power canal. Table of daily discharge does not include flow in Prairie power canal. See page 28 for record of Prairie power canal.

Daily discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 29 | 55 | 43 | 49 | 50 | 43 | 128 | 208 | 196 | 22 | 13 | 8 |
| 2..... | 33 | 49 | 38 | 50 | 52 | 54 | 139 | 196 | 183 | 18 | 12 | 13 |
| 3..... | 55 | 52 | 31 | 49 | 45 | 60 | 139 | 208 | 160 | 18 | 11 | 12 |
| 4..... | 43 | 49 | 21 | 48 | 48 | 64 | 150 | 220 | 139 | 15 | 12 | 15 |
| 5..... | 46 | 49 | 42 | 33 | 46 | 71 | 139 | 208 | 139 | 15 | 13 | 17 |
| 6..... | 46 | 43 | 46 | 36 | 48 | 88 | 128 | 172 | 150 | 14 | 12 | 22 |
| 7..... | 46 | 41 | 56 | 37 | 43 | 103 | 128 | 172 | 172 | 13 | 10 | 24 |
| 8..... | 43 | 41 | 52 | 42 | | 128 | 128 | 160 | 208 | 13 | 12 | 28 |
| 9..... | 49 | 46 | 55 | 49 | | 233 | 118 | 160 | 220 | 14 | 11 | 26 |
| 10..... | 46 | 49 | 56 | 42 | | 715 | 95 | 160 | 305 | 14 | 10 | 28 |
| 11..... | 46 | 52 | 55 | 41 | 44 | 247 | 105 | 160 | 247 | 13 | 10 | 29 |
| 12..... | 43 | 46 | 49 | 45 | | 172 | 105 | 183 | 233 | 13 | 9 | 29 |
| 13..... | 46 | 46 | 50 | 38 | | 150 | 95 | 220 | 233 | 13 | 8 | 23 |
| 14..... | 43 | 46 | 50 | 33 | | 160 | 128 | 276 | 220 | 12 | 9 | 19 |
| 15..... | 49 | 43 | 50 | 34 | | 196 | 128 | 290 | 290 | 12 | 8 | 20 |
| 16..... | 61 | 49 | 46 | 38 | 45 | 372 | 128 | 276 | 312 | 12 | 7 | 17 |
| 17..... | 97 | 52 | 40 | 37 | 43 | 247 | 150 | 261 | 252 | 12 | 8 | 17 |
| 18..... | 93 | 38 | 28 | 38 | 49 | 233 | 139 | 247 | 213 | 12 | 10 | 17 |
| 19..... | 86 | 52 | 30 | 36 | 42 | 208 | 160 | 233 | 175 | 15 | 11 | 18 |
| 20..... | 38 | 43 | 33 | 35 | 38 | 196 | 196 | 247 | 144 | 13 | 9 | 15 |
| 21..... | 38 | 43 | 37 | 34 | 42 | 485 | 183 | 247 | 128 | 12 | 7 | 13 |
| 22..... | 36 | 46 | 38 | 33 | 43 | 276 | 183 | 290 | 113 | 12 | 7 | 11 |
| 23..... | 41 | 46 | 38 | 32 | 46 | 208 | 183 | 320 | 90 | 12 | 7 | 12 |
| 24..... | 49 | 41 | 45 | 31 | 43 | 183 | 196 | 112 | 86 | 12 | 7 | 12 |
| 25..... | 49 | 38 | 64 | 38 | 43 | 160 | 196 | 372 | 56 | 12 | 8 | 13 |
| 26..... | 43 | 41 | 56 | 54 | 41 | 139 | 208 | 338 | 40 | 11 | 8 | 14 |
| 27..... | 46 | 38 | 76 | 58 | 41 | 139 | 220 | 261 | 42 | 10 | 8 | 14 |
| 28..... | 43 | 43 | 63 | 56 | 41 | 160 | 247 | 208 | 42 | 10 | 7 | 14 |
| 29..... | 46 | 41 | 54 | 48 | | 160 | 276 | 465 | 26 | 10 | 8 | 14 |
| 30..... | 52 | 41 | 50 | 55 | | 172 | 233 | 425 | 23 | 13 | 8 | 14 |
| 31..... | 58 | | 46 | 48 | | 150 | | 139 | | 13 | 8 | |

Monthly discharge of John Day River and Prairie power canal at Prairie City, Oreg., 1928-29

| Month | River discharge in second-feet | | | Run-off in acre-feet | Combined discharge in second-feet | | | Run-off in acre-feet |
|----------------|--------------------------------|---------|------|----------------------|-----------------------------------|---------|------|----------------------|
| | Maximum | Minimum | Mean | | Maximum | Minimum | Mean | |
| October..... | 97 | 29 | 49.6 | 3,050 | 109 | 64 | 79.7 | 4,900 |
| November..... | 55 | 38 | 45.3 | 2,700 | 87 | 74 | 79.3 | 4,720 |
| December..... | 76 | 21 | 46.4 | 2,850 | 102 | 45 | 78.6 | 4,830 |
| January..... | 58 | 31 | 41.8 | 2,570 | 89 | 53 | 74.1 | 4,560 |
| February..... | 52 | 38 | 44.3 | 2,460 | 89 | 64 | 78.6 | 4,370 |
| March..... | 715 | 43 | 193 | 11,900 | 736 | 79 | 225 | 13,800 |
| April..... | 276 | 95 | 158 | 9,400 | 325 | 131 | 205 | 12,200 |
| May..... | 465 | 112 | 240 | 14,800 | 521 | 172 | 296 | 18,200 |
| June..... | 312 | 23 | 161 | 9,580 | 368 | 68 | 215 | 12,800 |
| July..... | 22 | 10 | 13.2 | 812 | 72 | 41 | 50.6 | 3,110 |
| August..... | 13 | 7 | 9.3 | 572 | 66 | 20 | 39.5 | 2,43 |
| September..... | 29 | 8 | 17.6 | 1,050 | 64 | 35 | 49.7 | 2,96 |
| The year..... | 715 | 7 | 85.2 | 61,700 | 736 | 20 | 123 | 88,880 |

JOHN DAY RIVER BASIN

25

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 mile above Rock Creek Bridge and 7 miles northwest of Dayville.

RECORDS AVAILABLE.—April, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,880 second-feet Mar. 22 (gage height, 7.15 feet); minimum, 2.7 second-feet Aug. 7-9 (gage height, 0.31 foot). 1926-1929: Maximum discharge, 3,000 second-feet June 9, 1927 (gage height, 10.25 feet); minimum, that of Aug. 7-9, 1929.

REMARKS.—Records good except those for periods of ice effect (Dec. 5-7, 20-25, Jan. 7-23, 25-31, and Feb. 1-25) and estimated period (July 24-26), which are poor. Numerous diversions above station for irrigation.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|-------|-------|-----|------|------|------|-------|
| 1..... | 81 | 150 | 175 | 187 | | 223 | 545 | 970 | 438 | 118 | 3.9 | 5.5 |
| 2..... | 88 | 148 | 168 | 190 | | 336 | 516 | 910 | 451 | 104 | 3.5 | 6.7 |
| 3..... | 102 | 154 | 144 | 206 | | 438 | 516 | 870 | 425 | 84 | 3.3 | 6.3 |
| 4..... | 110 | 160 | 120 | 201 | | 464 | 530 | 830 | 399 | 64 | 3.3 | 6.3 |
| 5..... | 117 | 157 | 60 | 180 | | 503 | 545 | 850 | 386 | 55 | 3.5 | 6.1 |
| 6..... | 117 | 156 | 80 | 138 | | 628 | 516 | 830 | 386 | 46 | 3.5 | 5.5 |
| 7..... | 120 | 157 | 96 | | | 575 | 477 | 750 | 399 | 30 | 3.5 | 5.5 |
| 8..... | 119 | 157 | 182 | | | 575 | 464 | 698 | 477 | 27 | 3.1 | 5.5 |
| 9..... | 118 | 160 | 178 | | | 732 | 451 | 645 | 592 | 26 | 3.1 | 5.9 |
| 10..... | 112 | 165 | 183 | | | 1,480 | 425 | 610 | 592 | 20 | 3.7 | 6.5 |
| 11..... | 119 | 165 | 195 | | | 1,250 | 412 | 592 | 592 | 18 | 4.5 | 7.1 |
| 12..... | 119 | 165 | 183 | | | 750 | 425 | 592 | 516 | 17 | 4.1 | 6.9 |
| 13..... | 119 | 167 | 178 | | | 592 | 412 | 680 | 490 | 14 | 5.1 | 7.9 |
| 14..... | 122 | 170 | 178 | | 130 | 545 | 451 | 770 | 490 | 11 | 5.1 | 12 |
| 15..... | 127 | 162 | 175 | | | 560 | 715 | 790 | 545 | 8.8 | 5.1 | 10 |
| 16..... | 132 | 165 | 167 | | | 715 | 680 | 750 | 930 | 7.5 | 5.1 | 9.2 |
| 17..... | 138 | 168 | 156 | | | 830 | 698 | 732 | 850 | 7.3 | 3.7 | 9.5 |
| 18..... | 136 | 162 | 140 | | | 732 | 715 | 698 | 698 | 7.7 | 3.5 | 10 |
| 19..... | 136 | 162 | 134 | | | 715 | 750 | 680 | 575 | 8.5 | 5.1 | 10 |
| 20..... | 134 | 162 | | | | 662 | 1,030 | 680 | 503 | 8.3 | 4.3 | 11 |
| 21..... | 134 | 163 | | | | 1,430 | 1,120 | 662 | 425 | 6.9 | 4.1 | 11 |
| 22..... | 134 | 163 | 170 | | | 1,570 | 1,070 | 715 | 373 | 6.7 | 4.9 | 12 |
| 23..... | 138 | 165 | | | | 930 | 1,030 | 750 | 356 | 6.3 | 4.7 | 14 |
| 24..... | 138 | 165 | | 120 | | 732 | 1,030 | 830 | 313 | 6.2 | 4.5 | 18 |
| 25..... | 138 | 167 | | | | 645 | 990 | 830 | 268 | 6.1 | 5.1 | 27 |
| 26..... | 138 | 168 | 206 | | 185 | 592 | 970 | 790 | 231 | 6.0 | 4.9 | 48 |
| 27..... | 139 | 176 | 208 | | 185 | 545 | 950 | 698 | 203 | 5.9 | 5.1 | 73 |
| 28..... | 142 | 175 | 218 | | 192 | 560 | 990 | 575 | 175 | 3.3 | 4.9 | 81 |
| 29..... | 142 | 171 | 208 | | | 662 | 1,070 | 516 | 156 | 3.3 | 5.1 | 88 |
| 30..... | 139 | 171 | 203 | | | 645 | 1,070 | 451 | 130 | 3.3 | 4.3 | 91 |
| 31..... | 144 | | 195 | | | 592 | | 425 | | 3.5 | 4.7 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| October..... | 144 | 81 | 126 | 7,750 |
| November..... | 176 | 148 | 163 | 9,700 |
| December..... | 218 | 60 | 166 | 10,200 |
| January..... | 206 | | 144 | 8,850 |
| February..... | | | 136 | 7,550 |
| March..... | 1,570 | 223 | 716 | 44,000 |
| April..... | 1,120 | 412 | 719 | 42,800 |
| May..... | 970 | 425 | 715 | 44,000 |
| June..... | 930 | 130 | 445 | 26,500 |
| July..... | 118 | 3.3 | 23.9 | 1,470 |
| August..... | 5.1 | 3.1 | 4.27 | 263 |
| September..... | 91 | 5.5 | 20.5 | 1,220 |
| The year..... | 1,570 | 3.1 | 282 | 204,000 |

JOHN DAY RIVER AT McDONALD, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 11, T. 1 N., R. 19 E., at McDonald half, a mile below 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, 1929.

EXTREMES.—Maximum discharge during year, 8,270 second-feet Mar. 23 (gage height, 5.8 feet); minimum, 38 second-feet Sept. 1 and 2 (gage height, 0.92 foot).

1904-1929: Maximum discharge, 22,800 second-feet Feb. 6, 1907 (gage height, 10.38 feet); minimum, 23 second-feet Aug. 14, 1926 (gage height, 0.83 foot).

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

REMARKS.—Records good except those above 6,000 second-feet and those for periods of ice effect (Dec. 4-6, Jan. 11-13, 23, 28-31, and Feb. 1-22), which are fair. Diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|------|-------|------|------|---------|---------|-------|----------------------|-------|------|------|-------|
| 1..... | 162 | 294 | 402 | 450 | 340 | 840 | 3,050 | 5,900 | 2,380 | 940 | 138 | 38 |
| 2..... | 162 | 288 | 402 | 450 | 350 | 1,910 | 2,710 | 5,000 | 2,540 | 840 | 134 | 38 |
| 3..... | 162 | 300 | 382 | 450 | 380 | 2,060 | 2,710 | 4,740 | 2,540 | 792 | 124 | 63 |
| 4..... | 162 | 300 | 380 | 450 | 430 | 2,880 | 3,050 | 4,740 | 2,380 | 745 | 124 | 72 |
| 5..... | 180 | 319 | 370 | 450 | 448 | 2,710 | 3,230 | 4,740 | 2,220 | 650 | 113 | 68 |
| 6..... | 184 | 338 | 360 | 450 | 430 | 2,540 | 3,420 | 4,740 | 2,060 | 565 | 106 | 63 |
| 7..... | 184 | 344 | 338 | 415 | | 2,220 | 2,880 | 4,270 | 1,910 | 525 | 106 | 63 |
| 8..... | 238 | 350 | 319 | 319 | | 2,220 | 2,540 | 3,830 | 2,220 | 485 | 124 | 68 |
| 9..... | 254 | 382 | 232 | 277 | | 2,060 | 2,220 | 3,620 | 2,220 | 450 | 124 | 63 |
| 10..... | 260 | 402 | 232 | 288 | | 2,540 | 2,060 | 3,620 | 2,710 | 415 | 124 | 59 |
| 11..... | 260 | 389 | 288 | 295 | 430 | 3,830 | 1,910 | 3,620 | 2,880 | 408 | 106 | 59 |
| 12..... | 243 | 350 | 300 | 300 | | 4,740 | 1,770 | 3,620 | 2,880 | 376 | 83 | 63 |
| 13..... | 232 | 363 | 382 | 310 | | 3,230 | 1,910 | 4,050 | 2,540 | 350 | 77 | 63 |
| 14..... | 232 | 382 | 450 | 319 | | 2,380 | 1,910 | 4,740 | 2,380 | 338 | 77 | 63 |
| 15..... | 232 | 382 | 382 | 338 | | 2,060 | 1,910 | 5,900 | 2,380 | 313 | 75 | 63 |
| 16..... | 260 | 382 | 382 | 415 | 430 | 1,910 | 3,420 | 5,900 | 2,540 | 294 | 72 | 66 |
| 17..... | 260 | 382 | 382 | 363 | | 2,220 | 3,620 | 5,280 | 1,910 | 288 | 66 | 68 |
| 18..... | 243 | 382 | 382 | 415 | | 3,230 | 3,620 | 5,280 | 3,620 | 260 | 66 | 66 |
| 19..... | 260 | 363 | 402 | 332 | | 3,230 | 3,830 | 5,280 | 3,050 | 238 | 54 | 68 |
| 20..... | 288 | 363 | 300 | 300 | | 3,230 | 4,500 | 5,900 | 2,540 | 213 | 54 | 68 |
| 21..... | 338 | 363 | 243 | 350 | 430 | 3,420 | 5,900 | 5,000 | 2,380 | 222 | 54 | 66 |
| 22..... | 319 | 350 | 167 | 184 | | 5,280 | 6,280 | 5,580 | 2,060 | 213 | 54 | 68 |
| 23..... | 319 | 319 | 222 | 195 | | 7,250 | 5,580 | 5,900 | 1,910 | 213 | 54 | 66 |
| 24..... | 288 | 288 | 319 | 208 | | 4,740 | 5,900 | 5,900 | 1,770 | 198 | 54 | 66 |
| 25..... | 288 | 319 | 350 | 243 | | 3,620 | 5,900 | 5,900 | 1,580 | 194 | 54 | 66 |
| 26..... | 288 | 250 | 325 | 415 | 698 | 2,880 | 5,280 | 5,230 | 1,510 | 167 | 54 | 70 |
| 27..... | 277 | 363 | 338 | 350 | 698 | 2,540 | 5,580 | 4,500 | 1,380 | 167 | 54 | 72 |
| 28..... | 282 | 350 | 402 | 340 | 608 | 2,380 | 6,230 | 3,330 | 1,260 | 154 | 54 | 77 |
| 29..... | 277 | 376 | 450 | 340 | ----- | 3,230 | 6,570 | 3,230 | 1,150 | 154 | 54 | 77 |
| 30..... | 277 | 389 | 450 | 340 | ----- | 4,500 | 6,570 | 2,880 | 1,040 | 154 | 54 | 80 |
| 31..... | 277 | ----- | 485 | 340 | ----- | 3,620 | ----- | 2,540 | ----- | 150 | 54 | ----- |
| Month | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | | | |
| October..... | | | | | 338 | 162 | 248 | 15,200 | | | | |
| November..... | | | | | 402 | 288 | 351 | 20,900 | | | | |
| December..... | | | | | 485 | 167 | 349 | 21,500 | | | | |
| January..... | | | | | 450 | 184 | 346 | 21,300 | | | | |
| February..... | | | | | 698 | ----- | 469 | 26,000 | | | | |
| March..... | | | | | 7,250 | 840 | 3,080 | 189,000 | | | | |
| April..... | | | | | 6,570 | 1,770 | 3,870 | 230,000 | | | | |
| May..... | | | | | 5,900 | 2,540 | 4,660 | 287,000 | | | | |
| June..... | | | | | 3,620 | 1,040 | 2,200 | 131,000 | | | | |
| July..... | | | | | 940 | 150 | 370 | 22,800 | | | | |
| August..... | | | | | 138 | 54 | 82.0 | 5,040 | | | | |
| September..... | | | | | 80 | 38 | 65.0 | 3,870 | | | | |
| The year..... | | | | | 7,250 | 38 | 1,340 | 974,000 | | | | |

STRAWBERRY CREEK NEAR PRAIRIE CITY, OREG.

LOCATION.—Staff gage in S. $\frac{1}{2}$ sec. 8, T. 14 S., R. 34 E., at bridge on Nelson ranch 6 miles southeast of Prairie City.

RECORDS AVAILABLE.—November, 1916, to September, 1917; April, 1925, to September, 1929.

EXTREMES.—Maximum discharge during year, 154 second-feet May 25 (gage height, 1.40 feet); minimum, 3.3 second-feet on several days in September. 1925-1929: Maximum discharge, 234 second-feet June 9, 1927; minimum, 3.2 second-feet Sept. 11-30, 1926.

REMARKS.—Records good; discharge estimated Dec. 3-5, 14-23, Jan. 5-11, 20-25, and Feb. 7-27. Three small ditches divert water for irrigation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 5.0 | 5.0 | 4.6 | 4.6 | 3.7 | 3.5 | 5.7 | 17 | 57 | 44 | 11 | 6.8 |
| 2 | 5.0 | 5.0 | 4.6 | 4.6 | 3.7 | 3.5 | 5.7 | 18 | 55 | 43 | 10 | 6.8 |
| 3 | 4.6 | 7.5 | 4.5 | 4.6 | 3.7 | 3.7 | 5.7 | 22 | 54 | 39 | 10 | 6.4 |
| 4 | 4.6 | 6.0 | 4.5 | 4.6 | 3.7 | 3.7 | 6.0 | 24 | 54 | 37 | 9.6 | 6.0 |
| 5 | 4.4 | 5.3 | 4.5 | | 3.7 | 3.7 | 6.0 | 25 | 54 | 32 | 9.6 | 6.4 |
| 6 | 4.2 | 5.0 | 4.4 | | 3.7 | 3.7 | 5.7 | 24 | 55 | 30 | 9.6 | 6.0 |
| 7 | 3.9 | 4.6 | 4.6 | | 3.7 | 3.7 | 5.7 | 20 | 55 | 29 | 9.2 | 6.0 |
| 8 | 3.9 | 4.6 | 4.4 | 4.5 | 3.9 | 5.3 | 5.3 | 20 | 58 | 28 | 9.2 | 5.7 |
| 9 | 3.7 | 5.3 | 4.4 | | 3.9 | 5.0 | 5.0 | 19 | 61 | 24 | 8.7 | 5.7 |
| 10 | 3.5 | 5.7 | 4.4 | | 4.6 | 4.6 | 4.6 | 20 | 65 | 24 | 8.2 | 5.7 |
| 11 | 3.5 | 5.7 | 4.4 | | 4.6 | 4.6 | 4.6 | 22 | 68 | 21 | 8.2 | 5.3 |
| 12 | 3.5 | 5.3 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 29 | 65 | 19 | 7.8 | 5.3 |
| 13 | 3.5 | 5.3 | 4.6 | 4.2 | 4.4 | 4.6 | 4.6 | 44 | 78 | 17 | 7.5 | 5.3 |
| 14 | 4.6 | 4.6 | | 4.2 | 4.2 | 7.5 | 7.5 | 54 | 72 | 17 | 7.1 | 3.7 |
| 15 | 4.6 | 4.6 | | 4.2 | 4.2 | 5.7 | 5.7 | 55 | 92 | 15 | 7.1 | 3.5 |
| 16 | 4.6 | 5.3 | | 3.9 | 3.9 | 5.7 | 5.7 | 58 | 134 | 15 | 6.8 | 3.5 |
| 17 | 4.6 | 5.0 | | 3.9 | 3.7 | 6.0 | 6.0 | 59 | 115 | 14 | 6.4 | 3.5 |
| 18 | 4.6 | 6.8 | | 3.9 | 3.7 | 5.7 | 5.7 | 62 | 97 | 14 | 6.8 | 3.9 |
| 19 | 4.6 | 6.0 | 4.6 | 3.9 | 4.2 | 7.5 | 7.5 | 68 | 82 | 14 | 6.8 | 3.3 |
| 20 | 4.6 | 4.6 | | | 4.2 | 8.2 | 8.2 | 94 | 66 | 13 | 6.8 | 3.3 |
| 21 | 4.4 | 4.6 | | | | 7.5 | 8.2 | 113 | 65 | 12 | 6.8 | 3.3 |
| 22 | 4.4 | 4.6 | | 4.0 | | 6.0 | 7.8 | 115 | 65 | 12 | 6.8 | 3.3 |
| 23 | 4.4 | 4.6 | | | | 6.0 | 9.2 | 124 | 64 | 12 | 6.8 | 3.7 |
| 24 | 4.4 | 4.6 | 4.6 | | | 5.7 | 10 | 134 | 62 | 11 | 6.8 | 3.3 |
| 25 | 4.4 | 5.0 | 4.6 | | | 5.7 | 10 | 154 | 59 | 11 | 6.8 | 3.3 |
| 26 | 4.4 | 5.0 | 4.6 | 4.2 | | 5.0 | 12 | 124 | 57 | 11 | 6.8 | 3.7 |
| 27 | 4.4 | 5.0 | 5.0 | 3.9 | | 5.0 | 14 | 97 | 55 | 11 | 6.8 | 3.5 |
| 28 | 4.4 | 4.6 | 5.0 | 4.2 | 3.7 | 5.0 | 15 | 80* | 52 | 11 | 6.4 | 3.3 |
| 29 | 4.4 | 4.6 | 4.6 | 4.2 | | 5.7 | 17 | 68 | 51 | 11 | 6.4 | 3.3 |
| 30 | 5.3 | 4.6 | 4.6 | 3.9 | | 5.7 | 17 | 58 | 49 | 11 | 6.8 | 3.3 |
| 31 | 4.6 | | 4.6 | 3.7 | | 6.0 | | 58 | | 11 | 6.8 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 5.3 | 3.5 | 4.35 | 267 |
| November | 7.5 | 4.6 | 5.15 | 306 |
| December | | | 4.58 | 282 |
| January | | 3.7 | 4.21 | 259 |
| February | 3.7 | | 3.70 | 205 |
| March | 7.5 | 3.5 | 4.60 | 283 |
| April | 17 | 4.4 | 7.85 | 467 |
| May | 154 | 17 | 60.0 | 3,730 |
| June | 134 | 49 | 67.2 | 4,000 |
| July | 44 | 11 | 19.8 | 1,220 |
| August | 11 | 6.4 | 7.75 | 477 |
| September | 6.8 | 3.3 | 4.52 | 269 |
| The year | 154 | 3.3 | 16.2 | 11,800 |

PRAIRIE POWER CANAL AT PRAIRIE CITY, OREG.

LOCATION.—Staff gage in sec. 11, T. 13 S., R. 33 E., 40 feet above county road bridge over canal and 1 mile south of Prairie City.

RECORDS AVAILABLE.—May, 1925, to September, 1929.

EXTREMES.—Maximum discharge during year, 65 second-feet Apr. 16-24; no flow at times.

1925-1929: Maximum discharge, 70 second-feet May 20, 1926, and Jan. 13, 1928; no flow at times.

REMARKS.—Records fair. This canal diverts from John Day River in SE. $\frac{1}{4}$ sec. 7, T. 13 S., R. 34 E. The 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, 1923-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | 38 | 39 | 41 | 43 | 41 | 38 | 42 | 64 | 57 | 50 | 54 | 29 |
| 2..... | 38 | 39 | 40 | 43 | 37 | 40 | 42 | 60 | 57 | 54 | 47 | 28 |
| 3..... | 40 | 40 | 30 | 44 | 37 | 40 | 40 | 64 | 54 | 34 | 46 | 29 |
| 4..... | 40 | 40 | 26 | 38 | 36 | 35 | 40 | 64 | 57 | 35 | 47 | 29 |
| 5..... | 42 | 39 | 38 | 32 | 33 | 34 | 42 | 60 | 57 | 30 | 46 | 30 |
| 6..... | 40 | 39 | 39 | 31 | 26 | 37 | 42 | 64 | 57 | 32 | 47 | 30 |
| 7..... | 40 | 38 | 41 | 32 | 35 | 36 | 42 | 60 | 60 | 28 | 44 | 30 |
| 8..... | 40 | 39 | 41 | 43 | 37 | 37 | 42 | 64 | 60 | 31 | 41 | 30 |
| 9..... | 40 | 40 | 42 | 44 | 37 | 36 | 41 | 60 | 57 | 30 | 40 | 34 |
| 10..... | 40 | 40 | 42 | 41 | 42 | 36 | 43 | 64 | 57 | 32 | 37 | 36 |
| 11..... | 40 | 40 | 41 | 43 | 41 | 37 | 50 | 60 | 57 | 29 | 38 | 36 |
| 12..... | 40 | 40 | 41 | 43 | 41 | 36 | 57 | 64 | 57 | 30 | 32 | 36 |
| 13..... | 40 | 39 | 40 | 46 | 40 | 32 | 57 | 64 | 57 | 31 | 31 | 36 |
| 14..... | 40 | 40 | 40 | 57 | 40 | 37 | 57 | 64 | 57 | 32 | 28 | 36 |
| 15..... | 42 | 41 | 41 | 44 | 42 | 39 | 57 | 60 | 60 | 31 | 25 | 36 |
| 16..... | 40 | 42 | 40 | 44 | 42 | 37 | 65 | 57 | 60 | 32 | 25 | 35 |
| 17..... | 13 | 41 | 41 | 44 | 41 | 36 | 65 | 60 | 57 | 30 | 21 | 37 |
| 18..... | 0 | 41 | 42 | 46 | 43 | 41 | 65 | 60 | 57 | 31 | 12 | 35 |
| 19..... | 0 | 41 | 41 | 46 | 40 | 40 | 65 | 60 | 60 | 34 | 24 | 36 |
| 20..... | 36 | 40 | 36 | 21 | 41 | 40 | 65 | 60 | 47 | 33 | 25 | 35 |
| 21..... | 42 | 41 | 41 | 36 | 36 | 41 | 65 | 64 | 51 | 41 | 26 | 36 |
| 22..... | 42 | 41 | 41 | 37 | 37 | 42 | 65 | 64 | 54 | 46 | 25 | 36 |
| 23..... | 41 | 41 | 41 | 37 | 37 | 43 | 65 | 64 | 51 | 49 | 25 | 39 |
| 24..... | 43 | 41 | 42 | 36 | 37 | 40 | 65 | 60 | 57 | 49 | 25 | 39 |
| 25..... | 29 | 40 | 42 | 37 | 38 | 43 | 64 | 60 | 57 | 50 | 26 | 41 |
| 26..... | 25 | 40 | 40 | 32 | 38 | 41 | 64 | 57 | 50 | 49 | 27 | 47 |
| 27..... | 39 | 41 | 40 | 33 | 37 | 38 | 64 | 60 | 44 | 48 | 25 | 50 |
| 28..... | 39 | 41 | 41 | 33 | 37 | 41 | 64 | 57 | 27 | 46 | 26 | 49 |
| 29..... | 38 | 40 | 41 | 32 | ----- | 42 | 57 | 57 | 54 | 46 | 27 | 40 |
| 30..... | 38 | 42 | 41 | 31 | ----- | 39 | 60 | 57 | 51 | 46 | 28 | 39 |
| 31..... | 39 | ----- | 42 | 32 | ----- | 41 | ----- | 54 | ----- | 49 | 28 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|-------------------------|
| October..... | 43 | 0 | 35.6 | 2,190 |
| November..... | 42 | 38 | 40.2 | 2,390 |
| December..... | 42 | 26 | 39.8 | 2,450 |
| January..... | 57 | 21 | 38.7 | 2,380 |
| February..... | 43 | 26 | 38.2 | 2,120 |
| March..... | 43 | 32 | 38.5 | 2,370 |
| April..... | 65 | 40 | 55.1 | 3,280 |
| May..... | 64 | 54 | 60.9 | 3,740 |
| June..... | 60 | 27 | 54.9 | 3,270 |
| July..... | 54 | 26 | 38.3 | 2,360 |
| August..... | 54 | 12 | 32.2 | 1,980 |
| September..... | 50 | 28 | 36.0 | 2,140 |
| The year..... | 65 | 0 | 42.4 | 30,700 |

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, three-fourths mile west of Monument.

RECORDS AVAILABLE.—March, 1925, to September, 1929.

EXTREMES.—Maximum discharge during year, 6,590 second-feet Mar. 21 (gauge height, 6.7 feet); minimum, 29 second-feet Dec. 5 (gauge height, 0.05 foot).

1925-1929: Maximum discharge, 8,370 second-feet Apr. 27, 1927 (gauge height, 7.96 feet); minimum, that of Dec. 5, 1928.

REMARKS.—Discharge estimated Jan. 5-7, 19-23, 30 and 31 because of ice and Jan. 8-17, 24-29, Feb. 1-19, 21-28, Mar. 28, 29, July 24 to Aug. 26 and Sept. 2-19 because of missing gauge-height records. Records good except those for estimated periods, which are poor. Numerous small diversions above station for irrigation. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept |
|-----|------|------|------|------|------|-------|-------|-------|-------|------|------|------|
| 1 | 108 | 196 | 146 | 196 | | 259 | 1,680 | 4,260 | 2,020 | 729 | | 79 |
| 2 | 112 | 196 | 153 | 196 | | 366 | 1,920 | 3,430 | 1,970 | 666 | | |
| 3 | 119 | 193 | 129 | 199 | | 512 | 2,280 | 3,700 | 1,730 | 604 | | |
| 4 | 133 | 196 | 60 | 190 | | 631 | 2,560 | 3,560 | 1,680 | 545 | | |
| 5 | 141 | 212 | 49 | | | 785 | 2,220 | 3,430 | 1,680 | 500 | | |
| 6 | 141 | 212 | 67 | | | 1,040 | 1,780 | 2,920 | 1,730 | 450 | | |
| 7 | 136 | 206 | 72 | | | 1,020 | 1,640 | 2,740 | 1,820 | 408 | | |
| 8 | 128 | 193 | 96 | | | 1,130 | 1,460 | 2,620 | 2,020 | 378 | | |
| 9 | 124 | 193 | 82 | | | 1,820 | 1,370 | 2,680 | 2,220 | 355 | | |
| 10 | 119 | 202 | 206 | | 128 | 2,980 | 1,210 | 2,740 | 2,220 | 335 | | |
| 11 | 117 | 209 | 202 | 144 | | 2,380 | 1,250 | 2,860 | 2,120 | 336 | | 66 |
| 12 | 119 | 218 | 171 | | | 1,600 | 1,210 | 3,430 | 1,920 | 233 | | |
| 13 | 119 | 209 | 176 | | | 1,250 | 1,210 | 4,400 | 1,870 | 276 | | |
| 14 | 112 | 225 | 176 | | | 1,170 | 1,960 | 5,150 | 1,820 | 259 | 80 | |
| 15 | 114 | 202 | 168 | | | 1,170 | 2,920 | 4,700 | 1,870 | 218 | | |
| 16 | 136 | 206 | 182 | | | 1,780 | 2,440 | 4,550 | 2,680 | 232 | | |
| 17 | 223 | 206 | 171 | | | 2,170 | 2,680 | 4,400 | 2,330 | 222 | | |
| 18 | 225 | 196 | 199 | 188 | | 1,970 | 2,680 | 4,260 | 2,020 | 212 | | |
| 19 | 193 | 160 | 199 | | | 2,120 | 3,560 | 4,260 | 1,780 | 136 | | |
| 20 | 182 | 122 | 202 | | 86 | 2,120 | 4,550 | 4,550 | 1,640 | 130 | | 62 |
| 21 | 174 | 153 | 185 | | | 5,730 | 4,550 | 4,850 | 1,500 | 179 | | 67 |
| 22 | 171 | 182 | 171 | | | 4,580 | 4,120 | 5,150 | 1,420 | 171 | | 70 |
| 23 | 166 | 185 | 171 | | | 2,560 | 4,550 | 5,150 | 1,330 | 190 | | 75 |
| 24 | 168 | 179 | 174 | 129 | | 1,870 | 4,260 | 5,000 | 1,210 | | | 80 |
| 25 | 168 | 179 | 190 | | 154 | 1,550 | 4,120 | 4,260 | 1,170 | | | 84 |
| 26 | 171 | 199 | 206 | | | 1,420 | 4,400 | 3,300 | 1,130 | 111 | | 96 |
| 27 | 168 | 209 | 199 | | | 1,600 | 4,700 | 2,680 | 1,030 | | 84 | 104 |
| 28 | 166 | 199 | 196 | | | 2,920 | 5,000 | 2,280 | 955 | | 110 | 108 |
| 29 | 168 | 193 | 196 | | | 3,040 | 4,850 | 2,020 | 895 | | | 100 |
| 30 | 166 | 168 | 196 | 156 | | 2,330 | 4,260 | 1,920 | 806 | | | 95 |
| 31 | 174 | | 196 | 155 | | 1,870 | | 1,920 | | | 84 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|----------------------|
| October | 228 | 108 | 151 | 9,280 |
| November | 225 | 122 | 193 | 11,500 |
| December | 206 | 49 | 161 | 9,900 |
| January | 199 | | 143 | 9,100 |
| February | | | 131 | 7,440 |
| March | 5,730 | 259 | 1,860 | 114,000 |
| April | 5,000 | 1,210 | 2,910 | 173,000 |
| May | 5,150 | 1,920 | 3,650 | 224,000 |
| June | 2,680 | 806 | 1,690 | 101,000 |
| July | 729 | | 281 | 17,800 |
| August | | | 81.8 | 5,030 |
| September | 108 | | 71.6 | 4,380 |
| The year | 5,730 | 49 | 940 | 686,000 |

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 and 4 miles south of Monument.

RECORDS AVAILABLE.—March, 1925, to September, 1929; summer record only in 1925, 1926, and 1927.

EXTREMES.—Maximum discharge during year, 585 second-feet Mar. 28 (gage height, 2.40 feet, somewhat uncertain); minimum, 3 second-feet on numerous days from July to September.

1925-1929: Maximum discharge, that of Mar. 28, 1929; minimum, 0.2 second-foot Aug. 13-15, 27, and 28, 1925.

REMARKS.—Records poor; discharge estimated because of ice effect Jan. 1 to Feb. 28, and because of doubtful gage readings, Apr. 1-6. Gage read on alternate days; discharge interpolated for days of missing gage heights. Several small diversions above station for irrigation.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|---------|------|------|---------|------|------|------|-----|------|----------------------|------|-------|
| 1..... | 7 | 8 | 10 | | | 25 | | 100 | 34 | 7 | 3 | 3 |
| 2..... | 7 | 8 | 9 | | | 45 | | 100 | 33 | 6 | 3 | 3 |
| 3..... | 7 | 7 | 9 | | | 100 | | 100 | 33 | 5 | 3 | 3 |
| 4..... | 7 | 6 | 9 | | | 157 | 138 | 95 | 33 | 5 | 3 | 3 |
| 5..... | 7 | 6 | 9 | | | 165 | | 94 | 34 | 5 | 3 | 3 |
| 6..... | 7 | 6 | 9 | | | 170 | | 92 | 35 | 5 | 3 | 3 |
| 7..... | 7 | 6 | 9 | | | 190 | 100 | 89 | 28 | 5 | 3 | 3 |
| 8..... | 7 | 7 | 9 | | | 205 | 90 | 87 | 20 | 4 | 3 | 3 |
| 9..... | 7 | 7 | 9 | | | 165 | 84 | 84 | 32 | 3 | 3 | 3 |
| 10..... | 7 | 7 | 9 | | 10 | 127 | 80 | 82 | 45 | 3 | 3 | 3 |
| 11..... | 7 | 7 | 9 | | | 105 | 75 | 80 | 60 | 3 | 3 | 3 |
| 12..... | 7 | 7 | 9 | | | 84 | 70 | 80 | 75 | 3 | 3 | 3 |
| 13..... | 7 | 7 | 9 | | | 95 | 66 | 80 | 73 | 3 | 3 | 3 |
| 14..... | 7 | 7 | 9 | | | 110 | 70 | 78 | 71 | 3 | 3 | 3 |
| 15..... | 7 | 8 | 9 | | | 110 | 75 | 75 | 68 | 3 | 3 | 3 |
| 16..... | 7 | 8 | 9 | 8 | | 110 | 80 | 70 | 66 | 3 | 3 | 4 |
| 17..... | 7 | 8 | 10 | | | 200 | 84 | 66 | 64 | 3 | 3 | 4 |
| 18..... | 7 | 8 | 11 | | | 285 | 95 | 62 | 62 | 3 | 3 | 4 |
| 19..... | 7 | 8 | 10 | | | 245 | 110 | 59 | 60 | 3 | 3 | 4 |
| 20..... | 7 | 9 | 10 | | | 205 | 110 | 57 | 59 | 4 | 3 | 4 |
| 21..... | 7 | 9 | 10 | | | 190 | 110 | 55 | 56 | 4 | 3 | 4 |
| 22..... | 7 | 9 | 9 | | | 177 | 113 | 54 | 52 | 3 | 3 | 4 |
| 23..... | 7 | 9 | 9 | | 25 | 355 | 116 | 52 | 48 | 3 | 3 | 4 |
| 24..... | 7 | 9 | 9 | | | 530 | 113 | 48 | 45 | 3 | 3 | 4 |
| 25..... | 7 | 9 | 9 | | | 450 | 110 | 45 | 42 | 3 | 3 | 3 |
| 26..... | 7 | 9 | 9 | | | 375 | 110 | 44 | 40 | 3 | 3 | 4 |
| 27..... | 7 | 9 | 9 | | | 480 | 110 | 43 | 36 | 3 | 3 | 4 |
| 28..... | 7 | 9 | 9 | | | 585 | 110 | 42 | 33 | 3 | 3 | 4 |
| 29..... | 7 | 10 | 9 | | | 480 | 110 | 40 | 30 | 3 | 3 | 5 |
| 30..... | 8 | 10 | 9 | | | 375 | 105 | 38 | 28 | 3 | 3 | 5 |
| 31..... | 9 | | 9 | 10 | | 270 | | 35 | | 3 | 3 | |
| Month | Maximum | | | Minimum | | | Mean | | | Run-off in acre-feet | | |
| October..... | 9 | | | 7 | | | 7.2 | | | 443 | | |
| November..... | 10 | | | 6 | | | 7.9 | | | 470 | | |
| December..... | 11 | | | 9 | | | 9.2 | | | 566 | | |
| January..... | | | | | | | 8.1 | | | 496 | | |
| February..... | | | | | | | 15.4 | | | 855 | | |
| March..... | 585 | | | 25 | | | 281 | | | 14,200 | | |
| April..... | | | | 66 | | | 104 | | | 6,160 | | |
| May..... | 100 | | | 35 | | | 68.6 | | | 4,220 | | |
| June..... | 75 | | | 28 | | | 46.5 | | | 2,770 | | |
| July..... | 7 | | | 3 | | | 3.6 | | | 221 | | |
| August..... | 3 | | | 3 | | | 3.0 | | | 184 | | |
| September..... | 5 | | | 3 | | | 3.5 | | | 208 | | |
| The year..... | 585 | | | 3 | | | 42.6 | | | 30,800 | | |

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 elevations above mean sea level.

RECORDS AVAILABLE.—November, 1922, to September, 1929.

EXTREMES.—Maximum elevation during year, 4,432.72 feet May 19 and 20 (contents, 7,162 acre-feet); minimum, 4,428.94 feet, Aug. 17-22 (contents, 184 acre-feet).

1922-1929: Maximum elevation, 4,444.10 feet, Jan. 10-13, 1924 (contents, 50,830 acre-feet); minimum, 4,428.36 feet Nov. 4-12, 1926 (no storage).

REMARKS.—Records good; furnished by State engineer of Oregon.

Monthly elevation and contents of Crane Prairie Reservoir near Lapine, Oreg., 1928-29

| Date | Elevation | Contents | Gain or loss during month | Date | Elevation | Contents | Gain or loss during month |
|--------------|-------------|------------------|---------------------------|---------------|-------------|------------------|---------------------------|
| | <i>Feet</i> | <i>Acre-feet</i> | <i>Acre-feet</i> | | <i>Feet</i> | <i>Acre-feet</i> | <i>Acre-feet</i> |
| Oct. 31..... | 4,431.90 | 2,602 | +142 | May 31..... | 4,432.62 | 6,896 | +777 |
| Nov. 30..... | 4,430.70 | 2,485 | -117 | June 30..... | 4,431.68 | 4,560 | -2,336 |
| Dec. 31..... | 4,430.38 | 1,898 | -587 | July 31..... | 4,430.09 | 1,447 | -3,113 |
| Jan. 31..... | 4,430.50 | 2,110 | +212 | Aug. 31..... | 4,429.00 | 217 | -1,230 |
| Feb. 28..... | 4,430.50 | 2,110 | 0 | Sept. 30..... | 4,429.12 | 305 | +88 |
| Mar. 31..... | 4,431.66 | 4,513 | +2,403 | | | | |
| Apr. 30..... | 4,432.32 | 6,119 | +1,606 | The year..... | | | -2,156 |

DESCHUTES RIVER AT CRANE PRAIRIE, NEAR LAPINE, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ 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, 1929.

EXTREMES.—Maximum discharge during year, 305 second-feet Aug. 1 (gage height, 1.80 feet); minimum, 128 second-feet Mar. 21–31 (gage height, 1.10 feet).

1914–1917, 1922–1929: Maximum discharge, 604 second-feet Apr. 18, 1924 (gage height, 2.40 feet); minimum, 2.5 second-feet Apr. 24, 1923, owing to closing of dam (gage height, 0.05 foot).

REMARKS.—Records good. No diversions. Some regulation caused by operations at Crane Prairie Dam. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | 270 | 254 | 239 | 196 | 196 | 152 | 139 | 144 | 224 | 272 | 305 | 224 |
| 2..... | 270 | 254 | 239 | 196 | 196 | 144 | 139 | 144 | 224 | 256 | 305 | 224 |
| 3..... | 270 | 254 | 239 | 196 | 182 | 144 | 139 | 147 | 224 | 256 | 288 | 224 |
| 4..... | 270 | 239 | 239 | 196 | 182 | 144 | 139 | 150 | 256 | 256 | 288 | 224 |
| 5..... | 286 | 239 | 239 | 196 | 182 | 144 | 139 | 150 | 288 | 256 | 272 | 224 |
| 6..... | 286 | 239 | 239 | 196 | 182 | 144 | 139 | 152 | 288 | 256 | 272 | 224 |
| 7..... | 286 | 239 | 239 | 196 | 182 | 144 | 139 | 152 | 288 | 240 | 272 | 224 |
| 8..... | 286 | 239 | 239 | 196 | 182 | 144 | 139 | 152 | 288 | 240 | 256 | 224 |
| 9..... | 286 | 239 | 239 | 196 | 182 | 144 | 139 | 155 | 288 | 240 | 256 | 224 |
| 10..... | 286 | 239 | 239 | 196 | 177 | 144 | 139 | 155 | 288 | 240 | 256 | 224 |
| 11..... | 286 | 254 | 239 | 196 | 171 | 144 | 139 | 158 | 288 | 240 | 240 | 224 |
| 12..... | 286 | 254 | 239 | 196 | 171 | 144 | 139 | 158 | 288 | 240 | 240 | 224 |
| 13..... | 286 | 254 | 239 | 196 | 171 | 144 | 139 | 158 | 288 | 240 | 240 | 224 |
| 14..... | 270 | 254 | 224 | 196 | 171 | 144 | 139 | 160 | 272 | 256 | 240 | 224 |
| 15..... | 270 | 254 | 224 | 196 | 171 | 144 | 142 | 160 | 272 | 272 | 240 | 224 |
| 16..... | 270 | 254 | 224 | 196 | 171 | 144 | 144 | 160 | 256 | 272 | 240 | 224 |
| 17..... | 270 | 254 | 210 | 196 | 166 | 139 | 144 | 160 | 256 | 272 | 240 | 224 |
| 18..... | 270 | 254 | 210 | 196 | 166 | 139 | 144 | 160 | 256 | 256 | 240 | 224 |
| 19..... | 270 | 254 | 210 | 196 | 166 | 139 | 144 | 196 | 256 | 256 | 240 | 224 |
| 20..... | 270 | 254 | 210 | 196 | 166 | 136 | 144 | 224 | 256 | 256 | 240 | 224 |
| 21..... | 270 | 239 | 210 | 196 | 166 | 128 | 144 | 224 | 256 | 256 | 240 | 206 |
| 22..... | 254 | 239 | 210 | 196 | 166 | 128 | 144 | 224 | 256 | 256 | 240 | 206 |
| 23..... | 254 | 239 | 210 | 196 | 166 | 128 | 144 | 224 | 256 | 272 | 240 | 206 |
| 24..... | 254 | 239 | 210 | 196 | 166 | 128 | 144 | 224 | 256 | 256 | 224 | 206 |
| 25..... | 254 | 239 | 210 | 196 | 166 | 128 | 144 | 224 | 288 | 256 | 224 | 206 |
| 26..... | 254 | 239 | 210 | 196 | 166 | 128 | 144 | 224 | 288 | 256 | 224 | 206 |
| 27..... | 254 | 239 | 210 | 196 | 166 | 128 | 144 | 224 | 288 | 256 | 224 | 206 |
| 28..... | 254 | 239 | 210 | 196 | 166 | 128 | 144 | 224 | 288 | 256 | 224 | 206 |
| 29..... | 254 | 239 | 210 | 196 | ----- | 128 | 144 | 224 | 288 | 256 | 224 | 206 |
| 30..... | 254 | 239 | 210 | 196 | ----- | 128 | 144 | 224 | 288 | 256 | 224 | 192 |
| 31..... | 254 | ----- | 196 | 196 | ----- | 128 | ----- | 224 | ----- | 288 | 224 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| October..... | 286 | 254 | 269 | 16, 500 |
| November..... | 254 | 239 | 246 | 14, 600 |
| December..... | 239 | 196 | 223 | 13, 700 |
| January..... | 196 | 196 | 196 | 12, 100 |
| February..... | 196 | 166 | 174 | 9, 660 |
| March..... | 152 | 128 | 138 | 8, 480 |
| April..... | 144 | 139 | 142 | 8, 450 |
| May..... | 224 | 144 | 183 | 11, 300 |
| June..... | 288 | 224 | 270 | 16, 100 |
| July..... | 288 | 240 | 256 | 16, 700 |
| August..... | 305 | 224 | 248 | 15, 200 |
| September..... | 224 | 193 | 218 | 13, 000 |
| The year..... | 305 | 128 | 214 | 155, 000 |

DESCHUTES RIVER ABOVE DAVIS CREEK, NEAR LAPINE, OREG.

LOCATION.—Staff gage in SE. ¼ 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, 1929.

EXTREMES.—Maximum discharge during year, 648 second-feet Oct. 2-7 (gage height, 1.48 feet); minimum, 434 second-feet Mar. 30, 31, Apr. 13, and May 3-5 (gage height, 0.79 foot).

1925-1929: Maximum discharge, 806 second feet Aug. 13, 14, and Aug. 16 to Sept. 16, 1925 (gage height, 2.0 feet); minimum, that of Mar. 30, 31, Apr. 13, and May 3-5, 1929. Minimum known discharge, 334 second-feet Apr. 25, 1923, when gates in Crane Prairie Dam were closed.

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

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | 632 | 602 | 586 | 526 | 508 | 449 | 437 | 437 | 526 | 541 | 602 | 541 |
| 2..... | 648 | 602 | 571 | 526 | 505 | 446 | 437 | 437 | 526 | 541 | 602 | 541 |
| 3..... | 648 | 602 | 571 | 526 | 502 | 449 | 437 | 434 | 526 | 541 | 586 | 541 |
| 4..... | 648 | 602 | 571 | 541 | 499 | 449 | 437 | 434 | 586 | 541 | 586 | 541 |
| 5..... | 648 | 602 | 571 | 526 | 496 | 449 | 437 | 434 | 586 | 541 | 571 | 541 |
| 6..... | 648 | 602 | 571 | 520 | 490 | 449 | 437 | 437 | 586 | 541 | 571 | 541 |
| 7..... | 648 | 602 | 571 | 514 | 478 | 449 | 437 | 437 | 586 | 541 | 571 | 541 |
| 8..... | 632 | 602 | 571 | 511 | 496 | 449 | 437 | 437 | 571 | 541 | 566 | 541 |
| 9..... | 632 | 602 | 571 | 508 | 472 | 449 | 437 | 440 | 571 | 541 | 566 | 541 |
| 10..... | 632 | 602 | 571 | 502 | 472 | 449 | 437 | 443 | 571 | 541 | 566 | 541 |
| 11..... | 632 | 602 | 571 | 508 | 502 | 449 | 437 | 449 | 571 | 541 | 566 | 541 |
| 12..... | 632 | 602 | 571 | 514 | 496 | 449 | 437 | 437 | 571 | 541 | 541 | 541 |
| 13..... | 632 | 602 | 571 | 514 | 472 | 449 | 437 | 443 | 571 | 541 | 541 | 541 |
| 14..... | 632 | 602 | 571 | 514 | 478 | 449 | 443 | 437 | 586 | 556 | 541 | 541 |
| 15..... | 632 | 602 | 571 | 514 | 484 | 443 | 443 | 437 | 571 | 556 | 541 | 541 |
| 16..... | 632 | 602 | 571 | 514 | 490 | 443 | 437 | 437 | 571 | 556 | 541 | 541 |
| 17..... | 632 | 602 | 571 | 514 | 493 | 440 | 437 | 437 | 586 | 556 | 541 | 511 |
| 18..... | 632 | 602 | 556 | 517 | 466 | 440 | 443 | 437 | 556 | 556 | 541 | 541 |
| 19..... | 632 | 602 | 556 | 541 | 466 | 440 | 443 | 437 | 556 | 556 | 541 | 541 |
| 20..... | 617 | 602 | 556 | 526 | 466 | 437 | 443 | 526 | 556 | 556 | 541 | 541 |
| 21..... | 617 | 602 | 556 | 520 | 446 | 449 | 443 | 526 | 556 | 556 | 541 | 526 |
| 22..... | 617 | 586 | 556 | 514 | 466 | 437 | 443 | 526 | 556 | 556 | 541 | 526 |
| 23..... | 617 | 586 | 541 | 508 | 466 | 437 | 446 | 526 | 556 | 556 | 541 | 526 |
| 24..... | 602 | 586 | 541 | 508 | 463 | 437 | 446 | 526 | 556 | 556 | 541 | 526 |
| 25..... | 602 | 586 | 556 | 508 | 466 | 437 | 443 | 526 | 556 | 556 | 541 | 517 |
| 26..... | 602 | 586 | 556 | 508 | 466 | 437 | 443 | 526 | 556 | 556 | 541 | 514 |
| 27..... | 602 | 586 | 556 | 508 | 466 | 437 | 443 | 526 | 556 | 556 | 541 | 508 |
| 28..... | 602 | 586 | 556 | 508 | 454 | 437 | 443 | 526 | 556 | 556 | 541 | 508 |
| 29..... | 602 | 586 | 556 | 502 | ----- | 437 | 437 | 526 | 556 | 556 | 541 | 508 |
| 30..... | 602 | 586 | 526 | 496 | ----- | 434 | 437 | 526 | 556 | 556 | 541 | 508 |
| 31..... | 602 | ----- | 526 | 508 | ----- | 434 | ----- | 526 | ----- | 571 | 541 | ----- |

| Month | Maximum | Minimum | Mean | Rush-off in acre-feet |
|----------------|---------|---------|------|-----------------------|
| October..... | 648 | 602 | 625 | 38,400 |
| November..... | 602 | 586 | 597 | 35,500 |
| December..... | 586 | 526 | 562 | 34,600 |
| January..... | 541 | 496 | 515 | 31,700 |
| February..... | 508 | 454 | 479 | 26,600 |
| March..... | 449 | 434 | 443 | 27,200 |
| April..... | 446 | 437 | 440 | 26,200 |
| May..... | 526 | 434 | 472 | 29,000 |
| June..... | 586 | 526 | 553 | 33,500 |
| July..... | 571 | 541 | 550 | 33,800 |
| August..... | 602 | 541 | 553 | 34,000 |
| September..... | 541 | 508 | 533 | 31,700 |
| The year..... | 648 | 434 | 528 | 382,000 |

DESCHUTES RIVER AT PRINGLE FALLS, NEAR LAPINE, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 23, T. 21 S., R. 9 E., at head of Pringle Falls, 7 miles northwest of Lapine.

RECORDS AVAILABLE.—December, 1915, to June, 1917; June, 1922, to September, 1929.

EXTREMES.—Maximum discharge during year, 834 second-feet Oct. 6-11; minimum, 620 second-feet in March, April, and May.

1915-1917, 1922-1929: Maximum discharge, 1,170 second-feet June 21-27, 29, and 30, 1917; minimum, 540 second-feet Dec. 27, 1915.

REMARKS.—Records good. Mean discharge estimated for periods included in braces. No diversions. Flow regulated to small extent by storage in Crane Prairie Reservoir. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|-----|
| 1..... | 830 | 786 | 760 | 717 | 694 | 642 | 620 | 620 | 710 | 755 | 710 | 710 | |
| 2..... | | 786 | | 717 | 694 | 642 | 620 | 620 | 710 | 732 | 710 | 710 | |
| 3..... | | 810 | | 717 | 694 | 642 | 620 | 620 | 710 | 732 | 710 | 710 | |
| 4..... | | 810 | | 717 | 694 | 642 | 620 | 620 | 732 | 732 | 710 | 710 | |
| 5..... | | 786 | | 717 | 694 | 642 | 620 | 620 | 755 | 732 | 688 | 710 | |
| 6..... | 834 | 786 | 760 | 717 | 672 | 642 | 620 | 620 | 755 | 732 | 688 | 710 | |
| 7..... | 834 | 786 | | 717 | 642 | 620 | 620 | 755 | 732 | 688 | 710 | | |
| 8..... | 834 | 786 | | 717 | 642 | 642 | 620 | 755 | 732 | 688 | 710 | | |
| 9..... | 834 | 786 | | 717 | 642 | 620 | 620 | 755 | 732 | 688 | 710 | | |
| 10..... | 834 | 786 | | 717 | 620 | 642 | 620 | 755 | 732 | 688 | 710 | | |
| 11..... | 834 | 786 | 760 | 717 | 670 | 620 | 642 | 620 | 755 | 732 | 710 | 710 | |
| 12..... | 810 | 786 | | 694 | | 620 | 642 | 620 | 755 | 732 | 710 | 710 | |
| 13..... | 810 | 786 | | 694 | | 620 | 642 | 620 | 755 | 732 | 710 | 710 | |
| 14..... | 810 | 786 | | 694 | | 620 | 642 | 642 | 755 | 755 | 710 | 710 | |
| 15..... | 810 | 786 | | 694 | | 620 | 642 | 642 | 755 | 755 | 710 | 710 | |
| 16..... | 810 | 786 | 740 | 694 | 670 | 620 | 642 | 620 | 732 | 755 | 710 | 710 | |
| 17..... | 786 | 786 | | 700 | | 694 | 620 | 642 | 620 | 732 | 732 | 710 | 710 |
| 18..... | 786 | 786 | | 700 | | 694 | 620 | 642 | 620 | 732 | 732 | 710 | 710 |
| 19..... | 786 | 786 | | 717 | | 672 | 620 | 642 | 620 | 732 | 732 | 710 | 710 |
| 20..... | 786 | 786 | | 740 | | 672 | 620 | 642 | 688 | 732 | 710 | 710 | 710 |
| 21..... | 786 | 786 | 740 | 700 | 650 | 665 | 642 | 710 | 732 | 710 | 710 | 710 | |
| 22..... | 786 | 786 | | | 650 | 642 | 642 | 710 | 732 | 710 | 710 | 688 | |
| 23..... | 786 | 786 | | | 645 | 620 | 642 | 710 | 732 | 710 | 710 | 688 | |
| 24..... | 786 | 786 | | | | 620 | 620 | 710 | 732 | 710 | 710 | 688 | |
| 25..... | 786 | 786 | | | | 620 | 620 | 710 | 732 | 710 | 710 | 688 | |
| 26..... | 786 | 780 | 740 | 694 | | 620 | 620 | 710 | 755 | 710 | 710 | 688 | |
| 27..... | 786 | | | | | 620 | 620 | 710 | 755 | 710 | 710 | 688 | |
| 28..... | 786 | | | 642 | 620 | 642 | 710 | 778 | 688 | 710 | 688 | | |
| 29..... | 810 | | | 740 | 694 | 620 | 642 | 710 | 755 | 688 | 710 | 688 | |
| 30..... | 810 | | | 717 | 694 | 620 | 620 | 710 | 755 | 688 | 710 | 688 | |
| 31..... | 810 | | | 717 | 694 | 620 | 620 | 710 | 710 | 710 | 710 | 710 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| October----- | 834 | 786 | 809 | 49,700 |
| November----- | 810 | 717 | 786 | 46,800 |
| December----- | 717 | 694 | 750 | 46,100 |
| January----- | 694 | 642 | 705 | 43,300 |
| February----- | 665 | 620 | 669 | 37,200 |
| March----- | 642 | 620 | 629 | 38,700 |
| April----- | 710 | 620 | 632 | 37,600 |
| May----- | 778 | 620 | 656 | 40,300 |
| June----- | 755 | 710 | 743 | 44,200 |
| July----- | 710 | 688 | 724 | 44,500 |
| August----- | 710 | 688 | 706 | 43,400 |
| September----- | 710 | 688 | 703 | 41,800 |
| The year----- | 834 | 620 | 710 | 514,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 1,360 second-feet Feb. 1 (gage height, 1.55 feet); minimum, 905 second-feet during period Jan. 20–24, when clock was not running (gage height, 0.45 foot).

1909–1913, 1920–21, 1924–1929: 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 caused by storage in Crane Prairie and Crescent Lake Reservoirs. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|--------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| 1 | 1,240 | 1,190 | 1,190 | 1,120 | *1,070 | 1,130 | 1,160 | 1,340 | 1,290 | 1,250 | 1,160 |
| 2 | 1,240 | 1,220 | 1,190 | 1,120 | *1,080 | 1,120 | 1,160 | 1,320 | 1,270 | 1,270 | 1,180 |
| 3 | 1,240 | 1,220 | 1,170 | 1,150 | *1,100 | 1,120 | 1,150 | 1,290 | 1,230 | 1,270 | 1,160 |
| 4 | 1,260 | 1,220 | 1,190 | 1,120 | 1,110 | 1,120 | 1,160 | 1,290 | 1,230 | 1,270 | 1,160 |
| 5 | 1,240 | 1,220 | 1,170 | 1,120 | 1,140 | 1,120 | 1,160 | 1,320 | 1,230 | 1,270 | 1,160 |
| 6 | 1,240 | 1,220 | 1,170 | 1,120 | 1,160 | 1,130 | 1,160 | 1,340 | 1,230 | 1,270 | 1,160 |
| 7 | 1,240 | 1,240 | 1,170 | 1,120 | 1,160 | 1,120 | 1,160 | 1,320 | 1,210 | 1,270 | 1,150 |
| 8 | 1,240 | 1,240 | 1,190 | 1,120 | 1,160 | 1,120 | 1,160 | 1,320 | 1,230 | 1,250 | 1,160 |
| 9 | 1,240 | 1,240 | 1,190 | 1,100 | 1,180 | 1,110 | 1,150 | 1,320 | 1,270 | 1,250 | 1,150 |
| 10 | 1,240 | 1,240 | 1,220 | 1,100 | 1,180 | 1,100 | 1,140 | 1,340 | 1,270 | 1,250 | 1,150 |
| 11 | 1,240 | 1,240 | 1,220 | 1,100 | 1,180 | 1,100 | 1,130 | 1,320 | 1,270 | 1,250 | 1,150 |
| 12 | 1,240 | 1,260 | 1,190 | 1,100 | 1,160 | 1,100 | 1,130 | 1,290 | 1,290 | 1,250 | 1,150 |
| 13 | 1,240 | 1,260 | 1,190 | 1,100 | 1,160 | 1,100 | 1,140 | 1,290 | 1,320 | 1,250 | 1,140 |
| 14 | 1,240 | 1,260 | 1,190 | 1,100 | 1,150 | 1,100 | 1,140 | 1,290 | 1,290 | 1,230 | 1,130 |
| 15 | 1,240 | 1,260 | 1,170 | 1,100 | 1,150 | 1,130 | 1,140 | 1,290 | 1,270 | 1,230 | 1,130 |
| 16 | 1,240 | 1,240 | 1,170 | 1,100 | 1,140 | 1,120 | 1,150 | 1,290 | 1,270 | 1,230 | 1,120 |
| 17 | 1,220 | 1,240 | 1,150 | 1,100 | 1,120 | 1,140 | 1,140 | 1,270 | 1,250 | 1,230 | 1,120 |
| 18 | 1,220 | 1,240 | 1,120 | 1,100 | 1,140 | 1,140 | 1,150 | 1,270 | 1,250 | 1,230 | 1,120 |
| 19 | 1,220 | 1,220 | 1,120 | 1,100 | 1,130 | 1,160 | 1,150 | 1,270 | 1,250 | 1,230 | 1,110 |
| 20 | 1,220 | 1,220 | 1,120 | 1,100 | 1,140 | 1,160 | 1,160 | 1,270 | 1,250 | 1,230 | 1,100 |
| 21 | 1,220 | 1,220 | 1,120 | 1,180 | 1,150 | 1,230 | 1,230 | 1,270 | 1,250 | 1,210 | 1,090 |
| 22 | 1,220 | 1,220 | 1,120 | *1,060 | 1,180 | 1,180 | 1,230 | 1,250 | 1,230 | 1,210 | 1,080 |
| 23 | 1,220 | 1,220 | 1,100 | 1,230 | 1,180 | 1,270 | 1,270 | 1,250 | 1,230 | 1,210 | 1,080 |
| 24 | 1,220 | 1,220 | 1,120 | 1,250 | 1,180 | 1,290 | 1,290 | 1,250 | 1,250 | 1,210 | 1,070 |
| 25 | *1,200 | 1,190 | 1,150 | 1,220 | 1,230 | 1,160 | 1,320 | 1,250 | 1,250 | 1,210 | 1,070 |
| 26 | 1,190 | 1,190 | 1,150 | 1,240 | 1,180 | 1,160 | 1,340 | 1,270 | 1,250 | 1,210 | 1,060 |
| 27 | 1,190 | 1,220 | 1,150 | 1,120 | 1,160 | 1,160 | 1,340 | 1,270 | 1,250 | 1,210 | 1,060 |
| 28 | 1,190 | 1,220 | 1,170 | 1,100 | 1,140 | 1,140 | 1,340 | 1,270 | 1,250 | 1,210 | 1,060 |
| 29 | 1,190 | 1,190 | 1,150 | 1,100 | 1,140 | 1,140 | 1,340 | 1,270 | 1,250 | 1,210 | 1,060 |
| 30 | 1,220 | 1,220 | 1,150 | *1,100 | 1,150 | 1,150 | 1,340 | 1,290 | 1,250 | 1,210 | 1,060 |
| 31 | 1,220 | 1,150 | *1,100 | 1,150 | 1,150 | 1,150 | 1,340 | 1,250 | 1,250 | 1,160 | 1,060 |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|----------------------|
| October | 1,260 | 1,190 | 1,220 | 75,000 |
| November | 1,260 | 1,190 | 1,230 | 73,200 |
| December | 1,220 | 1,100 | 1,160 | 71,300 |
| January | 1,240 | 1,110 | 1,175 | 68,200 |
| February | 1,250 | 1,030 | 1,140 | 57,200 |
| March | 1,250 | 1,070 | 1,150 | 70,700 |
| April | 1,180 | 1,100 | 1,130 | 67,200 |
| May | 1,340 | 1,130 | 1,210 | 74,400 |
| June | 1,340 | 1,250 | 1,290 | 76,800 |
| July | 1,320 | 1,210 | 1,250 | 76,900 |
| August | 1,270 | 1,160 | 1,230 | 75,600 |
| September | 1,180 | 1,060 | 1,120 | 66,600 |
| The year | 1,340 | 1,060 | 1,180 | 853,000 |

* Estimated.

DESCHUTES RIVER BELOW LAVA ISLAND, NEAR BEND, OREG.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 23, T. 18 S., R. 11 E., three-fourths mile below Lava Island, 1 mile below intake of Arnold Canal, and 6 miles southwest of Bend.

RECORDS AVAILABLE.—March, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,300 second-feet, occurred while clock was not running, probably Feb. 1 (gage height, 1.15 feet); minimum, 882 second-feet Sept. 29 (gage height, 0.65 foot).

1926-1929: Maximum discharge, 1,780 second-feet Jan. 3, 1928 (gage height, 1.55 feet); minimum, 830 second-feet Dec. 24, 1926.

REMARKS.—Records good, except those for estimated period (Dec. 29 to Feb. 28), 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 of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 1,080 | 1,070 | 1,030 | | 990 | 982 | 952 | 1,160 | 1,080 | 1,090 | 1,020 |
| 2 | 1,080 | 1,070 | 1,030 | | 984 | 968 | 945 | 1,120 | 1,090 | 1,100 | 1,020 |
| 3 | 1,080 | 1,080 | 1,030 | | 990 | 968 | 952 | 1,110 | 1,060 | 1,110 | 1,020 |
| 4 | 1,100 | 1,080 | 1,030 | | 978 | 998 | 945 | 1,100 | 1,070 | 1,100 | 1,030 |
| 5 | 1,090 | 1,080 | 1,030 | | 1,010 | 1,010 | 952 | 1,120 | 1,100 | 1,200 | 1,020 |
| 6 | 1,090 | 1,080 | 1,040 | | 1,060 | 1,010 | 952 | 1,140 | 1,110 | 1,200 | 1,010 |
| 7 | 1,090 | 1,080 | 1,040 | | 1,070 | 1,010 | 960 | 1,140 | 1,120 | 1,200 | 1,010 |
| 8 | 1,090 | 1,090 | 1,040 | | 1,080 | 1,010 | 952 | 1,140 | 1,130 | 1,180 | 1,010 |
| 9 | 1,090 | 1,090 | 1,040 | | 1,080 | 998 | 960 | 1,130 | 1,150 | 1,180 | 990 |
| 10 | 1,090 | 1,060 | 1,050 | | 1,080 | 990 | 945 | 1,120 | 1,120 | 1,120 | 998 |
| 11 | 1,090 | 1,060 | 1,060 | | 1,080 | 982 | 930 | 1,120 | 1,160 | 1,120 | 998 |
| 12 | 1,090 | 1,050 | 1,070 | | 1,060 | 975 | 922 | 1,120 | 1,160 | 1,120 | 998 |
| 13 | 1,090 | 1,060 | 1,080 | | 1,060 | 982 | 922 | 1,100 | 1,160 | 1,050 | 990 |
| 14 | 1,090 | 1,060 | 1,100 | | 1,050 | 990 | 938 | 1,090 | 1,160 | 1,020 | 975 |
| 15 | 1,090 | 1,060 | 1,110 | | 1,050 | 998 | 945 | 1,090 | 1,160 | 1,010 | 975 |
| 16 | 1,090 | 1,060 | 1,100 | | 1,040 | 1,010 | 945 | 1,090 | 1,200 | 1,010 | 968 |
| 17 | 1,090 | 1,050 | 1,100 | | 1,030 | 1,010 | 960 | 1,080 | 1,200 | 1,030 | 968 |
| 18 | 1,090 | 1,050 | 1,100 | | 1,030 | 1,010 | 968 | 1,070 | 1,200 | 1,090 | 968 |
| 19 | 1,090 | 1,050 | 1,080 | | 1,040 | 1,040 | 968 | 1,080 | 1,160 | 1,090 | 960 |
| 20 | 1,080 | 1,040 | 1,080 | | 1,050 | 1,030 | 975 | 1,080 | 1,160 | 1,090 | 938 |
| 21 | 1,090 | 1,030 | 1,080 | | 1,080 | 1,010 | 1,010 | 1,080 | 1,160 | 1,100 | 930 |
| 22 | 1,090 | 1,020 | 1,080 | | 1,090 | 1,010 | 1,050 | 1,060 | 1,160 | 1,090 | 930 |
| 23 | 1,090 | 1,030 | 1,080 | 1,160 | 1,100 | 1,020 | 1,080 | 1,060 | 1,160 | 1,090 | 930 |
| 24 | 1,110 | 1,030 | 1,080 | | 1,160 | 1,030 | 1,080 | 1,050 | 1,200 | 1,080 | 915 |
| 25 | 1,130 | 1,030 | 1,090 | | 1,140 | 1,020 | 1,090 | 1,050 | 1,200 | 1,080 | 915 |
| 26 | 1,120 | 1,030 | 1,080 | 1,200 | 1,100 | 1,030 | 1,120 | 1,080 | 1,160 | 1,060 | 902 |
| 27 | 1,120 | 1,030 | 1,060 | | 1,050 | 1,020 | 1,140 | 1,100 | 1,160 | 1,060 | 896 |
| 28 | 1,120 | 1,040 | 1,060 | | 1,040 | 998 | 1,160 | 1,110 | 1,200 | 1,060 | 896 |
| 29 | 1,110 | 1,030 | 1,060 | | 1,030 | 982 | 1,160 | 1,110 | 1,160 | 1,060 | 896 |
| 30 | 1,070 | 1,030 | 1,070 | | 1,010 | 960 | 1,160 | 1,110 | 1,090 | 1,050 | 896 |
| 31 | 1,080 | | 1,070 | | 998 | | 1,160 | | 1,070 | 1,030 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|---------|----------------------|
| October | 1,130 | 1,070 | 1,090 | 67,000 |
| November | 1,090 | 1,020 | 1,050 | 62,500 |
| December | 1,110 | 1,030 | 1,070 | 65,800 |
| January | | | * 1,040 | 64,000 |
| February | | | * 960 | 53,300 |
| March | 1,160 | 978 | 1,050 | 64,600 |
| April | 1,040 | 960 | 1,000 | 59,500 |
| May | 1,160 | 922 | 1,010 | 62,100 |
| June | 1,160 | 1,050 | 1,100 | 65,500 |
| July | 1,200 | 1,060 | 1,140 | 70,100 |
| August | 1,200 | 1,010 | 1,090 | 67,000 |
| September | 1,030 | 896 | 966 | 57,500 |
| The year | | 896 | 1,050 | 760,000 |

* Estimated.

NOTE.—No records during periods for which no daily discharge is given.

DESCHUTES RIVER BELOW BEND, OREG.

LOCATION.—Water-stage recorder in SE. ¼ 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, 1929.

EXTREMES.—Maximum discharge during year, 1,320 second-feet Feb. 2 (gage height, 2.14 feet); minimum, 2 second-feet, somewhat uncertain, Aug. 14 and 15 (gage height, —0.37 foot).

1914-1929: Maximum discharge, 2,500 second-feet Dec. 7, 1921 (gage height, 2.90 feet); minimum, that of Aug. 14 and 15, 1929.

Maximum discharge of river in this vicinity since 1905, 4,820 second-feet Nov. 27, 1909; no diversions.

REMARKS.—Records good, except those for estimated periods (Oct. 1-17, Feb. 22-27, July 21, 22, 24-26, and Aug. 1), which are fair. Six large canals divert above station. Flow regulated by hydroelectric plant at Bend and storage in Crescent Lake and Crane Prairie Reservoirs. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|------|-------|-------|-------|-------|---------|---------|-------|------|-------------------------|------|-------|
| 1..... | | 668 | 660 | 1,090 | 971 | 971 | 953 | 116 | 172 | 89 | 10 | 180 |
| 2..... | | 1,030 | 736 | 1,090 | 1,190 | 962 | 926 | 124 | 139 | 130 | 16 | 201 |
| 3..... | | 1,030 | 1,050 | 1,090 | 1,040 | 1,010 | 953 | 133 | 139 | 165 | 13 | 210 |
| 4..... | | 1,040 | 1,060 | 1,100 | 1,020 | 953 | 998 | 124 | 130 | 119 | 7 | 205 |
| 5..... | | 1,050 | 1,080 | 1,090 | 1,020 | 998 | 1,020 | 161 | 161 | 133 | 134 | 205 |
| 6..... | | 1,050 | 1,090 | 1,080 | 1,010 | 1,040 | 1,030 | 161 | 189 | 127 | 193 | 184 |
| 7..... | | 1,070 | 1,070 | 1,080 | 890 | 1,040 | 1,030 | 169 | 205 | 124 | 180 | 180 |
| 8..... | | 1,080 | 1,050 | 1,050 | 935 | 1,040 | 845 | 136 | 218 | 119 | 176 | 176 |
| 9..... | | 1,070 | 1,040 | 1,050 | 917 | 1,020 | 608 | 133 | 197 | 127 | 169 | 110 |
| 10..... | 337 | 1,080 | 1,060 | 1,080 | 998 | 1,020 | 585 | 119 | 184 | 97 | 124 | 127 |
| 11..... | | 1,090 | 1,060 | 1,070 | 1,040 | 1,010 | 563 | 105 | 176 | 107 | 119 | 158 |
| 12..... | | 1,090 | 1,060 | 1,090 | 1,030 | 926 | 542 | 105 | 161 | 119 | 122 | 143 |
| 13..... | | 1,100 | 1,050 | 1,100 | 1,020 | 899 | 535 | 127 | 127 | 130 | 32 | 189 |
| 14..... | | 1,100 | 1,100 | 1,100 | 1,010 | 881 | 535 | 158 | 94 | 205 | 2 | 227 |
| 15..... | | 1,100 | 1,100 | 1,050 | 989 | 890 | 549 | 133 | 94 | 180 | 2 | 189 |
| 16..... | | 1,100 | 1,100 | 1,050 | 872 | 728 | 514 | 139 | 92 | 184 | 10 | 189 |
| 17..... | | 1,090 | 1,100 | 1,060 | 863 | 528 | 442 | 139 | 87 | 169 | 10 | 176 |
| 18..... | 487 | 1,080 | 1,080 | 1,050 | 872 | 535 | 405 | 139 | 92 | 150 | 73 | 165 |
| 19..... | 500 | 1,070 | 1,050 | 1,050 | 863 | 542 | 507 | 139 | 127 | 139 | 158 | 161 |
| 20..... | 500 | 1,070 | 1,040 | 926 | 768 | 535 | 660 | 143 | 139 | 139 | 161 | 150 |
| 21..... | 500 | 1,070 | 1,060 | 863 | 768 | 908 | 387 | 180 | 130 | 150 | 184 | 139 |
| 22..... | 535 | 1,070 | 1,070 | 908 | | 989 | 323 | 223 | 127 | 150 | 189 | 139 |
| 23..... | 500 | 1,070 | 1,050 | 1,100 | | 971 | 312 | 184 | 122 | 153 | 172 | 133 |
| 24..... | 500 | 1,060 | 1,040 | 998 | | 1,070 | 296 | 172 | 102 | 200 | 176 | 130 |
| 25..... | 528 | 1,070 | 1,070 | 827 | 700 | 1,090 | 251 | 139 | 100 | 190 | 205 | 127 |
| 26..... | 514 | 1,070 | 827 | 728 | | 1,050 | 214 | 165 | 97 | 150 | 197 | 124 |
| 27..... | 556 | 1,060 | 645 | 827 | | 1,030 | 214 | 189 | 75 | 158 | 180 | 130 |
| 28..... | 474 | 935 | 760 | 899 | 827 | 1,020 | 184 | 197 | 94 | 161 | 184 | 139 |
| 29..... | 461 | 682 | 1,080 | 989 | | 1,020 | 150 | 223 | 150 | 161 | 176 | 150 |
| 30..... | 480 | 682 | 1,080 | 998 | | 1,020 | 139 | 193 | 130 | 44 | 180 | 165 |
| 31..... | 480 | | 1,090 | 971 | | 953 | | 165 | | 5 | 169 | |
| Month | | | | | | Maximum | Minimum | Mean | | Run-off in acre-feet | | |
| October..... | | | | | | 556 | | 411 | | 25,300 | | |
| November..... | | | | | | 1,100 | 668 | 1,030 | | 61,300 | | |
| December..... | | | | | | 1,100 | 645 | 1,010 | | 62,100 | | |
| January..... | | | | | | 1,100 | 728 | 1,010 | | 62,100 | | |
| February..... | | | | | | 1,190 | | 897 | | 49,800 | | |
| March..... | | | | | | 1,090 | 528 | 924 | | 56,800 | | |
| April..... | | | | | | 1,030 | 139 | 556 | | 33,100 | | |
| May..... | | | | | | 223 | 105 | 153 | | 9,410 | | |
| June..... | | | | | | 218 | 75 | 135 | | 8,030 | | |
| July..... | | | | | | 205 | 5 | 138 | | 8,480 | | |
| August..... | | | | | | 205 | 2 | 120 | | 7,380 | | |
| September..... | | | | | | 227 | 110 | 163 | | 9,700 | | |
| The year..... | | | | | | 1,190 | 2 | 544 | | 394,000 | | |

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, 1929.

EXTREMES.—Maximum discharge during year, 5,820 second-feet Mar. 23 (gage height, 2.74 feet); minimum, 3,240 second-feet Sept. 28 (gage height, 0.44 foot).

1923-1929: Maximum discharge, 10,700 second-feet Feb. 6, 1925 (gage height, 6.54 feet); minimum, 3,220 second-feet Aug. 21, 22, 30, Sept. 1 and 2, 1926 (gage height, 0.34 foot).

REMARKS.—Records excellent. Discharge estimated Dec. 1-3, July 3, 4, Aug. 15 and 16. Diversions for irrigation near Bend and Prineville. Gage-height record furnished by Columbia Valley Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | | | | |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|---------|-------|----------------------|
| 1 | 3,660 | 3,910 | 4,060 | 4,470 | 4,260 | 4,360 | 4,560 | 4,210 | 3,570 | 3,670 | 3,370 | 3,390 | | | | |
| 2 | 3,660 | 4,260 | 4,060 | 4,470 | 4,470 | 4,360 | 4,440 | 4,040 | 3,570 | 3,620 | 3,340 | 3,380 | | | | |
| 3 | 3,660 | 4,470 | 4,260 | 4,470 | 4,470 | 4,360 | 4,440 | 4,040 | 3,520 | 3,600 | 3,330 | 3,390 | | | | |
| 4 | 3,710 | 4,360 | 4,470 | 4,470 | 4,360 | 4,470 | 4,560 | 3,990 | 3,570 | 3,590 | 3,310 | 3,400 | | | | |
| 5 | 3,760 | 4,360 | 4,470 | 4,470 | 4,360 | 4,700 | 4,690 | 3,940 | 3,670 | 3,570 | 3,290 | 3,410 | | | | |
| 6 | 3,760 | 4,360 | 4,470 | 4,360 | 4,360 | 4,820 | 4,690 | 3,940 | 3,670 | 3,570 | 3,310 | 3,390 | | | | |
| 7 | 3,860 | 4,360 | 4,470 | 4,360 | 4,260 | 4,940 | 4,560 | 3,880 | 3,670 | 3,520 | 3,450 | 3,370 | | | | |
| 8 | 3,860 | 4,360 | 4,470 | 4,360 | 4,060 | 4,940 | 4,560 | 3,880 | 3,720 | 3,520 | 3,450 | 3,360 | | | | |
| 9 | 3,810 | 4,700 | 4,470 | 4,360 | 4,110 | 4,820 | 4,100 | 3,770 | 3,770 | 3,470 | 3,430 | 3,360 | | | | |
| 10 | 3,860 | 4,470 | 4,470 | 4,360 | 4,160 | 4,820 | 4,040 | 3,720 | 3,820 | 3,470 | 3,420 | 3,320 | | | | |
| 11 | 3,910 | 4,470 | 4,470 | 4,360 | 4,260 | 4,940 | 4,040 | 3,670 | 3,820 | 3,450 | 3,410 | 3,310 | | | | |
| 12 | 3,910 | 4,470 | 4,470 | 4,360 | 4,360 | 4,940 | 3,990 | 3,620 | 3,820 | 3,430 | 3,380 | 3,340 | | | | |
| 13 | 3,910 | 4,470 | 4,360 | 4,360 | 4,360 | 4,700 | 3,990 | 3,670 | 3,820 | 3,440 | 3,370 | 3,370 | | | | |
| 14 | 3,910 | 4,470 | 4,470 | 4,360 | 4,360 | 4,700 | 4,040 | 3,720 | 3,880 | 3,470 | 3,350 | 3,380 | | | | |
| 15 | 3,960 | 4,470 | 4,470 | 4,360 | 4,360 | 4,580 | 3,990 | 3,720 | 4,100 | 3,520 | 3,330 | 3,430 | | | | |
| 16 | 4,060 | 4,470 | 4,470 | 4,360 | 4,360 | 4,470 | 4,210 | 3,770 | 4,210 | 3,470 | 3,320 | 3,410 | | | | |
| 17 | 4,010 | 4,470 | 4,470 | 4,360 | 4,360 | 4,260 | 4,210 | 3,770 | 3,820 | 3,470 | 3,300 | 3,390 | | | | |
| 18 | 3,960 | 4,470 | 4,360 | 4,360 | 4,360 | 4,260 | 4,210 | 3,720 | 3,670 | 3,470 | 3,300 | 3,360 | | | | |
| 19 | 3,960 | 4,470 | 4,360 | 4,360 | 4,360 | 4,360 | 4,100 | 3,720 | 3,670 | 3,470 | 3,270 | 3,370 | | | | |
| 20 | 3,910 | 4,470 | 4,360 | 4,160 | 4,160 | 4,360 | 4,560 | 3,720 | 3,670 | 3,450 | 3,360 | 3,370 | | | | |
| 21 | 3,910 | 4,470 | 4,360 | 4,110 | 4,160 | 4,940 | 4,820 | 3,770 | 3,670 | 3,450 | 3,400 | 3,330 | | | | |
| 22 | 3,960 | 4,470 | 4,360 | 4,230 | 4,160 | 5,560 | 4,560 | 3,820 | 3,620 | 3,460 | 3,420 | 3,310 | | | | |
| 23 | 3,960 | 4,470 | 4,360 | 4,260 | 4,160 | 5,690 | 4,690 | 3,880 | 3,620 | 3,470 | 3,430 | 3,310 | | | | |
| 24 | 3,910 | 4,470 | 4,360 | 4,470 | 4,160 | 5,190 | 4,690 | 3,880 | 3,570 | 3,470 | 3,400 | 3,310 | | | | |
| 25 | 3,960 | 4,470 | 4,470 | 4,470 | 4,160 | 4,940 | 4,560 | 3,770 | 3,620 | 3,470 | 3,410 | 3,300 | | | | |
| 26 | 3,960 | 4,470 | 4,360 | 4,260 | 4,110 | 4,820 | 4,440 | 3,670 | 3,620 | 3,470 | 3,420 | 3,310 | | | | |
| 27 | 3,960 | 4,470 | 4,160 | 4,260 | 4,160 | 4,690 | 4,320 | 3,620 | 3,620 | 3,450 | 3,430 | 3,300 | | | | |
| 28 | 3,960 | 4,470 | 4,060 | 4,260 | 4,260 | 4,690 | 4,440 | 3,620 | 3,570 | 3,450 | 3,420 | 3,290 | | | | |
| 29 | 3,910 | 4,110 | 4,360 | 4,360 | 4,360 | 4,940 | 4,320 | 3,620 | 3,620 | 3,450 | 3,430 | 3,300 | | | | |
| 30 | 4,010 | 4,060 | 4,470 | 4,360 | 4,360 | 5,060 | 4,210 | 3,620 | 3,720 | 3,450 | 3,430 | 3,310 | | | | |
| 31 | 3,910 | 4,470 | 4,470 | 4,360 | 4,360 | 4,820 | 3,620 | 3,620 | 3,620 | 3,450 | 3,440 | 3,310 | | | | |
| Month | | | | | | | | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet |
| October | | | | | | | | | | | | | 4,060 | 3,660 | 3,890 | 239,000 |
| November | | | | | | | | | | | | | 4,700 | 3,910 | 4,410 | 262,000 |
| December | | | | | | | | | | | | | 4,470 | 4,060 | 4,380 | 269,000 |
| January | | | | | | | | | | | | | 4,470 | 4,110 | 4,350 | 267,000 |
| February | | | | | | | | | | | | | 4,470 | 4,060 | 4,270 | 237,000 |
| March | | | | | | | | | | | | | 5,690 | 4,260 | 4,760 | 293,000 |
| April | | | | | | | | | | | | | 4,820 | 3,990 | 4,370 | 260,000 |
| May | | | | | | | | | | | | | 4,210 | 3,620 | 3,790 | 233,000 |
| June | | | | | | | | | | | | | 4,210 | 3,520 | 3,710 | 221,000 |
| July | | | | | | | | | | | | | 3,670 | 3,430 | 3,490 | 215,000 |
| August | | | | | | | | | | | | | 3,450 | 3,270 | 3,380 | 208,000 |
| September | | | | | | | | | | | | | 3,430 | 3,290 | 3,350 | 199,000 |
| The year | | | | | | | | | | | | | 5,690 | 3,270 | 4,010 | 2,900,000 |

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, 1929; incomplete.

EXTREMES.—Maximum discharge, 7,060 second-feet Mar. 23 (gage height, 2.62 feet); minimum, 3,630 second-feet Aug. 19 and 20 (gage height, 0.74 foot).

1923-1929: Maximum discharge (estimated), 32,000 second-feet Feb. 21, 1927; minimum, that of Aug. 19 and 20, 1929.

REMARKS.—Records good. Diversions for irrigation near Bend and Prineville. Gage-height record furnished by Deschutes Falls Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 3,930 | 4,360 | 4,590 | 5,170 | 4,860 | 5,400 | 5,910 | 5,910 | 4,860 | 4,510 | 3,820 | 3,740 |
| 2 | 3,930 | 4,290 | 4,510 | 5,170 | 4,960 | 6,760 | 5,650 | 5,910 | 4,860 | 4,360 | 3,770 | 3,730 |
| 3 | 3,960 | 4,960 | 4,590 | 5,280 | 5,170 | 6,470 | 5,650 | 5,910 | 4,680 | 4,290 | 3,730 | 3,710 |
| 4 | 3,980 | 4,960 | 4,960 | 5,280 | 5,280 | 6,470 | 5,650 | 5,910 | 4,770 | 4,360 | 3,710 | 3,730 |
| 5 | 4,220 | 4,960 | 5,060 | 5,170 | 4,860 | 6,190 | 5,650 | 5,910 | 4,860 | 4,220 | 3,700 | 3,730 |
| 6 | 4,160 | 4,960 | 4,960 | 5,060 | 4,770 | 6,190 | 5,650 | 5,650 | 4,960 | 4,160 | 3,680 | 3,710 |
| 7 | 4,290 | 4,960 | 5,060 | 5,060 | 4,590 | 6,190 | 5,650 | 5,400 | 4,960 | 4,160 | 3,680 | 3,700 |
| 8 | 4,430 | 4,960 | 5,060 | 5,060 | 4,430 | 6,190 | 5,400 | 5,400 | 4,960 | 4,100 | 3,830 | 3,700 |
| 9 | 4,290 | 5,170 | 4,960 | 5,060 | 4,430 | 6,190 | 5,170 | 5,280 | 4,960 | 4,040 | 3,810 | 3,710 |
| 10 | 4,220 | 5,400 | 5,170 | 4,960 | 4,590 | 5,910 | 5,060 | 5,280 | 4,960 | 3,980 | 3,700 | 3,710 |
| 11 | 4,360 | 5,280 | 5,060 | 4,960 | 4,770 | 5,910 | 4,860 | 5,280 | 4,960 | 3,980 | 3,780 | 3,660 |
| 12 | 4,360 | 5,170 | 5,060 | 4,960 | 4,860 | 5,910 | 4,770 | 5,400 | 4,960 | 3,920 | 3,760 | 3,680 |
| 13 | 4,360 | 5,170 | 5,060 | 4,960 | 4,960 | 5,650 | 4,770 | 5,650 | 4,960 | 3,930 | 3,740 | 3,710 |
| 14 | 4,220 | 5,170 | 5,060 | 4,960 | 4,960 | 5,650 | 4,770 | 5,650 | 5,280 | 3,930 | 3,740 | 3,740 |
| 15 | 4,430 | 5,170 | 5,060 | 4,960 | 4,960 | 5,400 | 5,060 | 5,650 | 5,650 | 3,980 | 3,790 | 3,780 |
| 16 | 4,590 | 5,060 | 5,060 | 4,960 | 4,960 | 5,400 | 4,960 | 5,650 | 5,400 | 3,980 | 3,650 | 3,740 |
| 17 | 4,590 | 5,060 | 5,060 | 4,960 | 4,960 | 5,280 | 5,280 | 5,650 | 5,170 | 3,920 | 3,650 | 3,730 |
| 18 | 4,430 | 5,060 | 5,060 | 4,960 | 4,960 | 5,170 | 5,280 | 5,650 | 4,860 | 3,930 | 3,650 | 3,700 |
| 19 | 4,430 | 5,060 | 5,060 | 4,960 | 4,960 | 5,170 | 5,170 | 5,650 | 4,860 | 3,910 | 3,640 | 3,700 |
| 20 | 4,360 | 4,960 | 4,960 | 4,680 | 5,170 | 5,280 | 5,170 | 5,650 | 4,770 | 3,910 | 3,670 | 3,700 |
| 21 | 4,290 | 5,060 | 5,060 | 4,590 | 5,910 | 5,400 | 5,910 | 5,650 | 4,680 | 3,870 | 3,710 | 3,700 |
| 22 | 4,360 | 5,060 | 5,060 | 4,680 | 5,170 | 7,060 | 5,910 | 5,650 | 4,590 | 3,890 | 3,730 | 3,670 |
| 23 | 4,360 | 5,060 | 5,060 | 4,860 | 5,170 | 7,060 | 5,910 | 5,910 | 4,510 | 3,910 | 3,750 | 3,660 |
| 24 | 4,360 | 5,060 | 5,060 | 4,860 | 5,060 | 6,470 | 6,190 | 6,190 | 4,430 | 3,910 | 3,730 | 3,670 |
| 25 | 4,290 | 5,060 | 5,170 | 5,170 | 5,170 | 6,190 | 5,910 | 5,910 | 4,510 | 3,900 | 3,740 | 3,650 |
| 26 | 4,360 | 5,060 | 5,170 | 5,170 | 4,960 | 5,910 | 5,910 | 5,650 | 4,510 | 3,890 | 3,760 | 3,650 |
| 27 | 4,590 | 5,060 | 4,960 | 4,960 | 4,960 | 5,910 | 6,190 | 5,280 | 4,510 | 3,870 | 3,780 | 3,650 |
| 28 | 4,590 | 4,960 | 4,680 | 4,860 | 5,400 | 5,910 | 6,190 | 5,170 | 4,430 | 3,870 | 3,740 | 3,650 |
| 29 | 4,290 | 4,770 | 4,680 | 4,960 | ----- | 6,190 | 6,190 | 5,060 | 4,430 | 3,860 | 3,760 | 3,650 |
| 30 | 4,430 | 4,680 | 5,170 | 4,860 | ----- | 6,190 | 5,910 | 4,960 | 4,510 | 3,870 | 3,740 | 3,670 |
| 31 | 4,360 | ----- | 5,170 | 4,960 | ----- | 6,190 | ----- | 5,060 | ----- | 3,900 | 3,740 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|-------------------------|
| October | 4,590 | 3,930 | 4,320 | 266,000 |
| November | 5,400 | 4,290 | 5,000 | 298,000 |
| December | 5,170 | 4,510 | 4,990 | 307,000 |
| January | 5,280 | 4,590 | 4,980 | 306,000 |
| February | 5,910 | 4,430 | 4,670 | 276,000 |
| March | 7,060 | 5,170 | 5,980 | 368,000 |
| April | 6,190 | 4,770 | 5,520 | 328,000 |
| May | 6,190 | 4,960 | 5,580 | 343,000 |
| June | 5,650 | 4,430 | 4,830 | 287,000 |
| July | 4,510 | 3,850 | 4,010 | 247,000 |
| August | 3,820 | 3,640 | 3,730 | 229,000 |
| September | 3,780 | 3,650 | 3,700 | 220,000 |
| The year | 7,060 | 3,640 | 4,800 | 3,480,000 |

DESRUTES RIVER AT MOODY, NEAR BIGGS, OREG.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 26, T. 2 N., R. 15 E., at Moody, $1\frac{1}{2}$ miles above mouth of river and 5 miles southwest of Biggs.

DRAINAGE AREA.—About 9,180 square miles.

RECORDS AVAILABLE.—July, 1906, to September, 1929.

EXTREMES.—Maximum discharge during year, 7,400 second-feet Mar. 2 (gage height, 3.38 feet); minimum, 3,640 second-feet Aug. 17–23 (gage height, 2.18 feet).

1906–1929: 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. Summer discharge at this station reduced by diversions for irrigation in upper river basin. Gage-height record furnished by Eastern Oregon Land Co.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|---------|-------|-------|-------|-------|---------|-------|-------|-------|-------|----------------------|-------|
| 1..... | 4,080 | 4,380 | 4,510 | 5,080 | 4,790 | 6,350 | 6,020 | 5,700 | 5,080 | 4,380 | 3,850 | 3,680 |
| 2..... | 4,040 | 4,380 | 4,510 | 5,080 | 4,790 | 7,400 | 5,700 | 5,700 | 4,940 | 4,260 | 3,860 | 3,680 |
| 3..... | 4,040 | 4,790 | 4,510 | 5,080 | 5,240 | 6,690 | 5,700 | 5,700 | 4,940 | 4,260 | 3,860 | 3,720 |
| 4..... | 4,080 | 4,790 | 4,940 | 5,080 | 4,940 | 7,040 | 5,390 | 5,700 | 4,790 | 4,260 | 3,780 | 3,720 |
| 5..... | 4,220 | 4,790 | 4,940 | 5,080 | 4,650 | 6,690 | 5,390 | 5,390 | 4,790 | 4,260 | 3,780 | 3,720 |
| 6..... | 4,220 | 4,790 | 4,940 | 4,940 | 4,790 | 6,350 | 5,390 | 5,390 | 4,940 | 4,260 | 3,780 | 3,720 |
| 7..... | 4,220 | 4,790 | 4,940 | 4,940 | 4,790 | 6,020 | 5,390 | 5,390 | 4,940 | 4,260 | 3,780 | 3,720 |
| 8..... | 4,220 | 4,790 | 4,790 | 4,940 | 4,510 | 6,020 | 5,390 | 5,390 | 4,940 | 4,260 | 3,780 | 3,720 |
| 9..... | 4,260 | 5,080 | 5,080 | 4,940 | 4,380 | 6,020 | 5,390 | 5,390 | 4,940 | 4,150 | 3,780 | 3,720 |
| 10..... | 4,260 | 5,700 | 5,080 | 4,790 | 4,380 | 6,020 | 4,940 | 5,080 | 5,080 | 4,150 | 3,780 | 3,780 |
| 11..... | 4,260 | 5,390 | 5,080 | 4,790 | 4,650 | 6,020 | 4,790 | 5,080 | 5,080 | 4,080 | 3,780 | 3,780 |
| 12..... | 4,260 | 5,080 | 5,080 | 4,790 | 4,790 | 5,700 | 4,790 | 5,240 | 4,790 | 4,040 | 3,720 | 3,780 |
| 13..... | 4,260 | 5,080 | 5,080 | 4,790 | 4,790 | 5,700 | 4,650 | 5,390 | 5,080 | 4,040 | 3,720 | 3,780 |
| 14..... | 4,260 | 5,080 | 4,940 | 4,790 | 4,940 | 5,390 | 4,650 | 5,390 | 5,080 | 4,040 | 3,680 | 3,780 |
| 15..... | 4,380 | 5,080 | 4,940 | 4,940 | 5,080 | 5,390 | 4,790 | 5,390 | 5,080 | 4,040 | 3,680 | 3,780 |
| 16..... | 4,510 | 5,080 | 5,080 | 4,790 | 5,080 | 5,390 | 4,790 | 5,700 | 5,080 | 4,040 | 3,680 | 3,780 |
| 17..... | 4,510 | 5,080 | 4,940 | 4,790 | 5,080 | 5,080 | 5,080 | 5,700 | 5,080 | 4,040 | 3,640 | 3,780 |
| 18..... | 4,380 | 5,080 | 4,790 | 4,790 | 5,080 | 5,080 | 4,940 | 5,390 | 4,790 | 4,040 | 3,640 | 3,780 |
| 19..... | 4,380 | 5,080 | 4,790 | 4,790 | 5,080 | 5,080 | 4,940 | 5,390 | 4,790 | 4,040 | 3,640 | 3,720 |
| 20..... | 4,260 | 4,940 | 4,790 | 4,650 | 5,080 | 5,080 | 5,080 | 5,390 | 4,790 | 4,040 | 3,640 | 3,720 |
| 21..... | 4,260 | 4,940 | 4,790 | 4,260 | 5,390 | 6,350 | 5,700 | 5,700 | 4,650 | 4,040 | 3,640 | 3,720 |
| 22..... | 4,260 | 4,940 | 4,940 | 4,510 | 5,080 | 6,690 | 5,700 | 5,700 | 4,650 | 4,040 | 3,640 | 3,720 |
| 23..... | 4,260 | 5,080 | 5,080 | 4,790 | 5,390 | 7,040 | 5,700 | 6,020 | 4,510 | 4,000 | 3,640 | 3,720 |
| 24..... | 4,260 | 5,080 | 5,080 | 5,080 | 5,390 | 6,690 | 6,020 | 6,020 | 4,510 | 4,000 | 3,680 | 3,680 |
| 25..... | 4,260 | 4,940 | 5,080 | 5,080 | 5,700 | 6,020 | 6,020 | 6,020 | 4,510 | 4,000 | 3,680 | 3,680 |
| 26..... | 4,260 | 4,940 | 5,080 | 5,080 | 5,080 | 6,020 | 6,020 | 6,020 | 4,510 | 4,900 | 3,680 | 3,680 |
| 27..... | 4,260 | 5,080 | 5,080 | 4,790 | 4,790 | 5,700 | 6,020 | 6,020 | 4,510 | 4,000 | 3,680 | 3,680 |
| 28..... | 4,260 | 5,080 | 4,650 | 4,790 | 5,390 | 5,700 | 6,020 | 5,390 | 4,510 | 4,000 | 3,680 | 3,720 |
| 29..... | 4,260 | 4,650 | 4,650 | 4,650 | ----- | 5,700 | 6,020 | 5,240 | 4,510 | 4,000 | 3,680 | 3,720 |
| 30..... | 4,380 | 4,510 | 5,080 | 4,790 | ----- | 6,020 | 6,020 | 5,080 | 4,510 | 4,000 | 3,680 | 3,720 |
| 31..... | 4,380 | ----- | 5,080 | 4,940 | ----- | 6,020 | ----- | 5,080 | ----- | 4,000 | 3,680 | ----- |
| Month | Maximum | | | | | Minimum | | | Mean | | Run-off in acre-feet | |
| October..... | 4,510 | | | | | 4,040 | | | 4,260 | | 262,000 | |
| November..... | 5,700 | | | | | 4,380 | | | 4,950 | | 295,000 | |
| December..... | 5,080 | | | | | 4,510 | | | 4,910 | | 302,000 | |
| January..... | 5,080 | | | | | 4,260 | | | 4,860 | | 299,000 | |
| February..... | 5,700 | | | | | 4,380 | | | 4,970 | | 276,000 | |
| March..... | 7,400 | | | | | 5,080 | | | 6,010 | | 370,000 | |
| April..... | 6,020 | | | | | 4,650 | | | 5,410 | | 322,000 | |
| May..... | 6,020 | | | | | 5,080 | | | 5,520 | | 339,000 | |
| June..... | 5,080 | | | | | 4,510 | | | 4,810 | | 286,000 | |
| July..... | 4,380 | | | | | 4,000 | | | 4,100 | | 252,000 | |
| August..... | 3,850 | | | | | 3,640 | | | 3,720 | | 229,000 | |
| September..... | 3,780 | | | | | 3,680 | | | 3,730 | | 222,000 | |
| The year..... | 7,400 | | | | | 3,640 | | | 4,770 | | 3,450,000 | |

LITTLE DESCHUTES RIVER NEAR LAPINE, OREG.

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

RECORDS AVAILABLE.—September, 1910, to October, 1913, fragmentary; June to November, 1918; August to October, 1920; May, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, 336 second-feet May 28 (gage height, 2.64 feet); minimum, 37 second-feet Dec. 18 (gage height, 0.52 foot). 1910–1913, 1918, 1920, 1924–1929: Maximum discharge, 760 second-feet about June 12, 1912; maximum gage height, 4.98 feet May 21, 1927; minimum discharge, 28 second-feet June 7, 1926.

REMARKS.—Records fair, except those estimated (Nov. 20 to Mar. 21, May 10–19, 22–27, and Sept. 12–14), which are poor. Small diversions for irrigation above station. Flow regulated by storage in Crescent Lake Reservoir. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 66 | 62 | | 114 | 163 | 271 | 203 | 228 | 188 |
| 2..... | 66 | 62 | | 114 | 159 | 247 | 196 | 228 | 188 |
| 3..... | 66 | 58 | | 119 | 163 | 232 | 189 | 228 | 162 |
| 4..... | 66 | 62 | | 124 | 170 | 240 | 182 | 228 | 156 |
| 5..... | 74 | 70 | | 134 | 170 | 240 | 182 | 220 | 150 |
| 6..... | 74 | 70 | | 122 | 170 | 217 | 189 | 220 | 150 |
| 7..... | 78 | 70 | | 112 | 170 | 203 | 213 | 228 | 145 |
| 8..... | 74 | 66 | | 107 | 156 | 210 | 235 | 228 | 140 |
| 9..... | 70 | 70 | | 102 | 145 | 232 | 258 | 228 | 145 |
| 10..... | 66 | 78 | | 98 | | 217 | 274 | 235 | 140 |
| 11..... | 66 | 82 | 120 | 100 | | 203 | 298 | 228 | 140 |
| 12..... | 66 | 86 | | 98 | | 196 | 324 | 220 | 130 |
| 13..... | 62 | 82 | | 96 | | 189 | 282 | 220 | 120 |
| 14..... | 62 | 82 | | 100 | 140 | 182 | 235 | 220 | 110 |
| 15..... | 62 | 82 | | 118 | | 182 | 228 | 220 | 99 |
| 16..... | 62 | 78 | | 135 | | 196 | 228 | 228 | 99 |
| 17..... | 62 | 78 | | 138 | | 210 | 220 | 228 | 99 |
| 18..... | 62 | 70 | | 138 | | 217 | 220 | 228 | 76 |
| 19..... | 62 | 62 | | 138 | | 210 | 213 | 228 | 63 |
| 20..... | 58 | | | 140 | 160 | 210 | 213 | 220 | 59 |
| 21..... | 58 | | | 153 | 163 | 196 | 213 | 213 | 56 |
| 22..... | 58 | | 271 | 170 | | 182 | 220 | 213 | 54 |
| 23..... | 55 | | 255 | 163 | | 176 | 220 | 206 | 54 |
| 24..... | 55 | | 232 | 156 | | 210 | 220 | 200 | 53 |
| 25..... | 55 | 55 | 176 | 156 | 245 | 217 | 220 | 200 | 53 |
| 26..... | 55 | | 144 | 139 | | 210 | 220 | 200 | 53 |
| 27..... | 52 | | 128 | 132 | | 210 | 220 | 200 | 53 |
| 28..... | 52 | | 132 | 138 | 327 | 210 | 228 | 200 | 52 |
| 29..... | 48 | | 154 | 145 | 327 | 210 | 228 | 186 | 52 |
| 30..... | 55 | | 144 | 162 | 311 | 203 | 228 | 184 | 50 |
| 31..... | 58 | | 125 | | 287 | | 228 | 168 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|-------------------------|
| October..... | 78 | 48 | 62.1 | 3,820 |
| November..... | 82 | | 65.8 | 3,920 |
| December..... | | | * 45 | 2,770 |
| January..... | | | * 35 | 2,150 |
| February..... | | | * 30 | 1,670 |
| March..... | | | 138 | 8,480 |
| April..... | 170 | 96 | 129 | 7,680 |
| May..... | 327 | | 191 | 11,700 |
| June..... | 271 | 176 | 211 | 12,600 |
| July..... | 324 | 182 | 227 | 14,000 |
| August..... | 235 | 134 | 214 | 13,200 |
| September..... | 168 | 50 | 102 | 6,070 |
| The year..... | 327 | | 121 | 88,100 |

* 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, 1929.

EXTREMES.—Maximum elevation during year, 4,841.02 feet May 25 (contents, 51,448 acre-feet); minimum, 4,832.60 feet Sept. 10 (contents, 21,965 acre-feet).

1922-1929: Maximum elevation, 4,845.55 feet July 15, 1923 (contents, 67,760 acre-feet); minimum, that of Sept. 10, 1929.

REMARKS.—Water stored in Crescent Lake Reservoir is used by Deschutes County Municipal Improvement District through its canal diverting from Deschutes River at Bend. Gates in dam were opened May 20 and closed Sept. 16. Records furnished by State engineer of Oregon.

Monthly elevation and contents of Crescent Lake Reservoir near Crescent, Oreg., 1928-29

| Date | Elevation | Contents | Gain or loss during month | Date | Elevation | Contents | Gain or loss during month |
|--------------|-------------|------------------|---------------------------|---------------|-------------|------------------|---------------------------|
| | <i>Feet</i> | <i>Acre-feet</i> | <i>Acre-feet</i> | | <i>Feet</i> | <i>Acre-feet</i> | <i>Acre-feet</i> |
| Oct. 31..... | 4,838.67 | 43,077 | +2,277 | May 31..... | | * 51,304 | +1,470 |
| Nov. 30..... | | * 44,760 | +1,683 | June 30..... | | * 50,176 | -1,126 |
| Dec. 31..... | | * 46,439 | +1,679 | July 31..... | 4,837.00 | 37,185 | -12,993 |
| Jan. 31..... | | * 48,322 | +1,883 | Aug. 31..... | 4,833.46 | 25,591 | -11,594 |
| Feb. 29..... | | * 48,712 | +390 | Sept. 30..... | 4,833.12 | 24,425 | -1,166 |
| Mar. 31..... | | * 49,415 | +703 | The year..... | | | -16,375 |
| Apr. 30..... | | * 49,834 | +419 | | | | |

* Interpolated from gage readings made about once a week.

CRESCENT CREEK AT CRESCENT LAKE, NEAR CRESCENT, OREG.

LOCATION.—Staff gage 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, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 313 second-feet July 9 (gage height, 2.73 feet); practically dry, Oct. 1 to May 19.

1911-1915, 1927-1929: Maximum discharge, that of July 9, 1929; no flow at times.

REMARKS.—Records good. Flow regulated by storage in Crescent Lake Reservoir, this storage being released May 20 to Sept. 16 for Deschutes County Municipal Improvement District canal near Bend. Records furnished by State engineer of Oregon.

Daily discharge, in second-feet, 1928-29

| Day | May | June | July | Aug. | Sept. | Day | May | June | July | Aug. | Sept. |
|---------|-----|------|------|------|-------|---------|-----|------|------|------|-------|
| 1..... | 0 | 87 | 134 | 203 | 130 | 16..... | 0 | 68 | 186 | 209 | 28 |
| 2..... | 0 | 86 | 138 | 205 | 129 | 17..... | 0 | 67 | 184 | 209 | |
| 3..... | 0 | 88 | 136 | 203 | 124 | 18..... | 0 | 68 | 184 | 197 | |
| 4..... | 0 | 70 | 134 | 197 | 118 | 19..... | 0 | 67 | 182 | 197 | |
| 5..... | 0 | 66 | 172 | 201 | 112 | 20..... | 37 | 67 | 194 | 199 | |
| 6..... | 0 | 65 | 239 | 199 | 106 | 21..... | | 67 | 205 | 197 | |
| 7..... | 0 | 65 | 252 | 203 | 100 | 22..... | | 106 | 205 | 194 | |
| 8..... | 0 | 65 | 275 | 209 | 96 | 23..... | | 146 | 205 | 192 | |
| 9..... | 0 | 65 | 294 | 207 | 91 | 24..... | 89 | 138 | 205 | 194 | 2 |
| 10..... | 0 | 65 | 311 | 205 | 73 | 25..... | | 138 | 205 | 186 | |
| 11..... | 0 | 69 | 282 | 203 | 51 | 26..... | | 138 | 203 | 180 | |
| 12..... | 0 | 69 | 192 | 199 | 51 | 27..... | 103 | 138 | 203 | 176 | |
| 13..... | 0 | 68 | 192 | 203 | 51 | 28..... | 124 | 138 | 205 | 112 | |
| 14..... | 0 | 68 | 194 | 201 | 51 | 29..... | 131 | 136 | 205 | 111 | |
| 15..... | 0 | 68 | 188 | 203 | 52 | 30..... | 103 | 134 | 205 | 138 | |
| | | | | | | 31..... | 88 | | 205 | 131 | |

Monthly discharge, in second-feet, of Crescent Creek at Crescent Lake, near Crescent, Oreg., 1928-29

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| May..... | 131 | 0 | 36.1 | 2,220 |
| June..... | 146 | 65 | 89.3 | 5,310 |
| July..... | 311 | 134 | 204 | 12,500 |
| August..... | 209 | 111 | 189 | 11,600 |
| September..... | | | 46.4 | 2,760 |
| The year..... | 311 | 0 | 47.5 | 34,400 |

NOTE.—Creek practically dry on days for which no discharge is given.

DIVERSIONS FROM DESCHUTES RIVER NEAR BEND, OREG.

The following canals divert from Deschutes River between the gaging station at Benham Falls and the 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, 1929; records for some of the canals published separately prior to October, 1926.

Records furnished by State engineer of Oregon.

Monthly diversions, in acre-feet, from Deschutes River near Bend, Oreg., 1928-29

| Month | Arnold Canal | Central Oregon Canal | Pilot Butte Canal | Deschutes County Municipal Improvement District Canal | North Canal | Swalley Canal | Total |
|----------------|--------------|----------------------|-------------------|-------------------------------------------------------|-------------|---------------|---------|
| October..... | 4,080 | 17,000 | 916 | 2,050 | 16,500 | 3,790 | 44,336 |
| November..... | 2,880 | 1,290 | 65 | 0 | 1,210 | 2,360 | 7,805 |
| December..... | 1,140 | 1,720 | 117 | 0 | 1,860 | 228 | 5,065 |
| January..... | 295 | 381 | 37 | 0 | 596 | 369 | 1,678 |
| February..... | 228 | 1,140 | 178 | 0 | 1,670 | 333 | 3,549 |
| March..... | 775 | 1,730 | 111 | 68 | 1,770 | 123 | 4,577 |
| April..... | 1,260 | 11,100 | 541 | 1,640 | 13,100 | 446 | 28,087 |
| May..... | 5,450 | 21,800 | 972 | 3,060 | 22,600 | 3,260 | 57,142 |
| June..... | 5,580 | 24,400 | 1,090 | 1,180 | 25,600 | 3,970 | 61,820 |
| July..... | 1,740 | 23,100 | 1,080 | 9,590 | 22,800 | 3,970 | 62,280 |
| August..... | 3,680 | 21,500 | 990 | 11,600 | 21,100 | 3,590 | 62,460 |
| September..... | 3,710 | 19,900 | 833 | 6,550 | 18,000 | 3,220 | 52,213 |
| The year..... | 30,818 | 145,061 | 6,930 | 35,738 | 146,806 | 25,659 | 391,012 |

* Estimated.

TUMALO CREEK NEAR BEND, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 23, T. 17 S., R. 11 E., one-fourth mile above diversion dam of Tumalo project, 4 miles above mouth, and 4 miles northwest of Bend.

DRAINAGE AREA.—57 square miles.

RECORDS AVAILABLE.—November, 1913, to September, 1929; also during winters from October, 1906, to April, 1913, except 1909 and 1910.

EXTREMES.—Maximum discharge during year, 431 second-feet June 15 (gage height, 2.52 feet); minimum, 27 second-feet Oct. 1 (gage height, 1.01 feet).
1906-1908, 1911-1929: 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 for estimated periods (Nov. 22, Dec. 2, 3, 18-24, Jan. 4-12, 20-31, Feb. 1, and 3-22), which are fair. Columbia Southern Canal diverts above station. Records furnished by State engineer of Oregon.

Daily discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 28 | 69 | 61 | 59 | 68 | 56 | 61 | 55 | 101 | 131 | 61 | 46 |
| 2..... | 30 | 72 | 61 | 59 | 67 | 58 | 61 | 75 | 97 | 131 | 49 | 46 |
| 3..... | 30 | 80 | 68 | 56 | | 56 | 61 | 95 | 105 | 120 | 45 | 45 |
| 4..... | 32 | 79 | 62 | | | 54 | 61 | 91 | 150 | 109 | 44 | 44 |
| 5..... | 35 | 75 | 80 | | | 52 | 59 | 88 | 139 | 101 | 42 | 44 |
| 6..... | 33 | 70 | 61 | | | 51 | 61 | 86 | 127 | 93 | 42 | 45 |
| 7..... | 50 | 69 | 69 | | | 52 | 59 | 82 | 131 | 84 | 40 | 44 |
| 8..... | 44 | 69 | 69 | 48 | | 54 | 58 | 88 | 169 | 75 | 42 | 45 |
| 9..... | 49 | 84 | 70 | | | 55 | 61 | 93 | 158 | 70 | 50 | 44 |
| 10..... | 77 | 80 | 69 | | | 55 | 56 | 97 | 163 | 70 | 50 | 44 |
| 11..... | 73 | 75 | 62 | | | 52 | 56 | 95 | 163 | 62 | 49 | 44 |
| 12..... | 69 | 72 | 62 | | 48 | 52 | 56 | 97 | 172 | 69 | 50 | 44 |
| 13..... | 70 | 70 | 62 | 59 | | 52 | 55 | 141 | 192 | 69 | 46 | 45 |
| 14..... | 70 | 70 | 62 | 56 | | 51 | 55 | 131 | 290 | 67 | 47 | 44 |
| 15..... | 70 | 70 | 67 | 55 | | 52 | 54 | 127 | 379 | 65 | 46 | 44 |
| 16..... | 72 | 70 | 75 | 52 | | 52 | 52 | 136 | 249 | 61 | 45 | 45 |
| 17..... | 72 | 67 | 62 | 72 | | 54 | 52 | 131 | 152 | 64 | 46 | 46 |
| 18..... | 70 | 70 | 70 | 55 | | 55 | 54 | 136 | 127 | 61 | 52 | 45 |
| 19..... | 69 | 67 | | 67 | | 55 | 58 | 158 | 113 | 46 | 50 | 45 |
| 20..... | 69 | 67 | | | | 64 | 58 | 175 | 118 | 40 | 47 | 61 |
| 21..... | 72 | 67 | 60 | | | 99 | 58 | 186 | 150 | 33 | 47 | 58 |
| 22..... | 73 | 66 | | | | 73 | 56 | 205 | 158 | 35 | 49 | 59 |
| 23..... | 72 | 64 | | | 58 | 64 | 56 | 221 | 163 | 36 | 47 | 58 |
| 24..... | 72 | 64 | | | 42 | 61 | 54 | 228 | 189 | 40 | 46 | 58 |
| 25..... | 70 | 64 | 62 | | 41 | 59 | 49 | 169 | 221 | 47 | 50 | 58 |
| 26..... | 70 | 64 | 65 | 58 | 46 | 55 | 50 | 136 | 211 | 47 | 49 | 58 |
| 27..... | 72 | 64 | 64 | | 47 | 56 | 54 | 120 | 202 | 42 | 49 | 58 |
| 28..... | 70 | 62 | 62 | | 50 | 61 | 58 | 109 | 208 | 40 | 46 | 58 |
| 29..... | 72 | 62 | 59 | | | 58 | 58 | 109 | 178 | 49 | 47 | 59 |
| 30..... | 75 | 62 | 59 | | | 65 | 55 | 120 | 150 | 70 | 47 | 59 |
| 31..... | 70 | | 59 | | | 65 | | 111 | | 59 | 47 | |

*Monthly discharge of Tumalo Creek and Columbia Southern Canal near Bend, Oreg.,
1928-29*

| 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 | 28 | 61.3 | 3, 770 | 498 | 4, 270 |
| November..... | 84 | 62 | 69.5 | 4, 140 | 0 | 4, 140 |
| December..... | 80 | | 63.6 | 3, 910 | 0 | 3, 910 |
| January..... | | | 55.4 | 3, 410 | 0 | 3, 410 |
| February..... | 68 | | 49.2 | 2, 730 | 0 | 2, 730 |
| March..... | 99 | 51 | 58.0 | 3, 570 | 0 | 3, 570 |
| April..... | 61 | 49 | 56.5 | 3, 360 | 143 | 3, 500 |
| May..... | 228 | 55 | 126 | 7, 750 | 1, 300 | 9, 050 |
| June..... | 379 | 97 | 171 | 10, 200 | 2, 340 | 12, 500 |
| July..... | 131 | 33 | 67.3 | 4, 140 | 2, 030 | 6, 170 |
| August..... | 61 | 40 | 47.3 | 2, 910 | 1, 050 | 3, 960 |
| September..... | 61 | 44 | 49.7 | 2, 960 | 476 | 3, 440 |
| The year..... | 379 | 28 | 72.9 | 52, 800 | 7, 840 | 60, 700 |

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 by road above Sisters. Recorder moved 100 feet upstream October 5, 1928; gages not set to same datum.

DRAINAGE AREA.—63 square miles.

RECORDS AVAILABLE.—Irrigation seasons, 1913, 1914, 1916 to 1925; October, 1925, to September, 1929. From July, 1906, to May, 1913, at station below intake of McCallister ditch and 700 feet downstream.

EXTREMES.—Maximum discharge during year, 461 second-feet June 15 (gage height, 2.19 feet); minimum, 24 second-feet Apr. 12 (gage height, 0.72 foot); discharge may have been slightly less at times during periods when stage was affected by ice.

1906-1914, 1916-1929: 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 for periods when stage was affected by ice (Dec. 5-8, 16-31, Jan. 1, 4-31, and Feb. 1-22), and estimated periods, which are poor. Diversions for irrigation above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 66 | 57 | 46 | 45 | | 40 | 36 | 57 | 116 | 238 | 185 | 116 |
| 2..... | 66 | 60 | 43 | 43 | | 40 | 36 | 78 | 113 | 245 | 188 | 102 |
| 3..... | 63 | 62 | 40 | 42 | | 39 | 37 | 80 | 116 | 231 | 175 | 92 |
| 4..... | 60 | 64 | 45 | | | 39 | 34 | 70 | 156 | 216 | 162 | 87 |
| 5..... | 64 | 55 | | | | 40 | 30 | 64 | 153 | 209 | 153 | 92 |
| 6..... | 64 | 53 | 60 | | | 38 | 29 | 62 | 141 | 216 | 153 | 92 |
| 7..... | 124 | 55 | | | | 36 | 29 | 64 | 153 | 209 | 153 | 84 |
| 8..... | 105 | 57 | | | | 36 | 29 | 68 | 178 | 195 | 156 | 78 |
| 9..... | 78 | 82 | 89 | | | 36 | 30 | 68 | 178 | 192 | 153 | 78 |
| 10..... | 66 | 64 | 70 | | | 36 | 29 | 72 | 185 | 192 | | 78 |
| 11..... | 60 | 62 | 60 | | 40 | 34 | 26 | 80 | 188 | 182 | | 84 |
| 12..... | 59 | 60 | 59 | | | 36 | 24 | 89 | 192 | 178 | | 84 |
| 13..... | 59 | 59 | 53 | | | 36 | 26 | 127 | 234 | 178 | | 74 |
| 14..... | 60 | 59 | 46 | 45 | | 38 | 40 | 116 | 304 | 175 | 159 | 64 |
| 15..... | 102 | 55 | 46 | | | 37 | 33 | 118 | 426 | 178 | | 64 |
| 16..... | 84 | 59 | | | | 39 | 30 | 121 | 304 | 175 | | 64 |
| 17..... | 72 | 55 | | | | 39 | 29 | 118 | 224 | 175 | | 64 |
| 18..... | 64 | 60 | | | | 42 | 29 | 127 | 188 | 192 | | 59 |
| 19..... | 64 | 62 | | | | 40 | 32 | 144 | 165 | 199 | | 59 |
| 20..... | 59 | 53 | | | | 61 | 29 | 159 | 156 | 171 | 165 | |
| 21..... | 57 | 53 | | | | 89 | 37 | 171 | 168 | 165 | 165 | |
| 22..... | 57 | 51 | | | | 60 | 42 | 192 | 175 | 175 | 159 | |
| 23..... | 59 | 51 | | | 48 | 55 | 43 | 216 | 185 | 178 | 153 | |
| 24..... | 59 | 51 | 45 | 51 | 46 | 51 | 43 | 220 | 213 | 178 | 138 | |
| 25..... | 59 | 50 | | | 44 | 38 | 46 | 171 | 256 | 182 | 132 | 59 |
| 26..... | 59 | 50 | | | 43 | 38 | 50 | 144 | 256 | 171 | 132 | |
| 27..... | 57 | 50 | | 50 | 42 | 40 | 57 | 132 | 256 | 162 | 130 | |
| 28..... | 57 | 48 | | | 41 | 46 | 59 | 132 | 260 | 168 | 130 | |
| 29..... | 59 | 50 | | | | 38 | 59 | 138 | 260 | 182 | 130 | |
| 30..... | 57 | 50 | | | | 33 | 53 | 144 | 234 | 192 | 130 | |
| 31..... | 53 | | | | | 34 | | 132 | | 195 | 130 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| October..... | 124 | 53 | 66.8 | 4,110 |
| November..... | 82 | 48 | 56.6 | 3,370 |
| December..... | 89 | | 50.2 | 3,090 |
| January..... | | | 46.2 | 2,840 |
| February..... | | | 40.9 | 2,270 |
| March..... | 89 | 33 | 42.1 | 2,590 |
| April..... | 59 | 24 | 36.9 | 2,200 |
| May..... | 220 | 57 | 119 | 7,320 |
| June..... | 426 | 113 | 204 | 12,100 |
| July..... | 245 | 162 | 190 | 11,700 |
| August..... | 188 | 130 | 154 | 9,470 |
| September..... | 116 | | 72.1 | 4,290 |
| The year..... | 426 | 24 | 90.2 | 65,400 |

* Estimated.

CROOKED RIVER NEAR CULVER, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 11, T. 12 S., R. 12 E., one-eighth mile below Cove power plant and 3 miles northwest of Culver.

RECORDS AVAILABLE.—October, 1917, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,370 second-feet Apr. 23 (gage height, 2.20 feet); minimum, 1,130 second-feet May 31 to June 2 and June 29 to Aug. 26.

1917-1929: 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|--------|--------|--------|--------|--------|---------|---------|--------|--------|-------------------------|--------|--------|
| 1..... | 1, 170 | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 510 | 1, 860 | 1, 130 | 1, 130 | 1, 130 | 1, 150 |
| 2..... | 1, 170 | 1, 230 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 450 | 1, 720 | 1, 130 | 1, 130 | 1, 130 | 1, 150 |
| 3..... | 1, 170 | 1, 230 | 1, 170 | 1, 170 | 1, 170 | 1, 230 | 1, 450 | 1, 650 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 4..... | 1, 170 | 1, 230 | 1, 170 | 1, 170 | 1, 170 | 1, 350 | 1, 450 | 1, 650 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 5..... | 1, 230 | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 490 | 1, 450 | 1, 580 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 6..... | 1, 200 | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 560 | 1, 450 | 1, 580 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 7..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 560 | 1, 450 | 1, 510 | 1, 220 | 1, 130 | 1, 130 | 1, 130 |
| 8..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 860 | 1, 390 | 1, 450 | 1, 220 | 1, 130 | 1, 130 | 1, 150 |
| 9..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 650 | 1, 390 | 1, 450 | 1, 220 | 1, 130 | 1, 130 | 1, 150 |
| 10..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 580 | 1, 390 | 1, 450 | 1, 270 | 1, 130 | 1, 130 | 1, 150 |
| 11..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 580 | 1, 330 | 1, 390 | 1, 270 | 1, 130 | 1, 130 | 1, 150 |
| 12..... | 1, 200 | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 720 | 1, 390 | 1, 390 | 1, 270 | 1, 130 | 1, 130 | 1, 150 |
| 13..... | 1, 200 | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 680 | 1, 330 | 1, 330 | 1, 270 | 1, 130 | 1, 130 | 1, 150 |
| 14..... | 1, 200 | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 510 | 1, 330 | 1, 330 | 1, 270 | 1, 130 | 1, 130 | 1, 150 |
| 15..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 450 | 1, 390 | 1, 330 | 1, 270 | 1, 130 | 1, 130 | 1, 150 |
| 16..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 450 | 1, 510 | 1, 270 | 1, 270 | 1, 130 | 1, 130 | 1, 150 |
| 17..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 450 | 1, 650 | 1, 270 | 1, 220 | 1, 130 | 1, 130 | 1, 150 |
| 18..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 510 | 1, 790 | 1, 270 | 1, 220 | 1, 130 | 1, 130 | 1, 150 |
| 19..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 580 | 1, 790 | 1, 220 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 20..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 650 | 1, 860 | 1, 220 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 21..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 720 | 2, 190 | 1, 220 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 22..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 2, 280 | 2, 100 | 1, 220 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 23..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 2, 280 | 2, 370 | 1, 220 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 24..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 940 | 2, 280 | 1, 220 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 25..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 650 | 2, 190 | 1, 220 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 26..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 510 | 2, 100 | 1, 220 | 1, 170 | 1, 130 | 1, 130 | 1, 150 |
| 27..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 450 | 2, 020 | 1, 220 | 1, 170 | 1, 130 | 1, 150 | 1, 150 |
| 28..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 450 | 2, 020 | 1, 220 | 1, 170 | 1, 130 | 1, 150 | 1, 150 |
| 29..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 790 | 2, 020 | 1, 220 | 1, 130 | 1, 130 | 1, 150 | 1, 150 |
| 30..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 580 | 2, 020 | 1, 200 | 1, 130 | 1, 130 | 1, 150 | 1, 150 |
| 31..... | 1, 200 | 1, 170 | 1, 170 | 1, 170 | 1, 170 | 1, 510 | 1, 130 | 1, 130 | 1, 130 | 1, 130 | 1, 150 | 1, 150 |
| <hr/> | | | | | | | | | | | | |
| Month | | | | | | Maximum | Minimum | Mean | | Run-off in acre-feet | | |
| October..... | | | | | | 1, 230 | 1, 170 | 1, 200 | | 73, 800 | | |
| November..... | | | | | | 1, 230 | 1, 170 | 1, 180 | | 70, 200 | | |
| December..... | | | | | | 1, 170 | 1, 170 | 1, 170 | | 71, 900 | | |
| January..... | | | | | | 1, 170 | 1, 170 | 1, 170 | | 71, 900 | | |
| February..... | | | | | | 1, 170 | 1, 170 | 1, 170 | | 65, 000 | | |
| March..... | | | | | | 2, 280 | 1, 170 | 1, 590 | | 97, 800 | | |
| April..... | | | | | | 2, 370 | 1, 330 | 1, 700 | | 101, 000 | | |
| May..... | | | | | | 1, 860 | 1, 130 | 1, 360 | | 83, 600 | | |
| June..... | | | | | | 1, 270 | 1, 130 | 1, 200 | | 71, 400 | | |
| July..... | | | | | | 1, 130 | 1, 130 | 1, 130 | | 69, 500 | | |
| August..... | | | | | | 1, 150 | 1, 130 | 1, 130 | | 69, 500 | | |
| September..... | | | | | | 1, 150 | 1, 130 | 1, 150 | | 68, 400 | | |
| The year..... | | | | | | 2, 370 | 1, 130 | 1, 260 | | 914, 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, 1929.

EXTREMES.—Maximum discharge during year, 1,720 second-feet Nov. 9 and 10; minimum, 1,280 second-feet Feb. 10 to Mar. 3 (gage height, 0.28 foot).

1921-1929: Maximum discharge, about 5,780 second-feet Jan. 7, 1923 (gage height, 3.32 feet); minimum, 1,280 second-feet Sept. 25 to Oct. 3, 1926, and Feb. 10 to Mar. 3, 1929.

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

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|-------|-------|-------|-------|-------|---------|---------|-------|-------------------------|-------|-------|-------|
| 1..... | 1,400 | 1,350 | 1,350 | 1,350 | 1,300 | 1,280 | 1,350 | 1,400 | 1,500 | 1,560 | 1,400 | 1,350 |
| 2..... | 1,400 | 1,350 | 1,350 | 1,350 | 1,300 | 1,280 | 1,350 | 1,400 | 1,500 | 1,560 | 1,400 | 1,350 |
| 3..... | 1,400 | 1,350 | 1,350 | 1,350 | 1,300 | 1,280 | 1,350 | 1,400 | 1,500 | 1,560 | 1,400 | |
| 4..... | 1,400 | 1,350 | 1,350 | 1,350 | 1,300 | 1,300 | 1,350 | 1,400 | 1,500 | 1,560 | 1,400 | |
| 5..... | 1,400 | 1,350 | 1,350 | 1,350 | 1,300 | 1,300 | 1,350 | 1,400 | 1,560 | 1,560 | 1,400 | 1,350 |
| 6..... | 1,400 | 1,350 | 1,350 | 1,350 | 1,300 | 1,300 | 1,350 | 1,400 | 1,560 | 1,500 | 1,400 | |
| 7..... | 1,450 | 1,350 | 1,300 | 1,300 | 1,300 | 1,300 | 1,350 | 1,400 | 1,560 | 1,500 | 1,400 | 1,350 |
| 8..... | 1,450 | 1,400 | 1,300 | 1,300 | 1,300 | 1,300 | 1,350 | 1,400 | 1,560 | 1,500 | 1,400 | 1,300 |
| 9..... | 1,450 | 1,720 | 1,300 | 1,300 | 1,300 | 1,300 | 1,300 | 1,400 | 1,560 | 1,500 | 1,400 | 1,300 |
| 10..... | 1,450 | 1,720 | 1,300 | 1,300 | 1,280 | 1,300 | 1,300 | 1,400 | 1,560 | 1,500 | 1,400 | 1,300 |
| 11..... | 1,450 | 1,500 | 1,300 | 1,300 | 1,280 | 1,300 | 1,300 | 1,400 | 1,560 | 1,500 | 1,400 | 1,300 |
| 12..... | 1,400 | 1,450 | 1,300 | 1,300 | 1,280 | 1,300 | 1,300 | 1,400 | 1,560 | 1,450 | 1,400 | 1,300 |
| 13..... | 1,400 | 1,400 | 1,300 | 1,300 | 1,280 | 1,300 | 1,300 | 1,400 | 1,560 | 1,450 | 1,400 | 1,300 |
| 14..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,300 | 1,350 | 1,400 | 1,560 | 1,450 | 1,400 | 1,300 |
| 15..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,300 | 1,350 | 1,400 | 1,560 | 1,450 | 1,400 | 1,300 |
| 16..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,300 | 1,350 | 1,450 | 1,560 | 1,450 | 1,400 | 1,300 |
| 17..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,300 | 1,350 | 1,500 | 1,560 | 1,450 | 1,400 | 1,300 |
| 18..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,300 | 1,350 | 1,500 | 1,560 | 1,450 | 1,400 | 1,300 |
| 19..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,350 | 1,350 | 1,500 | 1,560 | 1,450 | 1,400 | 1,300 |
| 20..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,400 | 1,350 | 1,560 | 1,560 | 1,450 | 1,400 | 1,300 |
| 21..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,400 | 1,350 | 1,610 | 1,560 | 1,400 | 1,350 | 1,300 |
| 22..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,400 | 1,350 | 1,610 | 1,560 | 1,400 | 1,350 | 1,300 |
| 23..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,400 | 1,350 | 1,610 | 1,560 | 1,400 | 1,350 | 1,300 |
| 24..... | 1,400 | 1,350 | 1,300 | 1,300 | 1,280 | 1,400 | 1,350 | 1,610 | 1,560 | 1,400 | 1,350 | 1,300 |
| 25..... | 1,400 | 1,350 | 1,350 | 1,300 | 1,280 | 1,350 | 1,350 | 1,610 | 1,560 | 1,400 | 1,350 | 1,300 |
| 26..... | 1,400 | 1,350 | 1,350 | 1,300 | 1,280 | 1,350 | 1,350 | 1,560 | 1,560 | 1,400 | 1,350 | 1,300 |
| 27..... | 1,400 | 1,350 | 1,350 | 1,300 | 1,280 | 1,350 | 1,350 | 1,560 | 1,560 | 1,400 | 1,350 | 1,300 |
| 28..... | 1,400 | 1,350 | 1,350 | 1,300 | 1,280 | 1,350 | 1,400 | 1,500 | 1,560 | 1,400 | 1,350 | 1,300 |
| 29..... | 1,350 | 1,350 | 1,350 | 1,300 | ----- | 1,350 | 1,400 | 1,500 | 1,560 | 1,400 | 1,350 | 1,300 |
| 30..... | 1,350 | 1,350 | 1,350 | 1,300 | ----- | 1,350 | 1,400 | 1,500 | 1,560 | 1,400 | 1,350 | 1,300 |
| 31..... | 1,350 | ----- | 1,350 | 1,300 | ----- | 1,350 | ----- | 1,500 | ----- | 1,400 | 1,350 | ----- |
| Month | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | | |
| October..... | | | | | | 1,450 | 1,350 | 1,400 | 86,100 | | | |
| November..... | | | | | | 1,720 | 1,350 | 1,390 | 82,700 | | | |
| December..... | | | | | | 1,350 | 1,300 | 1,320 | 81,200 | | | |
| January..... | | | | | | 1,350 | 1,300 | 1,310 | 80,600 | | | |
| February..... | | | | | | 1,300 | 1,280 | 1,290 | 71,600 | | | |
| March..... | | | | | | 1,400 | 1,280 | 1,330 | 81,800 | | | |
| April..... | | | | | | 1,400 | 1,300 | 1,350 | 80,300 | | | |
| May..... | | | | | | 1,610 | 1,400 | 1,470 | 90,400 | | | |
| June..... | | | | | | 1,560 | 1,500 | 1,550 | 92,200 | | | |
| July..... | | | | | | 1,560 | 1,400 | 1,460 | 89,800 | | | |
| August..... | | | | | | 1,400 | 1,350 | 1,380 | 84,800 | | | |
| September..... | | | | | | 1,350 | 1,300 | 1,310 | 78,000 | | | |
| The year..... | | | | | | 1,720 | 1,280 | 1,380 | 1,000,000 | | | |

LAKE CREEK NEAR SISTERS, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 24, T. 13 S., R. 8 E., one-fourth mile below Suttle Lake, 6 miles from mouth of creek, and 13 miles northwest of Sisters. Recorder moved 40 feet upstream Oct. 12, 1928; not set to former datum.

DRAINAGE AREA.—20.5 square miles.

RECORDS AVAILABLE.—April, 1915, to September, 1929, incomplete; occasional readings during summers of 1911 to 1913.

EXTREMES.—Maximum discharge during year, 118 second-feet May 26 (gage height, 1.69 feet); minimum, 27 second-feet Sept. 20 (gage height, 0.70 foot). 1911-1913, 1915-1929: 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. Discharge estimated Oct. 1. No diversions above station. No regulation except by natural storage in Suttle Lake. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|------|-------|------|------|-------|---------|---------|------|-------|-------------------------|------|-------|
| 1..... | 34 | 30 | 33 | 42 | 43 | 33 | 42 | 65 | 94 | 58 | 37 | 30 |
| 2..... | 34 | 30 | 33 | 44 | 41 | 33 | 43 | 67 | 90 | 56 | 37 | 30 |
| 3..... | 35 | 33 | 33 | 44 | 40 | 33 | 42 | 71 | 87 | 54 | 36 | 30 |
| 4..... | 38 | 33 | 33 | 41 | 39 | 33 | 42 | 76 | 85 | 53 | 33 | 31 |
| 5..... | 38 | 33 | 33 | 40 | 37 | 33 | 44 | 80 | 84 | 51 | 33 | 30 |
| 6..... | 37 | 33 | 33 | 38 | 36 | 33 | 44 | 83 | 83 | 49 | 33 | 30 |
| 7..... | 35 | 34 | 33 | 37 | 35 | 33 | 44 | 83 | 83 | 48 | 33 | 30 |
| 8..... | 35 | 33 | 33 | 36 | 35 | 33 | 45 | 83 | 84 | 49 | 32 | 30 |
| 9..... | 34 | 37 | 33 | 35 | 34 | 33 | 46 | 83 | 83 | 49 | 32 | 30 |
| 10..... | 35 | 39 | 36 | 34 | 33 | 33 | 46 | 81 | 81 | 48 | 32 | 29 |
| 11..... | 35 | 38 | 37 | 34 | 33 | 33 | 44 | 81 | 79 | 47 | 32 | 30 |
| 12..... | 35 | 38 | 37 | 33 | 33 | 33 | 45 | 82 | 78 | 45 | 31 | 30 |
| 13..... | 32 | 37 | 36 | 33 | 33 | 33 | 44 | 84 | 76 | 45 | 31 | 30 |
| 14..... | 30 | 37 | 36 | 33 | 33 | 33 | 49 | 85 | 76 | 44 | 31 | 30 |
| 15..... | 30 | 35 | 35 | 33 | 33 | 33 | 48 | 87 | 76 | 43 | 30 | 29 |
| 16..... | 30 | 35 | 35 | 33 | 32 | 33 | 48 | 90 | 77 | 42 | 30 | 29 |
| 17..... | 30 | 34 | 34 | 33 | 31 | 33 | 48 | 94 | 80 | 42 | 31 | 29 |
| 18..... | 31 | 33 | 34 | 37 | 31 | 33 | 48 | 94 | 84 | 41 | 30 | 29 |
| 19..... | 30 | 33 | 34 | 38 | 31 | 33 | 48 | 97 | 86 | 40 | 30 | 29 |
| 20..... | 30 | 33 | 34 | 37 | 31 | 36 | 48 | 99 | 86 | 40 | 30 | 28 |
| 21..... | 30 | 33 | 35 | 36 | 33 | 42 | 49 | 100 | 84 | 40 | 30 | 28 |
| 22..... | 30 | 33 | 35 | 36 | 33 | 42 | 49 | 103 | 81 | 39 | 29 | 28 |
| 23..... | 30 | 33 | 35 | 37 | 34 | 40 | 49 | 106 | 78 | 39 | 29 | 29 |
| 24..... | 30 | 33 | 37 | 37 | 34 | 40 | 48 | 111 | 75 | 39 | 29 | 29 |
| 25..... | 30 | 32 | 41 | 38 | 34 | 40 | 50 | 116 | 70 | 39 | 30 | 29 |
| 26..... | 30 | 33 | 43 | 40 | 34 | 40 | 51 | 117 | 68 | 38 | 31 | 29 |
| 27..... | 30 | 33 | 43 | 42 | 33 | 40 | 52 | 116 | 65 | 38 | 30 | 29 |
| 28..... | 30 | 33 | 41 | 42 | 33 | 42 | 54 | 113 | 64 | 36 | 30 | 29 |
| 29..... | 30 | 33 | 41 | 45 | ----- | 43 | 58 | 109 | 60 | 37 | 30 | 29 |
| 30..... | 31 | 33 | 43 | 43 | ----- | 42 | 61 | 102 | 58 | 37 | 30 | 29 |
| 31..... | 31 | ----- | 42 | 44 | ----- | 42 | ----- | 99 | ----- | 37 | 30 | ----- |
| Month | | | | | | Maximum | Minimum | Mean | | Run-off in acre-feet | | |
| October..... | | | | | | 38 | 30 | 32.3 | | 1,990 | | |
| November..... | | | | | | 39 | 30 | 33.9 | | 2,020 | | |
| December..... | | | | | | 43 | 33 | 36.2 | | 2,230 | | |
| January..... | | | | | | 45 | 33 | 37.9 | | 2,330 | | |
| February..... | | | | | | 43 | 31 | 34.4 | | 1,910 | | |
| March..... | | | | | | 43 | 33 | 36.0 | | 2,210 | | |
| April..... | | | | | | 61 | 42 | 47.6 | | 2,830 | | |
| May..... | | | | | | 117 | 65 | 92.2 | | 5,670 | | |
| June..... | | | | | | 94 | 58 | 73.5 | | 4,670 | | |
| July..... | | | | | | 58 | 36 | 44.0 | | 2,710 | | |
| August..... | | | | | | 37 | 29 | 31.4 | | 1,930 | | |
| September..... | | | | | | 31 | 28 | 29.4 | | 1,750 | | |
| The year..... | | | | | | 117 | 28 | 44.5 | | 32,200 | | |

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.

RECORDS AVAILABLE.—November, 1917, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,160 second-feet May 24 (gage height, 3.55 feet); minimum, 90 second-feet July 28 (gage height, 0.38 foot).

1917-1929: Maximum discharge, 13,300 second-feet Jan. 6, 1923 (gage height, 12.9 feet); minimum, estimated from power-plant records, 10 second-feet Dec. 11-14, 1919.

REMARKS.—Records fair, October to February; good, March to September. 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-------|------|------|------|-------|
| 1 | 123 | 136 | 173 | 192 | | 242 | 385 | 795 | 612 | 262 | 150 | 118 |
| 2 | 121 | 149 | 171 | 205 | | 340 | 370 | 845 | 590 | 248 | 149 | 117 |
| 3 | 134 | 132 | 151 | 220 | 140 | 370 | 355 | 960 | 530 | 242 | 149 | 113 |
| 4 | 134 | 173 | 142 | 200 | | 455 | 355 | 930 | 570 | 238 | 144 | 115 |
| 5 | 149 | 156 | 139 | 188 | | 470 | 340 | 870 | 612 | 230 | 142 | 113 |
| 6 | 139 | 152 | 137 | 180 | 147 | 435 | 325 | 795 | 590 | 225 | 143 | 113 |
| 7 | 139 | 149 | 144 | 180 | 144 | 385 | 310 | 725 | 570 | 218 | 140 | 113 |
| 8 | 152 | 149 | 142 | 173 | 139 | 355 | 310 | 748 | 590 | 210 | 138 | 113 |
| 9 | 144 | 490 | 178 | 178 | 137 | 355 | 295 | 748 | 570 | 195 | 136 | 113 |
| 10 | 151 | 325 | 232 | 173 | 137 | 385 | 280 | 770 | 550 | 190 | 138 | 113 |
| 11 | 147 | 310 | 230 | 175 | 134 | 370 | 274 | 795 | 530 | 185 | 136 | 115 |
| 12 | 142 | 290 | 208 | 182 | 136 | 340 | 265 | 900 | 510 | 182 | 138 | 116 |
| 13 | 140 | 215 | 200 | 164 | | 310 | 268 | 960 | 530 | 178 | 135 | 117 |
| 14 | 136 | 210 | 195 | 164 | | 310 | 310 | 1,020 | 510 | 180 | 133 | 116 |
| 15 | 136 | 205 | 188 | 171 | | 310 | 340 | 1,020 | 530 | 175 | 133 | 115 |
| 16 | 222 | 202 | 188 | 167 | | 310 | 340 | 990 | 510 | 171 | 126 | 111 |
| 17 | 160 | 215 | 175 | 160 | | 310 | 340 | 960 | 470 | 163 | 128 | 115 |
| 18 | 160 | 202 | 167 | 169 | | 310 | 340 | 960 | 452 | 165 | 124 | 116 |
| 19 | 160 | 185 | 162 | 156 | 150 | 325 | 340 | 960 | 530 | 161 | 124 | 113 |
| 20 | 140 | 185 | 162 | 139 | | 370 | 385 | 1,020 | 452 | 165 | 123 | 112 |
| 21 | 137 | 182 | 167 | 147 | | 795 | 418 | 1,050 | 418 | 171 | 122 | 111 |
| 22 | 137 | 178 | 171 | 147 | | 748 | 490 | 1,080 | 385 | 171 | 123 | 111 |
| 23 | 136 | 178 | 158 | 152 | | 570 | 590 | 1,080 | 370 | 167 | 119 | 118 |
| 24 | 134 | 164 | 156 | 152 | | 452 | 635 | 1,120 | 355 | 165 | 121 | 117 |
| 25 | 139 | 162 | 169 | 164 | 325 | 400 | 658 | 1,020 | 355 | 165 | 121 | 113 |
| 26 | 144 | 162 | 192 | 220 | 253 | 385 | 725 | 870 | 340 | 159 | 123 | 112 |
| 27 | 142 | 173 | 210 | 171 | 245 | 400 | 845 | 770 | 340 | 155 | 121 | 113 |
| 28 | 133 | 167 | 195 | 171 | 240 | 452 | 900 | 702 | 325 | 150 | 122 | 111 |
| 29 | 132 | 160 | 195 | 154 | | 490 | 930 | 680 | 295 | 150 | 119 | 112 |
| 30 | 147 | 158 | 212 | 149 | | 452 | 845 | 680 | 280 | 154 | 117 | 110 |
| 31 | 151 | | 200 | 129 | | 418 | | 680 | | 152 | 119 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 222 | 121 | 144 | 8,850 |
| November | 490 | 132 | 197 | 11,700 |
| December | 232 | 137 | 178 | 10,900 |
| January | 220 | 129 | 171 | 10,500 |
| February | | | 162 | 9,000 |
| March | 795 | 242 | 406 | 25,000 |
| April | 930 | 265 | 452 | 26,900 |
| May | 1,120 | 680 | 888 | 54,600 |
| June | 612 | 280 | 476 | 28,300 |
| July | 262 | 150 | 185 | 11,400 |
| August | 150 | 117 | 131 | 8,060 |
| September | 118 | 110 | 114 | 6,780 |
| The year | 1,120 | 110 | 293 | 212,000 |

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, 1929; incomplete. October 1909, to December, 1910, at a point 1 mile above, in sec. 11.

EXTREMES.—Maximum discharge during year, 2,560 second-feet May 24 (gage height, 3.80 feet); minimum, 296 second-feet Mar. 1.

1909-1929: Maximum discharge, 6,250 second-feet Nov. 24, 1909 (gage height, 5.20 feet on original gage); minimum, 285 second-feet Nov. 13, 1915.

REMARKS.—Records good. Discharge estimated Apr. 10-13, Sept. 1, and 2, and for periods included in braces. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|--------|--------|--------|--------|------|-------|
| 1 | | 430 | | 402 | | 296 | 543 | 1, 140 | 1, 460 | 1, 020 | 638 | 476 |
| 2 | | 424 | | 402 | | 312 | 532 | 1, 240 | 1, 370 | 1, 010 | 619 | 447 |
| 3 | | 457 | | 402 | | 328 | 532 | 1, 420 | 1, 320 | | 979 | 588 |
| 4 | | 444 | | 393 | | 349 | 532 | 1, 520 | 1, 320 | | 948 | 560 |
| 5 | | 430 | | 393 | | 358 | 526 | 1, 280 | 1, 420 | | 932 | 549 |
| 6 | | | | | | | | | | | | |
| 7 | 445 | 412 | 446 | 398 | | 366 | 510 | 1, 190 | 1, 690 | 917 | 454 | 384 |
| 8 | | 412 | | 398 | | 366 | 499 | 1, 100 | 1, 690 | 886 | 560 | 398 |
| 9 | | 735 | | 398 | | 370 | 494 | 1, 080 | 1, 690 | 848 | 560 | 402 |
| 10 | | 722 | | 398 | | 375 | 488 | 1, 140 | 1, 640 | 841 | 566 | 412 |
| | | 670 | | 398 | | 402 | 480 | 1, 240 | 1, 550 | 812 | 566 | 426 |
| 11 | | | | | | | | | | | | |
| 12 | | 607 | | 398 | | 402 | 480 | 1, 370 | 1, 500 | 763 | 571 | 421 |
| 13 | | 560 | 488 | 402 | | 398 | 477 | 1, 600 | 1, 460 | 742 | 532 | 452 |
| 14 | 437 | 538 | 467 | 402 | | 393 | 475 | 1, 690 | 1, 550 | 742 | 526 | 462 |
| 15 | 437 | | 452 | 402 | | 398 | 532 | 1, 790 | 1, 640 | 749 | 516 | 462 |
| 16 | 548 | | 426 | | 318 | 402 | 549 | 1, 790 | 1, 790 | 735 | 499 | 457 |
| 17 | | | | | | | | | | | | |
| 18 | 605 | | 426 | | | 402 | 543 | 1, 790 | 1, 690 | 715 | 499 | 431 |
| 19 | 562 | | 407 | | | 402 | 543 | 1, 840 | 1, 460 | 715 | 510 | 426 |
| 20 | 541 | | 402 | | | 407 | 543 | 1, 840 | 1, 370 | 708 | 510 | 426 |
| 21 | 513 | | 402 | | | 407 | 549 | 1, 940 | 1, 370 | 689 | 482 | 426 |
| 22 | 492 | | 393 | | | 462 | 560 | 2, 090 | 1, 280 | 650 | 477 | 379 |
| 23 | | | | | | | | | | | | |
| 24 | 471 | 469 | 393 | | | 588 | 594 | 2, 290 | 1, 190 | 631 | 472 | 375 |
| 25 | 471 | | 426 | 399 | | 594 | 600 | 2, 450 | 1, 190 | 631 | 482 | 366 |
| 26 | 478 | | 426 | | | 554 | 676 | 2, 500 | 1, 140 | 631 | 467 | 362 |
| 27 | 464 | | 417 | | | 543 | 735 | 2, 500 | 1, 140 | 638 | 452 | 353 |
| 28 | 450 | | 417 | | | 538 | 812 | 2, 140 | 1, 190 | 619 | 467 | 345 |
| 29 | | | | | | | | | | | | |
| 30 | 430 | | 410 | | | 510 | 948 | 1, 790 | 1, 190 | 588 | 504 | 345 |
| 31 | 430 | | 402 | | | 526 | 1, 140 | 1, 600 | 1, 190 | 577 | 504 | 340 |
| | 437 | | 398 | | | 594 | 1, 240 | 1, 500 | 1, 190 | 582 | 499 | 336 |
| | 437 | | 402 | | | 619 | 1, 240 | 1, 460 | 1, 140 | 607 | 499 | 336 |
| | 450 | | 402 | | | 588 | 1, 140 | 1, 460 | 1, 060 | 631 | 504 | 332 |
| | 437 | | 402 | | | 566 | | 1, 460 | | 663 | 504 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 605 | | 465 | 1.31 | 1.51 | 28,000 |
| November | 735 | | 494 | 1.39 | 1.55 | 29,400 |
| December | | | 428 | 1.20 | 1.38 | 26,300 |
| January | | | 399 | 1.12 | 1.29 | 24,500 |
| February | | | 318 | .893 | .93 | 17,700 |
| March | 619 | 296 | 446 | 1.25 | 1.44 | 27,400 |
| April | 1, 240 | 475 | 650 | 1.83 | 2.04 | 38,700 |
| May | 2, 500 | 1, 080 | 1, 650 | 4.63 | 5.34 | 101,000 |
| June | 1, 790 | 1, 060 | 1, 400 | 3.93 | 4.38 | 83,300 |
| July | 1, 020 | 577 | 748 | 2.10 | 2.42 | 46,000 |
| August | 638 | 452 | 524 | 1.47 | 1.70 | 32,200 |
| September | 476 | 332 | 400 | 1.12 | 1.25 | 23,800 |
| The year | 2, 500 | 296 | 662 | 1.86 | 25.23 | 479,000 |

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 $10\frac{1}{2}$ miles above mouth.

DRAINAGE AREA.—1,160 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1929. Comparable records at former stations at Klickitat and near Lyle, May, 1907, to December, 1912.

EXTREMES.—Maximum discharge during year, 3,130 second-feet May 24 (gage height, 3.68 feet); minimum, 594 second-feet Feb. 7, Sept. 29 and 30 (gage height, 1.08 feet).

1907-1912, 1928-29: Maximum discharge, 10,200 second-feet Mar. 2, 1910 (gage height at former gage at Klickitat, 8.4 feet); minimum, that of Feb. 7, 1929.

REMARKS.—Records good. Discharge estimated because of ice Jan. 18 and Feb. 2. Minor diversions for irrigation above station; no regulation.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 740 | 740 | 740 | 810 | 705 | 1,510 | 1,220 | 1,710 | 1,810 | 1,260 | 880 | 705 |
| 2..... | 740 | 740 | 740 | 810 | 722 | 1,710 | 1,220 | 1,710 | 1,610 | 1,220 | 845 | 670 |
| 3..... | 740 | 775 | 740 | 960 | 740 | 1,510 | 1,180 | 2,020 | 1,610 | 1,220 | 810 | 638 |
| 4..... | 775 | 740 | 740 | 845 | 705 | 1,710 | 1,130 | 1,910 | 1,610 | 1,180 | 775 | 670 |
| 5..... | 810 | 740 | 740 | 775 | 670 | 1,610 | 1,130 | 1,710 | 1,710 | 1,130 | 775 | 670 |
| 6..... | 775 | 740 | 705 | 740 | 670 | 1,710 | 1,080 | 1,710 | 2,130 | 1,130 | 775 | 638 |
| 7..... | 810 | 740 | 670 | 740 | 605 | 1,510 | 1,040 | 1,610 | 2,130 | 1,080 | 775 | 638 |
| 8..... | 960 | 740 | 740 | 740 | 605 | 1,410 | 1,040 | 1,510 | 1,910 | 1,040 | 775 | 638 |
| 9..... | 845 | 1,040 | 775 | 740 | 605 | 1,310 | 1,040 | 1,610 | 2,020 | 1,040 | 740 | 638 |
| 10..... | 810 | 1,080 | 960 | 705 | 638 | 1,610 | 960 | 1,610 | 1,910 | 1,040 | 775 | 638 |
| 11..... | 775 | 960 | 920 | 705 | 670 | 1,510 | 960 | 1,810 | 1,910 | 1,000 | 810 | 638 |
| 12..... | 740 | 880 | 810 | 705 | 670 | 1,410 | 960 | 2,020 | 1,810 | 960 | 775 | 670 |
| 13..... | 740 | 845 | 775 | 670 | 705 | 1,130 | 1,000 | 2,240 | 1,910 | 960 | 740 | 705 |
| 14..... | 740 | 810 | 740 | 740 | 670 | 960 | 1,220 | 2,350 | 2,020 | 960 | 740 | 705 |
| 15..... | 775 | 810 | 740 | 705 | 705 | 960 | 1,510 | 2,350 | 2,130 | 960 | 740 | 705 |
| 16..... | 880 | 775 | 740 | 670 | 670 | 960 | 1,510 | 2,240 | 2,130 | 920 | 740 | 670 |
| 17..... | 845 | 775 | 705 | 705 | 670 | 1,180 | 1,510 | 2,350 | 1,810 | 920 | 740 | 670 |
| 18..... | 845 | 740 | 670 | 638 | 638 | 1,180 | 1,410 | 2,350 | 1,610 | 920 | 740 | 670 |
| 19..... | 810 | 740 | 670 | 670 | 638 | 1,180 | 1,410 | 2,350 | 1,710 | 920 | 705 | 670 |
| 20..... | 775 | 740 | 670 | 638 | 1,000 | 1,220 | 1,410 | 2,460 | 1,510 | 920 | 705 | 638 |
| 21..... | 740 | 740 | 670 | 670 | 1,080 | 1,510 | 1,410 | 2,570 | 1,510 | 845 | 705 | 605 |
| 22..... | 740 | 740 | 705 | 705 | 1,180 | 1,510 | 1,410 | 2,790 | 1,410 | 845 | 705 | 605 |
| 23..... | 775 | 740 | 705 | 705 | 1,310 | 1,410 | 1,510 | 2,790 | 1,410 | 845 | 705 | 605 |
| 24..... | 740 | 740 | 670 | 705 | 1,510 | 1,260 | 1,510 | 3,010 | 1,410 | 845 | 670 | 605 |
| 25..... | 740 | 740 | 705 | 705 | 1,910 | 1,220 | 1,510 | 2,680 | 1,410 | 845 | 705 | 605 |
| 26..... | 740 | 740 | 775 | 740 | 1,410 | 1,220 | 1,610 | 2,240 | 1,410 | 845 | 705 | 600 |
| 27..... | 740 | 740 | 775 | 740 | 1,410 | 1,260 | 1,810 | 2,020 | 1,410 | 845 | 740 | 605 |
| 28..... | 740 | 740 | 740 | 705 | 1,510 | 1,510 | 1,810 | 1,810 | 1,410 | 810 | 705 | 605 |
| 29..... | 740 | 740 | 810 | 670 | ----- | 1,510 | 1,910 | 1,710 | 1,410 | 845 | 705 | 600 |
| 30..... | 740 | 740 | 880 | 670 | ----- | 1,410 | 1,710 | 1,810 | 1,310 | 845 | 705 | 594 |
| 31..... | 740 | ----- | 845 | 705 | ----- | 1,310 | ----- | 1,810 | ----- | 880 | 705 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 960 | 740 | 778 | 0.671 | 0.77 | 47,800 |
| November..... | 1,080 | 740 | 785 | .677 | .76 | 46,700 |
| December..... | 960 | 670 | 751 | .647 | .75 | 46,200 |
| January..... | 960 | 638 | 725 | .625 | .72 | 44,600 |
| February..... | 1,510 | 605 | 894 | .771 | .80 | 49,600 |
| March..... | 1,710 | 960 | 1,370 | 1.18 | 1.36 | 84,200 |
| April..... | 1,910 | 960 | 1,340 | 1.16 | 1.29 | 79,700 |
| May..... | 3,010 | 1,510 | 2,090 | 1.80 | 2.08 | 129,000 |
| June..... | 2,130 | 1,310 | 1,700 | 1.47 | 1.64 | 101,000 |
| July..... | 1,260 | 810 | 970 | .836 | .96 | 59,600 |
| August..... | 880 | 670 | 746 | .643 | .74 | 45,900 |
| September..... | 705 | 594 | 644 | .555 | .62 | 38,300 |
| The year..... | 3,010 | 594 | 1,070 | .922 | 12.49 | 773,000 |

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, one-fourth mile above Pacific Power & Light Co.'s plant and three-fourths mile south of Hood River. Zero of gage is 105.91 feet above mean sea level.

RECORDS AVAILABLE.—March, 1913, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,560 second-feet Nov. 9 (gage height, 5.70 feet); minimum, 16 second-feet July 23 and Aug. 17 (gage height, 1.74 feet).

1913-1929: 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 fair; discharge estimated Jan. 20-27, 30, 31, and Feb. 1-19, because of ice effect. Diversions for irrigation above station. Pacific Power & Light Co.'s conduit diverts water around gage; (see p. 55 for record of this diversion). Low-water flow regulated by pondage at Dee. Gage-height record furnished by Pacific Power & Light Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|-------|------|-------|-------|-------|-------|------|------|-------|
| 1..... | 44 | 44 | 146 | 375 | | 360 | 654 | 1,100 | 585 | 258 | 46 | 32 |
| 2..... | 44 | 42 | 110 | 978 | | 638 | 585 | 1,450 | 622 | 262 | 50 | 24 |
| 3..... | 73 | 71 | 54 | 1,020 | | 710 | 522 | 1,500 | 536 | 243 | 77 | 27 |
| 4..... | 270 | 114 | 63 | 702 | | 766 | 522 | 1,250 | 536 | 198 | 44 | 27 |
| 5..... | 128 | 87 | 44 | 468 | | 1,030 | 457 | 1,100 | 562 | 174 | 40 | 22 |
| 6..... | 83 | 42 | 29 | 375 | | 924 | 405 | 1,000 | 646 | 162 | 36 | 35 |
| 7..... | 232 | 34 | 41 | 195 | | 750 | 395 | 879 | 578 | 201 | 21 | 22 |
| 8..... | 270 | 46 | 146 | 262 | | 654 | 370 | 838 | 646 | 146 | 23 | 24 |
| 9..... | 141 | 1,260 | 236 | 195 | | 608 | 345 | 830 | 600 | 107 | 23 | 24 |
| 10..... | 128 | 1,300 | 662 | 185 | 76 | 670 | 299 | 838 | 562 | 83 | 23 | 27 |
| 11..... | 105 | 774 | 622 | 165 | | 654 | 286 | 897 | 536 | 69 | 23 | 29 |
| 12..... | 105 | 496 | 440 | 157 | | 536 | 270 | 897 | 536 | 41 | 28 | 34 |
| 13..... | 29 | 415 | 355 | 149 | | 452 | 294 | 1,350 | 646 | 42 | 24 | 36 |
| 14..... | 29 | 330 | 286 | 165 | | 457 | 1,680 | 1,250 | 686 | 75 | 19 | 40 |
| 15..... | 29 | 258 | 243 | 160 | | 435 | 1,200 | 1,150 | 1,030 | 50 | 23 | 83 |
| 16..... | 154 | 286 | 182 | 128 | | 446 | 987 | 1,050 | 906 | 40 | 24 | 71 |
| 17..... | 128 | 270 | 149 | 144 | | 430 | 888 | 1,100 | 830 | 35 | 23 | 110 |
| 18..... | 128 | 243 | 133 | 232 | | 405 | 734 | 1,010 | 862 | 67 | 34 | 44 |
| 19..... | 79 | 188 | 123 | 154 | 83 | 555 | 678 | 1,150 | 838 | 52 | 36 | 38 |
| 20..... | 41 | 162 | 123 | | 232 | 592 | 1,050 | 1,300 | 662 | 35 | 26 | 41 |
| 21..... | 41 | 151 | 101 | | 312 | 1,900 | 951 | 1,250 | 548 | 26 | 24 | 34 |
| 22..... | 36 | 128 | 83 | | 250 | 1,400 | 1,100 | 1,300 | 490 | 34 | 24 | 32 |
| 23..... | 29 | 114 | 73 | | 312 | 996 | 1,200 | 1,400 | 452 | 24 | 21 | 59 |
| 24..... | 36 | 96 | 44 | 129 | 322 | 734 | 1,150 | 1,780 | 462 | 32 | 27 | 41 |
| 25..... | 24 | 85 | 335 | | 462 | 592 | 1,250 | 1,560 | 462 | 23 | 21 | 34 |
| 26..... | 25 | 105 | 290 | | 345 | 710 | 1,200 | 1,250 | 435 | 36 | 24 | 36 |
| 27..... | 42 | 154 | 282 | | 345 | 1,050 | 1,300 | 960 | 410 | 57 | 27 | 44 |
| 28..... | 42 | 126 | 201 | 225 | 345 | 1,450 | 1,350 | 774 | 440 | 40 | 38 | 34 |
| 29..... | 38 | 105 | 345 | 225 | | 1,250 | 1,500 | 662 | 355 | 38 | 29 | 34 |
| 30..... | 54 | 98 | 646 | 215 | | 915 | 1,200 | 646 | 270 | 35 | 27 | 69 |
| 31..... | 44 | | 457 | 190 | | 758 | | 630 | | 44 | 38 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|----------------------|
| October..... | 270 | 24 | 85.4 | 5,250 |
| November..... | 1,300 | 34 | 254 | 15,100 |
| December..... | 662 | 29 | 227 | 14,000 |
| January..... | 1,020 | ----- | 261 | 16,000 |
| February..... | 462 | ----- | 156 | 8,660 |
| March..... | 1,900 | 360 | 769 | 47,300 |
| April..... | 1,680 | 270 | 827 | 49,200 |
| May..... | 1,780 | 630 | 1,100 | 67,600 |
| June..... | 1,030 | 270 | 591 | 35,200 |
| July..... | 262 | 23 | 88.0 | 5,410 |
| August..... | 77 | 19 | 30.4 | 1,870 |
| September..... | 110 | 22 | 40.2 | 2,390 |
| The year..... | 1,900 | 19 | 370 | 268,000 |

Daily and monthly combined discharge, in second-feet, of Hood River and Pacific Power & Light Co.'s conduit near Hood River, Oreg., 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----------|------|-------|-------|-------|------|---------|---------|-------|-------------------------|------|------|-------|
| 1 | 446 | 448 | 606 | 810 | | 810 | 1,110 | 1,580 | 1,060 | 730 | 485 | 330 |
| 2 | 474 | 453 | 507 | 1,410 | | 1,080 | 1,040 | 1,920 | 1,090 | 737 | 474 | 276 |
| 3 | 522 | 522 | 512 | 1,450 | | 1,160 | 982 | 1,980 | 1,010 | 718 | 479 | 284 |
| 4 | 720 | 456 | 523 | 1,140 | | 1,220 | 985 | 1,730 | 1,010 | 637 | 406 | 279 |
| 5 | 578 | 533 | 504 | 918 | | 1,480 | 917 | 1,580 | 1,040 | 644 | 391 | 281 |
| 6 | 531 | 490 | 489 | 835 | | 1,370 | 865 | 1,450 | 1,120 | 629 | 380 | 287 |
| 7 | 681 | 452 | 501 | 655 | | 1,200 | 848 | 1,360 | 1,050 | 671 | 363 | 289 |
| 8 | 720 | 479 | 606 | 722 | | 1,100 | 820 | 1,310 | 1,120 | 616 | 377 | 267 |
| 9 | 591 | 1,700 | 685 | 655 | | 1,050 | 795 | 1,310 | 1,080 | 581 | 370 | 259 |
| 10 | 578 | 1,740 | 1,100 | 645 | 508 | 1,130 | 749 | 1,320 | 1,040 | 553 | 372 | 282 |
| 11 | 555 | 1,210 | 1,060 | 625 | | 1,110 | 786 | 1,380 | 1,010 | 533 | 369 | 288 |
| 12 | 555 | 940 | 885 | 617 | | 996 | 720 | 1,320 | 1,010 | 501 | 358 | 308 |
| 13 | 476 | 811 | 776 | 609 | | 912 | 748 | 1,770 | 1,120 | 506 | 337 | 327 |
| 14 | 472 | 764 | 726 | 625 | | 917 | 2,130 | 1,720 | 1,160 | 542 | 320 | 360 |
| 15 | 404 | 690 | 683 | 620 | | 902 | 1,650 | 1,620 | 1,500 | 511 | 317 | 353 |
| 16 | 577 | 721 | 622 | 588 | | 916 | 1,440 | 1,530 | 1,280 | 485 | 301 | 349 |
| 17 | 561 | 706 | 589 | 594 | | 900 | 1,340 | 1,490 | 1,270 | 443 | 302 | 382 |
| 18 | 573 | 655 | 573 | 682 | | 875 | 1,180 | 1,460 | 1,330 | 482 | 324 | 371 |
| 19 | 529 | 646 | 563 | 604 | 505 | 1,020 | 1,130 | 1,600 | 1,310 | 481 | 318 | 363 |
| 20 | 491 | 621 | 563 | | 672 | 1,050 | 1,340 | 1,720 | 1,130 | 456 | 297 | 364 |
| 21 | 479 | 611 | 541 | | 752 | 2,350 | 1,420 | 1,720 | 1,020 | 421 | 304 | 353 |
| 22 | 463 | 588 | 523 | | 696 | 1,850 | 1,580 | 1,760 | 960 | 409 | 304 | 379 |
| 23 | 460 | 574 | 520 | 564 | 762 | 1,450 | 1,070 | 1,860 | 922 | 417 | 298 | 368 |
| 24 | 460 | 556 | 493 | | 733 | 1,180 | 1,030 | 2,230 | 916 | 435 | 323 | 386 |
| 25 | 441 | 545 | 780 | | 912 | 1,040 | 1,650 | 2,010 | 937 | 420 | 301 | 376 |
| 26 | 433 | 565 | 730 | | 795 | 1,170 | 1,650 | 1,690 | 910 | 397 | 314 | 372 |
| 27 | 455 | 614 | 702 | | 795 | 1,510 | 1,770 | 1,360 | 885 | 407 | 328 | 379 |
| 28 | 452 | 596 | 641 | 665 | 795 | 1,910 | 1,780 | 1,220 | 915 | 382 | 320 | 362 |
| 29 | 440 | 565 | 785 | 665 | | 1,710 | 1,890 | 1,110 | 830 | 407 | 319 | 361 |
| 30 | 497 | 558 | 1,080 | 674 | | 1,360 | 1,680 | 1,120 | 716 | 434 | 331 | 367 |
| 31 | 465 | | 892 | 645 | | 1,210 | | 1,100 | | 473 | 363 | |
| Month | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | | |
| October | | | | | | 720 | 404 | 519 | 31,900 | | | |
| November | | | | | | 1,740 | 448 | 693 | 41,200 | | | |
| December | | | | | | 1,100 | 489 | 672 | 41,300 | | | |
| January | | | | | | 1,450 | | 709 | 43,600 | | | |
| February | | | | | | 912 | | 591 | 32,800 | | | |
| March | | | | | | 2,350 | 810 | 1,220 | 75,000 | | | |
| April | | | | | | 2,130 | 720 | 1,270 | 75,600 | | | |
| May | | | | | | 2,230 | 1,100 | 1,560 | 95,900 | | | |
| June | | | | | | 1,500 | 716 | 1,060 | 63,100 | | | |
| July | | | | | | 737 | 382 | 518 | 31,900 | | | |
| August | | | | | | 485 | 297 | 350 | 21,500 | | | |
| September | | | | | | 396 | 259 | 334 | 19,900 | | | |
| The year | | | | | | 2,350 | 259 | 793 | 574,000 | | | |

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, 1929. Also on tailrace of old plant October, 1913, to September, 1914, and January, 1916, to July, 1922.

EXTREMES.—Maximum discharge during year, from hourly readings of Venturi meter, 485 second-feet Apr. 30, May 1 and 3; no flow when power plant was occasionally shut down.

1913-14, 1916-1929: Maximum discharge, 500 second-feet Sept. 10, 1927.

REMARKS.—Records good. 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|------|-------|------|------|-------|---------|---------|------|-------|----------------------|------|-------|
| 1..... | 402 | 404 | 460 | 435 | 463 | 450 | 460 | 485 | 470 | 472 | 439 | 298 |
| 2..... | 430 | 411 | 457 | 432 | 460 | 450 | 460 | 466 | 470 | 475 | 424 | 252 |
| 3..... | 449 | 451 | 458 | 430 | 460 | 450 | 460 | 479 | 474 | 475 | 402 | 257 |
| 4..... | 450 | 342 | 460 | 433 | 460 | 450 | 463 | 480 | 475 | 429 | 362 | 252 |
| 5..... | 450 | 446 | 460 | 450 | 460 | 450 | 460 | 480 | 475 | 470 | 351 | 259 |
| 6..... | 448 | 438 | 460 | 460 | 460 | 450 | 460 | 448 | 475 | 467 | 344 | 252 |
| 7..... | 449 | 418 | 460 | 460 | 422 | 450 | 453 | 480 | 475 | 470 | 342 | 247 |
| 8..... | 450 | 433 | 460 | 460 | 414 | 450 | 450 | 472 | 475 | 470 | 354 | 243 |
| 9..... | 450 | 436 | 449 | 460 | 393 | 446 | 450 | 480 | 475 | 474 | 347 | 235 |
| 10..... | 450 | 438 | 437 | 460 | 398 | 460 | 450 | 480 | 475 | 470 | 349 | 255 |
| 11..... | 450 | 440 | 438 | 460 | 426 | 460 | 450 | 480 | 475 | 464 | 346 | 259 |
| 12..... | 450 | 444 | 445 | 460 | 408 | 460 | 450 | 422 | 475 | 460 | 330 | 274 |
| 13..... | 447 | 396 | 421 | 460 | 421 | 460 | 454 | 424 | 475 | 464 | 313 | 291 |
| 14..... | 443 | 434 | 440 | 460 | 425 | 460 | 452 | 470 | 475 | 467 | 301 | 320 |
| 15..... | 375 | 432 | 440 | 460 | 372 | 467 | 450 | 473 | 475 | 461 | 294 | 270 |
| 16..... | 423 | 435 | 440 | 460 | 460 | 470 | 450 | 480 | 379 | 445 | 277 | 278 |
| 17..... | 433 | 436 | 440 | 450 | 443 | 470 | 450 | 389 | 444 | 408 | 279 | 272 |
| 18..... | 450 | 412 | 440 | 450 | 428 | 470 | 450 | 450 | 470 | 415 | 290 | 327 |
| 19..... | 450 | 458 | 440 | 450 | 422 | 461 | 450 | 450 | 470 | 429 | 282 | 325 |
| 20..... | 450 | 459 | 440 | 454 | 440 | 460 | 287 | 418 | 470 | 421 | 271 | 323 |
| 21..... | 438 | 460 | 440 | 460 | 440 | 453 | 470 | 469 | 470 | 395 | 280 | 319 |
| 22..... | 427 | 460 | 440 | 460 | 446 | 450 | 478 | 460 | 470 | 375 | 280 | 347 |
| 23..... | 431 | 460 | 447 | 446 | 450 | 450 | 466 | 460 | 470 | 393 | 277 | 337 |
| 24..... | 424 | 460 | 449 | 451 | 411 | 450 | 480 | 450 | 454 | 403 | 296 | 345 |
| 25..... | 417 | 460 | 445 | 464 | 450 | 450 | 401 | 450 | 475 | 397 | 280 | 342 |
| 26..... | 408 | 460 | 440 | 426 | 450 | 460 | 447 | 438 | 475 | 371 | 290 | 336 |
| 27..... | 413 | 460 | 440 | 316 | 450 | 460 | 470 | 400 | 475 | 350 | 301 | 335 |
| 28..... | 410 | 460 | 440 | 440 | 450 | 460 | 435 | 450 | 475 | 342 | 282 | 328 |
| 29..... | 402 | 460 | 440 | 440 | ----- | 457 | 392 | 450 | 475 | 369 | 290 | 327 |
| 30..... | 443 | 460 | 435 | 459 | ----- | 450 | 485 | 470 | 446 | 399 | 304 | 298 |
| 31..... | 421 | ----- | 435 | 455 | ----- | 450 | ----- | 470 | ----- | 429 | 302 | ----- |
| Month | | | | | | Maximum | Minimum | Mean | | Run-off in acre-feet | | |
| October..... | | | | | | 450 | 375 | 433 | | 26,600 | | |
| November..... | | | | | | 460 | 342 | 439 | | 26,100 | | |
| December..... | | | | | | 460 | 421 | 445 | | 27,400 | | |
| January..... | | | | | | 464 | 316 | 447 | | 27,500 | | |
| February..... | | | | | | 463 | 372 | 435 | | 24,200 | | |
| March..... | | | | | | 470 | 446 | 456 | | 28,000 | | |
| April..... | | | | | | 485 | 287 | 448 | | 26,700 | | |
| May..... | | | | | | 485 | 389 | 457 | | 28,100 | | |
| June..... | | | | | | 475 | 379 | 468 | | 27,800 | | |
| July..... | | | | | | 475 | 342 | 430 | | 26,400 | | |
| August..... | | | | | | 439 | 271 | 319 | | 19,600 | | |
| September..... | | | | | | 347 | 235 | 293 | | 17,400 | | |
| The year..... | | | | | | 485 | 235 | 423 | | 306,000 | | |

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., one-fourth mile below mouth of Trout Lake Creek and 2 miles southeast of Trout Lake.

RECORDS AVAILABLE.—July to September, 1918; October, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,220 second-feet May 23 (gage height, 3.06 feet); minimum, 73 second-feet Sept. 15 and 16 (gage height, 0.26 foot).

1918, 1928–29: Extremes recorded, those of 1929.

REMARKS.—Records good except those estimated (Oct. 1–9, 11–13; Jan. 30, 31, Feb. 1, 2, and 9–14), which are poor. Diversions for irrigation above station. No regulation.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-------|------|------|------|-------|
| 1 | | 138 | 170 | 193 | 150 | 152 | 328 | 780 | 670 | 246 | 108 | 88 |
| 2 | | 136 | 170 | 205 | 155 | 170 | 293 | 780 | 570 | 246 | 117 | 87 |
| 3 | | 150 | 154 | 205 | 158 | 205 | 293 | 980 | 548 | 231 | 100 | 87 |
| 4 | | 158 | 150 | 205 | 158 | 205 | 293 | 900 | 548 | 218 | 99 | 97 |
| 5 | | 150 | 152 | 193 | 152 | 205 | 277 | 840 | 570 | 218 | 97 | 96 |
| 6 | 235 | 142 | 158 | 181 | 150 | 205 | 281 | 780 | 570 | 218 | 103 | 92 |
| 7 | | 138 | 170 | 181 | 146 | 193 | 246 | 725 | 570 | 205 | 96 | 95 |
| 8 | | 156 | 205 | 181 | 150 | 181 | 261 | 725 | 548 | 193 | 89 | 93 |
| 9 | | 485 | 277 | 181 | | 181 | 246 | 780 | 570 | 193 | 93 | 89 |
| 10 | 158 | 525 | 670 | 181 | | 205 | 231 | 780 | 570 | 181 | 96 | 89 |
| 11 | 145 | 445 | 570 | 170 | 148 | 205 | 231 | 780 | 525 | 170 | 95 | 84 |
| 12 | 140 | 405 | 425 | 170 | | 181 | 231 | 840 | 525 | 170 | 92 | 84 |
| 13 | 145 | 365 | 346 | 170 | | 170 | 231 | 900 | 548 | 181 | 92 | 87 |
| 14 | 158 | 328 | 310 | 181 | | 170 | 365 | 1020 | 548 | 181 | 93 | 81 |
| 15 | 181 | 293 | 293 | 170 | 146 | 181 | 365 | 960 | 725 | 156 | 93 | 76 |
| 16 | 193 | 277 | 261 | 170 | 140 | 193 | 385 | 960 | 670 | 154 | 87 | 74 |
| 17 | 181 | 261 | 246 | 170 | 138 | 193 | 346 | 960 | 620 | 142 | 88 | 87 |
| 18 | 170 | 218 | 231 | 170 | 138 | 193 | 346 | 900 | 670 | 133 | 84 | 88 |
| 19 | 166 | 218 | 218 | 152 | 136 | 193 | 365 | 900 | 725 | 136 | 81 | 88 |
| 20 | 150 | 205 | 218 | 158 | 140 | 218 | 425 | 1,020 | 620 | 134 | 84 | 83 |
| 21 | 146 | 205 | 205 | 218 | 142 | 328 | 445 | 1,080 | 548 | 125 | 95 | 83 |
| 22 | 146 | 205 | 218 | 181 | 142 | 310 | 465 | 1,150 | 505 | 124 | 97 | 96 |
| 23 | 144 | 193 | 205 | 152 | 146 | 277 | 525 | 1,150 | 465 | 118 | 84 | 99 |
| 24 | 142 | 193 | 193 | 170 | 146 | 246 | 620 | 1,150 | 445 | 122 | 89 | 100 |
| 25 | 142 | 181 | 205 | 170 | 148 | 231 | 620 | 1,020 | 405 | 124 | 92 | 100 |
| 26 | 138 | 193 | 205 | 170 | 142 | 246 | 725 | 960 | 385 | 112 | 97 | 102 |
| 27 | 138 | 193 | 205 | 158 | 142 | 346 | 780 | 780 | 365 | 103 | 99 | 100 |
| 28 | 134 | 181 | 193 | 152 | 142 | 425 | 900 | 725 | 328 | 105 | 102 | 99 |
| 29 | 134 | 181 | 205 | 152 | | 425 | 960 | 670 | 310 | 106 | 100 | 99 |
| 30 | 138 | 170 | 205 | 150 | | 365 | 840 | 670 | 277 | 103 | 103 | 97 |
| 31 | 138 | | 205 | 150 | | 346 | | 670 | | 120 | 95 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | | | 175 | 10,800 |
| November | 525 | 136 | 236 | 14,000 |
| December | 670 | 150 | 246 | 15,100 |
| January | 218 | 150 | 175 | 10,800 |
| February | 158 | 136 | 146 | 8,110 |
| March | 425 | 152 | 237 | 14,600 |
| April | 960 | 231 | 430 | 25,600 |
| May | 1,150 | 670 | 881 | 54,200 |
| June | 725 | 277 | 531 | 31,600 |
| July | 246 | 103 | 160 | 9,840 |
| August | 117 | 81 | 94.8 | 5,830 |
| September | 102 | 74 | 90.6 | 5,390 |
| The year | 1,150 | 74 | 284 | 206,000 |

WHITE SALMON RIVER NEAR UNDERWOOD, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 14, T. 3 N., R. 10 E., 200 yards below Northwestern Electric Co.'s Condit power plant and 2 miles north of Underwood.

DRAINAGE AREA.—384 square miles.

RECORDS AVAILABLE.—March, 1915, to September, 1929. October, 1912, to February, 1913, at dam 1 mile above.

EXTREMES.—Maximum discharge during year, 2,720 second-feet May 3 (gage height, 4.77 feet); minimum, 114 second-feet Aug. 20 (gage height, 0.19 foot).
1915-1929: Maximum discharge, about 9,700 second-feet Dec. 29, 1917 (gage height, 9.5 feet, old datum); minimum occurs when power plant is occasionally shut down suddenly, discharge practically zero.

REMARKS.—Records good. Diversions for irrigation above station near Trout Lake. Flow regulated by operation of power plant. Gage-height record furnished by Northwestern Electric Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------------------|-------|-------|------------------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 588 | * 508 | * 516 | * 618 | 512 | 616 | 883 | 1,320 | 1,170 | 722 | 628 | 515 |
| 2..... | 593 | * 510 | * 494 | * 746 | 508 | 713 | 834 | 1,300 | 1,140 | 721 | 598 | 506 |
| 3..... | 594 | * 530 | * 516 | * 772 | 498 | 798 | 831 | 1,430 | 1,090 | 722 | 600 | 519 |
| 4..... | 626 | * 501 | * 473 | * 700 | 536 | 854 | 819 | 1,430 | 1,040 | 751 | 619 | 514 |
| 5..... | ^b 636 | * 501 | * 473 | * 635 | 502 | 857 | 794 | 1,380 | 1,080 | 743 | 619 | 557 |
| 6..... | 619 | * 519 | * 467 | * 597 | 493 | 884 | 776 | 1,280 | 1,110 | 741 | 622 | 541 |
| 7..... | 649 | * 501 | * 451 | * 589 | 462 | 793 | 736 | 1,240 | 1,060 | 723 | 606 | 544 |
| 8..... | 711 | * 475 | * 530 | * 553 | 405 | 805 | 801 | 1,240 | 1,100 | 761 | 619 | 534 |
| 9..... | 677 | * 942 | * 525 | * 551 | 471 | 705 | 739 | 1,260 | 1,160 | 761 | 605 | 538 |
| 10..... | 659 | * 963 | * 978 | * 524 | 472 | 808 | 749 | 1,270 | 1,100 | 747 | 603 | 496 |
| 11..... | 629 | 853 | * 964 | * 521 | 477 | 798 | 692 | 1,280 | 1,080 | 691 | 598 | 493 |
| 12..... | ^b 589 | 718 | 828 | * 528 | 468 | 755 | 721 | 1,330 | 1,070 | 731 | 602 | 491 |
| 13..... | 571 | * 723 | 864 | * 453 | 494 | 828 | 697 | 1,340 | 1,080 | 671 | 581 | 477 |
| 14..... | 561 | * 692 | 827 | * 549 | 481 | 750 | 1,070 | 1,390 | 1,080 | * 675 | 592 | 481 |
| 15..... | 589 | * 659 | 756 | * 511 | 508 | 750 | 1,180 | 1,360 | 1,200 | * 718 | 617 | 495 |
| 16..... | 669 | * 638 | 649 | 574 | 473 | 702 | 1,140 | 1,330 | 1,240 | 704 | 579 | 474 |
| 17..... | 608 | * 596 | * 636 | 622 | 416 | 745 | 1,060 | 1,320 | 1,200 | 659 | 580 | 437 |
| 18..... | 584 | * 556 | * 572 | 588 | 459 | 767 | 1,030 | 1,320 | 1,190 | 607 | 574 | 477 |
| 19..... | 590 | * 584 | * 560 | 505 | 436 | 747 | 1,010 | 1,340 | 1,290 | 643 | 553 | 455 |
| 20..... | 595 | * 556 | * 541 | 458 | 516 | 779 | 1,050 | 1,360 | 1,240 | 637 | 574 | 414 |
| 21..... | * 484 | * 550 | * 542 | 526 | 524 | 924 | 1,060 | 1,470 | 1,140 | 645 | 551 | 503 |
| 22..... | * 550 | * 540 | * 533 | 534 | 539 | 974 | 1,100 | 1,510 | 1,050 | 704 | 555 | 450 |
| 23..... | * 523 | * 545 | * 512 | 477 | 563 | 902 | 1,080 | 1,600 | 1,030 | 648 | 554 | 459 |
| 24..... | * 523 | * 531 | * 507 | 514 | 577 | 801 | 1,170 | 1,640 | 937 | 613 | 539 | 446 |
| 25..... | * 515 | * 499 | * 530 | 524 | 611 | 791 | 1,200 | 1,590 | 861 | 620 | 560 | 438 |
| 26..... | * 516 | * 568 | * 574 | 557 | 599 | 798 | 1,250 | 1,430 | 881 | 642 | 551 | 457 |
| 27..... | 542 | * 528 | * 563 | 488 | 606 | 835 | 1,330 | 1,330 | 792 | 618 | 562 | 494 |
| 28..... | ^b 532 | * 523 | * 576 | ^b 481 | 606 | 1,030 | 1,350 | 1,260 | 836 | 643 | 547 | 476 |
| 29..... | * 562 | * 491 | * 633 | 550 | ----- | 1,080 | 1,420 | 1,190 | 738 | 610 | 562 | 459 |
| 30..... | * 510 | * 540 | * 745 | 508 | ----- | 992 | 1,420 | 1,200 | 740 | 611 | 524 | 454 |
| 31..... | * 511 | ----- | * 650 | 525 | ----- | 953 | ----- | 1,180 | ----- | 610 | 546 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|-------------------------|
| October..... | 711 | 484 | 584 | 35,900 |
| November..... | 942 | 475 | 595 | 35,400 |
| December..... | 978 | 451 | 612 | 37,600 |
| January..... | 772 | 458 | 558 | 34,300 |
| February..... | 611 | 405 | 508 | 28,200 |
| March..... | 1,080 | 616 | 824 | 50,700 |
| April..... | 1,420 | 692 | 1,000 | 59,500 |
| May..... | 1,640 | 1,180 | 1,350 | 83,000 |
| June..... | 1,280 | 738 | 1,060 | 63,100 |
| July..... | 761 | 610 | 680 | 41,800 |
| August..... | 628 | 524 | 581 | 35,700 |
| September..... | 557 | 414 | 486 | 28,900 |
| The year..... | 1,640 | 405 | 738 | 534,000 |

* Based on electrical output.

^b Estimated.

NOTE.—Daily discharge corrected for storage at power plant.

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-fourths mile above mouth of Salmon River.

DRAINAGE AREA.—117 square miles.

RECORDS AVAILABLE.—May, 1910, to September, 1914; March, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 4,000 second-feet Mar. 21 (gage height, 4.8 feet); minimum, 178 second-feet Oct. 1.

1910-1914, 1926-1929: Maximum discharge, 6,940 second-feet Jan. 13, 1912 (gage height, 6.8 feet); minimum, 165 second-feet July 29 and Aug. 2, 1926 (gage height, 0.60 foot).

REMARKS.—Records fair; discharge Oct. 7 to Dec. 11 estimated by comparison with that for Sandy River near Marmot. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|-------|------|-------|-------|-------|-------|------|------|-------|
| 1 | 183 | | | 715 | 350 | 397 | 678 | 1,350 | 925 | 479 | 323 | 253 |
| 2 | 262 | | | 1,200 | 341 | 450 | 640 | 1,650 | 880 | 479 | 323 | 239 |
| 3 | 228 | | | 1,150 | 323 | 570 | 640 | 1,650 | 880 | 450 | 260 | 214 |
| 4 | 300 | | | 838 | 310 | 640 | 640 | 1,550 | 925 | 424 | 239 | 232 |
| 5 | 247 | | | 640 | 305 | 838 | 570 | 1,450 | 970 | 424 | 239 | 226 |
| 6 | 210 | | 350 | 539 | 286 | 838 | 508 | 1,250 | 925 | 424 | 239 | 220 |
| 7 | | | | 479 | 239 | 715 | 508 | 1,150 | 880 | 397 | 239 | 202 |
| 8 | | | | 450 | 232 | 678 | 508 | 1,200 | 1,060 | 397 | 239 | 202 |
| 9 | | | | 424 | 232 | 715 | 450 | 1,150 | 970 | 424 | 232 | 226 |
| 10 | | | | 397 | 246 | 880 | 450 | 1,200 | 925 | 397 | 246 | 232 |
| 11 | | | | 397 | 253 | 795 | 450 | 1,350 | 838 | 350 | 239 | 208 |
| 12 | | | 539 | 374 | 253 | 678 | 424 | 1,550 | 880 | 350 | 239 | 226 |
| 13 | | | 508 | 374 | 253 | 605 | 450 | 1,650 | 925 | 374 | 246 | 246 |
| 14 | | | 450 | 374 | 253 | 570 | 1,100 | 1,650 | 925 | 374 | 253 | 214 |
| 15 | | | 397 | 350 | 256 | 570 | 925 | 1,550 | 925 | 341 | 253 | 214 |
| 16 | | | 350 | 350 | 260 | 605 | 925 | 1,550 | 925 | 305 | 267 | 197 |
| 17 | | | 350 | 374 | 256 | 605 | 925 | 1,450 | 880 | 305 | 246 | 197 |
| 18 | | | 332 | 397 | 253 | 640 | 880 | 1,450 | 925 | 305 | 260 | 214 |
| 19 | | 300 | 314 | 336 | 246 | 715 | 970 | 1,450 | 1,100 | 297 | 267 | 197 |
| 20 | | | 301 | 323 | 278 | 1,450 | 1,250 | 1,650 | 925 | 282 | 260 | 192 |
| 21 | | | 297 | 328 | 350 | 3,520 | 1,350 | 1,650 | 795 | 282 | 253 | 188 |
| 22 | | | 297 | 323 | 374 | 1,860 | 1,450 | 1,650 | 755 | 275 | 253 | 197 |
| 23 | | | 275 | 267 | 374 | 1,200 | 1,450 | 1,650 | 715 | 282 | 282 | 220 |
| 24 | | | 305 | 323 | 397 | 970 | 1,350 | 1,750 | 715 | 290 | 267 | 202 |
| 25 | | | 397 | 397 | 424 | 880 | 1,350 | 1,450 | 715 | 275 | 275 | 197 |
| 26 | | | 450 | 424 | 424 | 880 | 1,450 | 1,250 | 640 | 275 | 275 | 197 |
| 27 | | | 508 | 397 | 424 | 970 | 1,550 | 1,200 | 605 | 260 | 275 | 197 |
| 28 | | | 479 | 350 | 397 | 1,350 | 1,550 | 1,060 | 605 | 260 | 267 | 214 |
| 29 | | | 715 | 350 | | 1,250 | 1,650 | 970 | 539 | 275 | 267 | 202 |
| 30 | | | 795 | 332 | | 880 | 1,450 | 880 | 508 | 305 | 264 | 220 |
| 31 | | | 755 | 341 | | 715 | | 925 | | 341 | 267 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | | 183 | 288 | 2.46 | 2.84 | 17,700 |
| November | | | 420 | 3.59 | 4.00 | 25,000 |
| December | 795 | | 409 | 3.50 | 4.04 | 26,100 |
| January | 1,209 | 267 | 462 | 3.95 | 4.55 | 28,400 |
| February | 424 | 232 | 307 | 2.62 | 2.73 | 17,000 |
| March | 3,520 | 397 | 917 | 7.84 | 9.04 | 56,400 |
| April | 1,650 | 424 | 950 | 8.12 | 9.06 | 56,500 |
| May | 1,750 | 880 | 1,400 | 12.00 | 13.83 | 86,100 |
| June | 1,100 | 508 | 839 | 7.17 | 8.00 | 49,900 |
| July | 479 | 260 | 345 | 2.95 | 3.40 | 21,200 |
| August | 323 | 232 | 260 | 2.22 | 2.56 | 16,000 |
| September | 253 | 188 | 213 | 1.82 | 2.03 | 12,700 |
| The year | 3,520 | 183 | 569 | 4.86 | 66.08 | 412,000 |

SANDY RIVER NEAR MARMOT, OREG.

LOCATION.—Water-stage recorder in SE. ¼ sec. 24, T. 2 S., R. 5 E., three-fourths mile southwest of Marmot, 2 miles above Sandy River dam of Portland Electric Power Co., and 5 miles below Salmon River.

DRAINAGE AREA.—262 square miles.

RECORDS AVAILABLE.—August, 1911, to December, 1915; July, 1919, to September, 1929. Combined discharge of Sandy River and canal gives same results for the gap in record.

EXTREMES.—Maximum discharge during year, 7,700 second-feet Mar. 21 (gage height, 8.7 feet); minimum, 257 second-feet Sept. 29 and 30 (gage height, 1.92 feet).

1911-1929: Maximum discharge, about 29,200 second-feet Jan. 6, 1923 (gage height, 17.5 feet); minimum, 253 second-feet Oct. 24, 1925.

REMARKS.—Records good. No diversions or regulation above station. Gage-height record furnished by Portland Electric Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 290 | 353 | 740 | 1,600 | 740 | 890 | 1,510 | 2,430 | 1,630 | 825 | 490 | * 343 |
| 2..... | 345 | 349 | 685 | 2,480 | 740 | 1,240 | 1,390 | 3,200 | 1,550 | 855 | 495 | 321 |
| 3..... | 385 | 361 | 620 | 2,430 | 705 | 1,280 | 1,310 | 2,780 | 1,510 | 795 | 468 | 309 |
| 4..... | 515 | 405 | 580 | 1,830 | 670 | 1,440 | 1,230 | 2,880 | 1,590 | 753 | 428 | 317 |
| 5..... | 484 | 409 | 546 | 1,440 | 640 | 1,910 | 1,120 | 2,680 | 1,760 | 747 | 414 | 313 |
| 6..... | 369 | 373 | 533 | 1,200 | 600 | 1,860 | 1,040 | 2,430 | 1,760 | 735 | 410 | 305 |
| 7..... | 610 | 357 | 524 | 1,030 | * 575 | 1,500 | 1,010 | 2,230 | 1,590 | 700 | 405 | 297 |
| 8..... | 585 | 397 | 615 | 925 | * 550 | 1,360 | 960 | 2,280 | 1,720 | 683 | 414 | 293 |
| 9..... | 520 | 3,450 | 740 | 860 | * 520 | 1,400 | 915 | 2,230 | 1,630 | 688 | 410 | 301 |
| 10..... | 556 | 3,090 | 1,590 | 800 | * 495 | 1,820 | 885 | 2,330 | 1,590 | 666 | 414 | 309 |
| 11..... | 510 | 1,780 | 1,400 | 770 | 470 | 1,680 | 885 | 2,580 | 1,510 | 644 | 414 | 309 |
| 12..... | 425 | 1,280 | 1,140 | 740 | * 467 | 1,400 | 885 | 2,880 | 1,510 | 606 | 401 | 309 |
| 13..... | 385 | 1,100 | 960 | 710 | * 464 | 1,200 | 960 | 2,960 | 1,590 | 644 | 393 | 317 |
| 14..... | 369 | 990 | 830 | 710 | 461 | 1,140 | 2,380 | 2,960 | 1,510 | 639 | 393 | 313 |
| 15..... | 759 | 890 | 740 | 695 | * 473 | 1,240 | 2,280 | 2,780 | 1,760 | 612 | 385 | 313 |
| 16..... | 1,140 | 1,480 | 690 | 660 | * 485 | 1,280 | 2,080 | 2,680 | 1,630 | 580 | 377 | 296 |
| 17..... | 770 | 1,390 | 650 | 705 | 497 | 1,280 | 1,860 | 2,680 | 1,590 | 560 | 377 | 297 |
| 18..... | 620 | 1,100 | 620 | 830 | 497 | 1,280 | 1,720 | 2,580 | 1,760 | * 566 | 381 | 299 |
| 19..... | 542 | 925 | 590 | 685 | 497 | 1,440 | 1,900 | 2,780 | 2,180 | * 572 | 373 | 289 |
| 20..... | 484 | 890 | 565 | * 686 | 542 | 2,600 | 2,380 | 2,880 | 1,810 | * 578 | 365 | 285 |
| 21..... | 438 | 770 | 546 | * 688 | 890 | 6,340 | 2,480 | 2,880 | 1,550 | * 584 | 365 | 282 |
| 22..... | 417 | 705 | 538 | 690 | 830 | 3,650 | 2,680 | 2,880 | 1,350 | 590 | 365 | 317 |
| 23..... | 393 | 660 | 515 | 600 | 925 | 2,580 | 2,580 | 2,780 | 1,270 | * 555 | 377 | 446 |
| 24..... | 381 | 620 | 520 | 740 | 925 | 2,040 | 2,580 | 3,090 | 1,180 | 520 | 373 | 357 |
| 25..... | 369 | 590 | 770 | 1,100 | 1,170 | 1,720 | 2,580 | 2,680 | 1,150 | * 508 | 357 | 301 |
| 26..... | 357 | 650 | 1,060 | 1,240 | 995 | 1,720 | 2,780 | 2,380 | 1,080 | 496 | 357 | 278 |
| 27..... | 353 | 800 | 1,320 | 1,100 | 960 | 2,040 | 2,780 | 2,080 | 1,010 | * 492 | 369 | 271 |
| 28..... | 345 | 710 | 1,200 | 925 | 890 | 2,780 | 2,780 | 1,810 | 980 | * 489 | 365 | 264 |
| 29..... | 345 | 660 | 1,680 | 770 | ----- | 2,430 | 3,530 | 1,760 | 945 | 486 | 369 | 257 |
| 30..... | 421 | 660 | 2,140 | 765 | ----- | 1,990 | 2,780 | 1,680 | 855 | 487 | 365 | 257 |
| 31..... | 385 | ----- | 1,910 | * 685 | ----- | 1,680 | ----- | 1,630 | ----- | * 488 | 365 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 1,140 | 290 | 480 | 1.83 | 2.11 | 29,500 |
| November..... | 3,460 | 349 | 938 | 3.58 | 3.99 | 55,800 |
| December..... | 2,140 | 515 | 858 | 3.39 | 3.91 | 54,000 |
| January..... | 2,480 | 600 | 1,000 | 3.82 | 4.40 | 61,500 |
| February..... | 1,170 | 461 | 667 | 2.55 | 2.66 | 37,000 |
| March..... | 6,340 | 890 | 1,880 | 7.18 | 8.28 | 116,000 |
| April..... | 3,530 | 885 | 1,880 | 7.18 | 8.01 | 112,000 |
| May..... | 3,200 | 1,630 | 2,540 | 9.09 | 11.17 | 156,000 |
| June..... | 2,180 | 855 | 1,480 | 5.65 | 6.30 | 88,100 |
| July..... | 855 | 486 | 617 | 2.36 | 2.72 | 37,900 |
| August..... | 496 | 357 | 385 | 1.61 | 1.74 | 24,300 |
| September..... | 446 | 257 | 306 | 1.16 | 1.29 | 18,100 |
| The year..... | 6,340 | 257 | 1,090 | 4.16 | 56.58 | 796,000 |

* Estimated.

ZIGZAG RIVER AT TWIN BRIDGES, NEAR RHODODENDRON, OREG.

LOCATION.—Water-stage recorder probably in sec. 15 of unsurveyed T. 3 S., R. 8 E., 200 feet above upper of the Twin Bridges on the Mount Hood Loop Highway and $5\frac{1}{2}$ miles east of Rhododendron.

DRAINAGE AREA.—5.2 square miles.

RECORDS AVAILABLE.—March, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 89 second-feet May 24 (gage height, 1.24 feet); minimum, 18 second-feet Oct. 23.

1926-1929: Maximum discharge, 217 second-feet Nov. 25, 1927 (gage height, 1.85 feet); minimum, about 10 second-feet Aug. 10 and 11, 1926.

REMARKS.—Records good. Mean discharge estimated for periods included in braces. No diversions or regulation above station. Diurnal fluctuation in summer due to melting of snow and ice in glaciers.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | | | | 24 | 23 | 21 | 36 | 43 | 63 | 57 | 38 | 29 |
| 2 | | | | 24 | 23 | 23 | 36 | 49 | 63 | 55 | 36 | 30 |
| 3 | 24 | | | 26 | 23 | 23 | 36 | 47 | 61 | 51 | 36 | 29 |
| 4 | | | | 24 | 22 | 24 | 36 | 45 | 65 | 49 | 34 | 26 |
| 5 | | 23 | | 24 | 22 | 24 | 34 | 43 | 61 | 49 | 34 | 22 |
| 6 | | | | 24 | 22 | 23 | 34 | 43 | 53 | 47 | 34 | 22 |
| 7 | | 26 | | 24 | 23 | 23 | 36 | 42 | 47 | 47 | 34 | 24 |
| 8 | | 27 | 28 | 24 | 22 | 22 | 34 | 42 | 51 | 45 | 34 | 22 |
| 9 | | 23 | 37 | 24 | 22 | 23 | 34 | | 51 | 45 | 33 | 22 |
| 10 | | 24 | 31 | 26 | 22 | 24 | 34 | | 53 | 43 | 33 | 22 |
| 11 | | 22 | 28 | 26 | 22 | 24 | 34 | 45 | 53 | 40 | 33 | 23 |
| 12 | | 22 | 27 | 26 | 22 | 23 | 34 | | 57 | 40 | 31 | 26 |
| 13 | | 22 | 28 | 27 | 20 | 23 | 33 | 53 | 61 | 40 | 33 | 20 |
| 14 | | 22 | 28 | 26 | 20 | 23 | 37 | 55 | 63 | 40 | 34 | 22 |
| 15 | | 33 | 28 | 26 | 21 | 23 | 36 | 57 | 71 | 38 | 33 | 23 |
| 16 | | 28 | 29 | 24 | 21 | 24 | 36 | 57 | 51 | 37 | 33 | 23 |
| 17 | | 24 | 28 | 24 | | 24 | 34 | 55 | 49 | 37 | 33 | 26 |
| 18 | | | 28 | 26 | | 26 | 37 | 55 | 53 | 34 | 31 | 61 |
| 19 | | | 27 | 26 | | 26 | 38 | 61 | 59 | 34 | 30 | 80 |
| 20 | | 21 | 26 | 24 | | 36 | 38 | 68 | 61 | 34 | 33 | 28 |
| 21 | | | 26 | 24 | | 63 | 38 | 65 | 61 | 33 | 33 | 26 |
| 22 | | | 26 | 26 | 20 | 47 | 40 | 71 | 61 | 33 | 31 | 26 |
| 23 | | 18 | 26 | 24 | | 42 | 42 | 82 | 59 | 34 | 33 | 26 |
| 24 | | | 24 | 26 | | 40 | 43 | 85 | 59 | 34 | 34 | 28 |
| 25 | | | 24 | 23 | | 40 | 42 | 82 | 57 | 34 | 37 | 21 |
| 26 | | | 26 | 23 | 24 | 38 | 45 | 77 | 55 | 33 | 37 | 19 |
| 27 | | | 23 | 23 | 23 | 42 | 45 | 71 | 59 | 33 | 36 | 19 |
| 28 | | | 23 | 24 | | 43 | 45 | 71 | 59 | 33 | 31 | 19 |
| 29 | | | 26 | 23 | 24 | 42 | 45 | 73 | 57 | 34 | 36 | 19 |
| 30 | | | | 23 | 24 | 38 | 43 | 71 | 57 | 34 | 31 | 19 |
| 31 | | | 23 | 23 | | 38 | | 68 | | 37 | 29 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acro-feet |
| October | 33 | | 22.7 | 4.37 | 5.04 | 1,400 |
| November | 37 | | 27.2 | 5.23 | 5.84 | 1,620 |
| December | | | 25.4 | 4.88 | 5.63 | 1,560 |
| January | 27 | 23 | 24.5 | 4.71 | 5.43 | 1,510 |
| February | 23 | | 21.1 | 4.06 | 4.23 | 1,170 |
| March | 63 | 21 | 30.8 | 5.92 | 6.82 | 1,890 |
| April | 45 | 33 | 37.8 | 7.27 | 8.11 | 2,250 |
| May | 85 | 42 | 58.3 | 11.2 | 12.91 | 3,580 |
| June | 71 | 47 | 57.7 | 11.1 | 12.38 | 3,430 |
| July | 57 | 33 | 39.8 | 7.65 | 8.82 | 2,450 |
| August | 38 | 29 | 33.5 | 6.44 | 7.42 | 2,060 |
| September | 31 | 19 | 23.9 | 4.60 | 5.13 | 1,420 |
| The year | 85 | | 33.6 | 6.46 | 87.76 | 24,300 |

ZIGZAG RIVER AT RHODOBENDRON, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 11, T. 3 S., R. 7 E., just below bridge on Vine Maple Road and one-fourth mile south of Rhodobendron.

DRAINAGE AREA.—31 square miles.

RECORDS AVAILABLE.—February, 1920, to September, 1921; March, 1926, to September, 1929, incomplete.

EXTREMES.—Maximum discharge during year, 667 second-feet Mar. 21 (gage height, 3.20 feet); minimum, 64 second-feet Sept. 27-30 (gage height, 1.36 feet).

1920-21, 1926-1929: Maximum discharge, 1,270 second-feet Nov. 25, 1927 (gage height, 4.20 feet); minimum, 59 second-feet July 24, 27, 28, Sept. 2, 12, and 13, 1926 (gage height, 1.32 feet).

REMARKS.—Records fair. Discharge estimated Dec. 24, 30, Jan. 6, 7, 22-24, 27-31, and Aug. 31 to Sept. 6. No diversions or regulation above station. Diurnal fluctuation in summer due to melting of snow and ice in glaciers.

Daily and monthly discharge, in second-feet, 1923-29

| Day | Oct. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 78 | 99 | 130 | | 88 | | | 260 | 144 | 87 | 74 |
| 2 | 81 | 92 | 192 | | 118 | | | 275 | 144 | 88 | |
| 3 | 86 | 87 | 167 | | 106 | | | 260 | 139 | 87 | |
| 4 | | 85 | 144 | | 118 | | | 310 | 132 | 83 | |
| 5 | | 88 | 126 | | 144 | | | 292 | 130 | 82 | |
| 6 | 78 | 82 | 118 | | 134 | | | 260 | 126 | 80 | 71 |
| 7 | | 82 | 110 | | 122 | | | 246 | 124 | 78 | |
| 8 | | 95 | 102 | | 118 | | | 275 | 122 | 77 | |
| 9 | | 120 | 99 | | 130 | | | 260 | 118 | 77 | |
| 10 | | 167 | 99 | | 167 | | | 260 | 116 | 77 | |
| 11 | | 122 | 95 | | | | | 260 | 110 | 77 | 70 |
| 12 | | 114 | 95 | 76 | 126 | | | 246 | 106 | 76 | 70 |
| 13 | | 104 | 95 | 76 | 118 | | | 232 | 104 | 76 | 70 |
| 14 | | 99 | 94 | 73 | 114 | 218 | | 232 | 104 | 77 | 68 |
| 15 | | 97 | 92 | 76 | 122 | 167 | | 275 | 102 | 76 | 67 |
| 16 | | 95 | 88 | | 126 | | | 232 | 101 | 77 | 68 |
| 17 | | 92 | 95 | | 124 | 167 | | 232 | 101 | 76 | 71 |
| 18 | | 88 | 95 | | 139 | | | 246 | 97 | 77 | 70 |
| 19 | | 88 | 82 | | | 192 | | 246 | 93 | 77 | 70 |
| 20 | | 85 | 88 | | 292 | 232 | 472 | 218 | 93 | 77 | 71 |
| 21 | | 85 | 95 | | 565 | | 430 | 205 | 93 | 78 | 73 |
| 22 | | 83 | 101 | | 310 | | | 192 | 92 | 78 | 76 |
| 23 | | 82 | 99 | 82 | | | | 192 | 90 | 82 | 78 |
| 24 | | 90 | 99 | | | | 430 | 192 | 92 | 83 | 73 |
| 25 | | 99 | 99 | 92 | | | | 180 | 92 | 80 | 70 |
| 26 | | 126 | 95 | | | | | 180 | 90 | 78 | 67 |
| 27 | | 106 | | 82 | | | | 167 | 87 | 75 | 64 |
| 28 | | 106 | | | | | | 167 | 87 | 77 | 64 |
| 29 | | 134 | 93 | | | | | 156 | 87 | 77 | 64 |
| 30 | | 132 | | | | | 275 | 156 | 87 | 77 | 64 |
| 31 | | 180 | | | | | 275 | | 85 | 77 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| December | 167 | 82 | 102 | 8.29 | 3.79 | 6,270 |
| January | 192 | 82 | 105 | 3.39 | 3.91 | 6,460 |
| June | 310 | 156 | 230 | 7.42 | 8.28 | 13,790 |
| July | 144 | 85 | 106 | 3.42 | 3.94 | 6,520 |
| August | 88 | 75 | 78.8 | 2.54 | 2.98 | 4,850 |
| September | 78 | 64 | 70.4 | 2.27 | 2.53 | 4,190 |

NOTE.—Gage not read on days for which no discharge is given.

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 $5\frac{1}{2}$ miles east of Rhododendron.

DRAINAGE AREA.—3.7 square miles.

RECORDS AVAILABLE.—March, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 41 second-feet May 24; minimum, 19 second-feet Oct. 18, 26, and 27.

1926-1929: Maximum discharge, 90 second-feet Nov. 29, 1926 (gage height 1.65 feet); minimum daily discharge, 18 second-feet on a few days in summer of 1926.

REMARKS.—Records good except those for estimated periods (Oct. 30 to Nov. 8 and Feb. 8-28), which are fair. No diversions or regulation above station.

Diurnal fluctuation in summer due to melting of snow and ice in glaciers.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 22 | | 22 | 22 | 21 | 22 | 26 | 32 | 32 | 26 | 25 | 23 |
| 2 | 24 | | 22 | 23 | 21 | 22 | 26 | 34 | 33 | 26 | 25 | 24 |
| 3 | 24 | | 22 | 22 | 21 | 22 | 26 | 34 | 33 | 26 | 25 | 23 |
| 4 | 25 | | 22 | 22 | 21 | 22 | 26 | 33 | 34 | 26 | 25 | 24 |
| 5 | 24 | 22 | 22 | 22 | 21 | 22 | 26 | 33 | 34 | 26 | 25 | 22 |
| 6 | 24 | | 22 | 22 | 22 | 22 | 26 | 32 | 32 | 26 | 26 | 24 |
| 7 | 25 | | 22 | 22 | 22 | 22 | 26 | 34 | 31 | 26 | 25 | 24 |
| 8 | 25 | | 22 | 22 | 22 | 22 | 26 | 33 | 32 | 26 | 25 | 24 |
| 9 | 25 | 26 | 23 | 22 | 22 | 22 | 26 | 32 | 32 | 26 | 24 | 24 |
| 10 | 26 | 25 | 24 | 22 | 23 | 23 | 26 | 33 | 32 | 26 | 24 | 24 |
| 11 | 25 | 23 | 22 | 22 | | 22 | 26 | 34 | 30 | 25 | 24 | 24 |
| 12 | 24 | 22 | 22 | 22 | | 22 | 27 | 35 | 31 | 25 | 23 | 24 |
| 13 | 24 | 22 | 22 | 22 | 22 | 22 | 27 | 36 | 31 | 25 | 24 | 24 |
| 14 | 14 | 22 | 22 | 22 | 22 | 22 | 29 | 36 | 31 | 25 | 23 | 24 |
| 15 | 27 | 22 | 22 | 22 | 22 | 22 | 28 | 35 | 33 | 25 | 24 | 24 |
| 16 | 26 | 22 | 22 | 22 | | 22 | 28 | 35 | 31 | 25 | 23 | 22 |
| 17 | 25 | 22 | 22 | 22 | | 22 | 28 | 36 | 31 | 25 | 22 | 21 |
| 18 | 19 | 22 | 22 | 22 | | 22 | 28 | 37 | 32 | 25 | 22 | 21 |
| 19 | 20 | 22 | 22 | 22 | | 22 | 29 | 39 | 32 | 25 | 22 | 23 |
| 20 | 20 | 22 | 22 | 22 | | 26 | 29 | 38 | 32 | 25 | 23 | 22 |
| 21 | 20 | 22 | 22 | 22 | | 35 | 30 | 38 | 30 | 25 | 23 | 23 |
| 22 | 20 | 22 | 22 | 22 | | 30 | 30 | 38 | 30 | 25 | 23 | 24 |
| 23 | 20 | 22 | 22 | 22 | 21 | 27 | 30 | 39 | 30 | 25 | 23 | 25 |
| 24 | 20 | 22 | 22 | 22 | 21 | 26 | 30 | 40 | 30 | 25 | 23 | 24 |
| 25 | 20 | 22 | 22 | 22 | | 26 | 30 | 36 | 30 | 25 | 23 | 23 |
| 26 | 19 | 22 | 22 | 22 | | 26 | 31 | 34 | 28 | 25 | 24 | 23 |
| 27 | 19 | 22 | 22 | 22 | | 27 | 30 | 34 | 28 | 25 | 23 | 22 |
| 28 | 20 | 22 | 22 | 21 | | 28 | 31 | 34 | 28 | 25 | 23 | 22 |
| 29 | 20 | 22 | 22 | 21 | | 27 | 32 | 33 | 28 | 25 | 22 | 22 |
| 30 | 20 | 22 | 22 | 21 | | 27 | 33 | 33 | 28 | 25 | 24 | 22 |
| 31 | 20 | | 22 | 21 | | 26 | | 33 | | 25 | 23 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 27 | 19 | 22.5 | 6.08 | 7.01 | 1,380 |
| November | 26 | | 22.3 | 6.08 | 6.73 | 1,330 |
| December | 24 | 22 | 22.1 | 5.97 | 6.88 | 1,380 |
| January | 23 | 21 | 21.9 | 5.92 | 6.82 | 1,380 |
| February | | | 21.5 | 5.81 | 6.05 | 1,190 |
| March | 35 | 22 | 24.2 | 6.54 | 7.54 | 1,490 |
| April | 33 | 26 | 28.2 | 7.62 | 8.50 | 1,680 |
| May | 40 | 32 | 34.9 | 9.43 | 10.87 | 2,150 |
| June | 34 | 28 | 31.0 | 8.38 | 9.35 | 1,840 |
| July | 26 | 25 | 25.3 | 6.94 | 7.89 | 1,560 |
| August | 26 | 22 | 23.6 | 6.38 | 7.36 | 1,450 |
| September | 25 | 21 | 23.2 | 6.27 | 7.00 | 1,380 |
| The year | 40 | 19 | 25.1 | 6.78 | 92.00 | 18,200 |

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, half a mile northwest of Summit ranger station, and 2 miles southeast of Government Camp.

DRAINAGE AREA.—2.8 square miles.

RECORDS AVAILABLE.—May, 1910, to May, 1912; May 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 52 second-feet May 22 (gage height, 1.28 feet); minimum, 10 second-feet Sept. 18, 29, and 30.

1910-1912, 1926-1929: Maximum discharge, 54 second-feet Dec. 1, 1927 (gage height, 1.50 feet); minimum, 5.0 second-feet Nov. 12, 1911.

REMARKS.—Records good. Mean monthly discharge is mean discharge for days gage was read, except for June, for which discharge was interpolated for days of no gage-height record. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | | 15 | 14 | | | | 16 | | 31 | 18 | | |
| 2 | 15 | | 14 | 16 | 15 | 15 | | 33 | 31 | | | 14 |
| 3 | | 15 | | | 15 | | 16 | | 31 | | 17 | |
| 4 | 21 | 17 | 14 | | | 15 | | 23 | 31 | | 16 | 13 |
| 5 | | | | 15 | | | | | 31 | | | 13 |
| 6 | 14 | 15 | 14 | 15 | 15 | | 16 | 23 | 30 | 18 | | |
| 7 | 17 | | | | | 15 | | | 28 | 17 | 15 | 12 |
| 8 | | 18 | 15 | 15 | | | 16 | | 31 | | | 12 |
| 9 | 17 | 25 | 17 | 15 | 15 | 14 | | 26 | 31 | | 15 | |
| 10 | | 20 | | 15 | | | 17 | | 31 | 17 | 16 | 12 |
| 11 | 15 | 16 | 16 | | 15 | 14 | | 33 | 28 | | 15 | |
| 12 | | 16 | | 14 | | | | | 26 | | | 12 |
| 13 | 15 | 15 | 14 | 14 | 15 | | 17 | 40 | 26 | 17 | 15 | |
| 14 | 15 | | | | | | | | 26 | 17 | | 11 |
| 15 | | 15 | 14 | 14 | | | 18 | 26 | 26 | | 15 | 12 |
| 16 | | | 14 | | 14 | 14 | | | 26 | | | |
| 17 | 16 | 15 | | 14 | | | | | 26 | 17 | 15 | |
| 18 | | 15 | 13 | | 14 | 14 | 18 | 39 | 26 | | 15 | 10 |
| 19 | | | | 15 | | | | | 26 | | | |
| 20 | 15 | 15 | 13 | 15 | 14 | | 20 | 42 | 24 | 17 | | 12 |
| 21 | 15 | | | | | 36 | | | 23 | 16 | 15 | 13 |
| 22 | | 14 | 14 | | | | 21 | 52 | 24 | | | |
| 23 | 15 | | | 15 | 14 | 20 | | | | | 16 | 14 |
| 24 | | 14 | 13 | | | | 23 | 39 | | | 16 | |
| 25 | 14 | 14 | | | 14 | 17 | | 33 | | 16 | 15 | 12 |
| 26 | | | 17 | 16 | | | | | 21 | | | |
| 27 | 14 | 16 | | 16 | 14 | 17 | 24 | 31 | | 16 | 14 | 11 |
| 28 | | | | | | | | | | 15 | | 11 |
| 29 | 14 | 14 | 16 | | | | 24 | 26 | | | 14 | 10 |
| 30 | 16 | | | 15 | | 17 | | | | 15 | | 10 |
| 31 | | | 15 | | | | | | | | 15 | |

| Month | Mean | Per square mile | Run-off | |
|------------|------|-----------------|---------|------------|
| | | | Inches | Acres-feet |
| October | 15.5 | 5.54 | 6.39 | 953 |
| November | 16.0 | 5.71 | 6.37 | 952 |
| December | 14.5 | 5.18 | 5.97 | 892 |
| January | 14.9 | 5.32 | 6.13 | 916 |
| February | 14.5 | 5.18 | 5.39 | 805 |
| March | 17.3 | 6.18 | 7.12 | 1,060 |
| April | 18.9 | 6.75 | 7.53 | 1,120 |
| May | 33.2 | 11.9 | 13.72 | 2,040 |
| June | 26.0 | 9.29 | 10.36 | 1,550 |
| July | 16.6 | 5.93 | 6.84 | 1,020 |
| August | 15.2 | 5.43 | 6.26 | 935 |
| September | 11.9 | 4.25 | 4.74 | 708 |
| The period | 18.3 | 6.54 | 86.82 | 13,000 |

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

STILL CREEK AT RHODODENDRON, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 2, T. 3 S., R. 7 E., 300 yards above mouth, 100 feet below Still Creek Bridge on Mount Hood Loop Highway, and one-fourth mile west of Rhododendron.

DRAINAGE AREA.—23 square miles.

RECORDS AVAILABLE.—February, 1920, to September, 1921; March, 1926, to September, 1929, incomplete.

EXTREMES.—Maximum discharge during year, 765 second-feet Mar. 22 (gage height, 3.22 feet); minimum, 25 second-feet Sept. 28–30.

1920–21, 1926–1929: Maximum discharge, 1,600 second-feet Nov. 25, 1927; minimum, 16 second-feet Sept. 12 and 14, 1926.

REMARKS.—Records fair; discharge estimated June 1–4. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug | Sept. |
|---------|------|------|------|------|------|------|-----|------|------|-----|-------|
| 1..... | 34 | | | | | | | 161 | 72 | 43 | 29 |
| 2..... | | | 220 | | | | | 176 | 70 | 42 | 29 |
| 3..... | | | 305 | | | | | 161 | 66 | 41 | 29 |
| 4..... | | 53 | | | | | | 205 | 63 | 40 | 29 |
| 5..... | | | | | 190 | | | 190 | 62 | 40 | 29 |
| 6..... | 34 | 47 | | | | | | 176 | 61 | 40 | 29 |
| 7..... | | | | | | | | 156 | 60 | 39 | 29 |
| 8..... | | | | | | | | 176 | 56 | 38 | 29 |
| 9..... | | | | | 134 | | | 176 | 56 | 37 | 29 |
| 10..... | | | | | | | | 161 | 55 | 36 | 29 |
| 11..... | | | | | | | | 156 | 54 | 36 | 29 |
| 12..... | | | 63 | | | | | 156 | 52 | 36 | 29 |
| 13..... | | 37 | | | | | | 150 | 51 | 35 | 29 |
| 14..... | | | | | 100 | | | 142 | 51 | 34 | 29 |
| 15..... | | 34 | | 44 | 112 | | | 156 | 51 | 33 | 29 |
| 16..... | | | | | | 176 | | 145 | 50 | 32 | 29 |
| 17..... | | | | | | | | 137 | 50 | 32 | 29 |
| 18..... | | | | | | | | 145 | 49 | 32 | 29 |
| 19..... | | | 51 | | | | | 176 | 49 | 32 | 29 |
| 20..... | | | | | | 220 | | 158 | 48 | 32 | 29 |
| 21..... | | 49 | 53 | | | | 308 | 145 | 48 | 32 | 29 |
| 22..... | | | | | 765 | | | 130 | 47 | 31 | 31 |
| 23..... | | | | 63 | | | | 119 | 47 | 32 | 35 |
| 24..... | | | | | | | | 110 | 46 | 32 | 31 |
| 25..... | | | | 82 | | | | 104 | 47 | 31 | 28 |
| 26..... | | | | | | | | 96 | 45 | 31 | 27 |
| 27..... | | | | | | | | 89 | 45 | 31 | 27 |
| 28..... | | | | 63 | | | | 86 | 45 | 30 | 26 |
| 29..... | | | | | | | | 82 | 44 | 30 | 25 |
| 30..... | | | | | | | | 75 | 45 | 30 | 25 |
| 31..... | | | | | | | | | 44 | 30 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| June..... | 205 | 75 | 143 | 6.22 | 6.94 | 8,510 |
| July..... | 72 | 44 | 52.5 | 2.28 | 2.63 | 3,230 |
| August..... | 43 | 30 | 34.5 | 1.50 | 1.73 | 2,120 |
| September..... | 35 | 25 | 28.8 | 1.25 | 1.40 | 1,710 |

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

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 and 4 miles southeast of Government Camp.

DRAINAGE AREA.—8.0 square miles.

RECORDS AVAILABLE.—May, 1910, to May, 1912; April, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 135 second-feet May 13 (gage height, 1.72 feet); minimum, 15 second-feet Mar. 1 (gage height, 0.47 foot). 1910-1912, 1926-1929: Maximum discharge, 350 second-feet Nov. 29, 1926 (gage height, 3.43 feet); minimum, 13 second-feet Sept. 9, 1926.

REMARKS.—Records good, except those estimated (Jan. 17 to Feb. 28), which are poor. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 17 | 17 | 21 | 19 | | 16 | 26 | 51 | 73 | 58 | 33 | 23 |
| 2..... | 20 | 17 | 19 | 22 | | 24 | 26 | 84 | 70 | 58 | 32 | 21 |
| 3..... | 21 | 17 | 18 | 21 | | 23 | 26 | 75 | 70 | 57 | 32 | 21 |
| 4..... | 29 | 23 | 18 | 20 | | 23 | 25 | 65 | 78 | 55 | 30 | 21 |
| 5..... | 21 | 18 | 17 | 19 | | 23 | 23 | 60 | 79 | 55 | 30 | 20 |
| 6..... | 21 | 17 | 17 | 19 | | 21 | 23 | 56 | 76 | 54 | 29 | 20 |
| 7..... | 25 | 17 | 17 | 19 | | 19 | 22 | 60 | 74 | 51 | 29 | 20 |
| 8..... | 24 | 24 | 22 | 18 | | 18 | 21 | 62 | 81 | 50 | 28 | 21 |
| 9..... | 23 | 86 | 32 | 17 | | 19 | 20 | 70 | 78 | 49 | 29 | 21 |
| 10..... | 26 | 42 | 37 | 17 | | 23 | 20 | 78 | 79 | 47 | 29 | 21 |
| 11..... | 21 | 30 | 26 | 17 | | 20 | 20 | 88 | 79 | 45 | 28 | 21 |
| 12..... | 18 | 27 | 23 | 17 | | 19 | 19 | 90 | 81 | 44 | 27 | 21 |
| 13..... | 17 | 26 | 21 | 17 | | 18 | 21 | 108 | 84 | 44 | 27 | 21 |
| 14..... | 17 | 26 | 20 | 17 | 15 | 18 | 24 | 104 | 85 | 44 | 27 | 22 |
| 15..... | 50 | 24 | 19 | 17 | | 19 | 23 | 97 | 91 | 42 | 27 | 22 |
| 16..... | 36 | 35 | 19 | 17 | | 20 | 23 | 102 | 81 | 40 | 27 | 23 |
| 17..... | 23 | 27 | 18 | | | 21 | 23 | 100 | 76 | 39 | 26 | 22 |
| 18..... | 19 | 24 | 18 | | | 22 | 25 | 97 | 88 | 39 | 27 | 22 |
| 19..... | 18 | 23 | 18 | | | 24 | 30 | 105 | 85 | 38 | 26 | 22 |
| 20..... | 17 | 23 | 18 | | | 46 | 33 | 109 | 75 | 37 | 26 | 22 |
| 21..... | 17 | 23 | 17 | | | 97 | 35 | 110 | 72 | 35 | 26 | 23 |
| 22..... | 17 | 22 | 17 | | | 49 | 42 | 114 | 70 | 35 | 25 | 27 |
| 23..... | 17 | 21 | 17 | 17 | | 35 | 49 | 114 | 70 | 35 | 25 | 30 |
| 24..... | 16 | 20 | 17 | | | 30 | 50 | 124 | 73 | 35 | 24 | 25 |
| 25..... | 16 | 20 | 18 | | | 28 | 52 | 105 | 70 | 35 | 24 | 22 |
| 26..... | 16 | 23 | 19 | | | 28 | 61 | 91 | 68 | 34 | 24 | 21 |
| 27..... | 16 | 24 | 20 | | | 35 | 60 | 82 | 67 | 33 | 24 | 21 |
| 28..... | 16 | 22 | 18 | | | 41 | 67 | 76 | 67 | 32 | 24 | 20 |
| 29..... | 17 | 20 | 20 | | | 35 | 62 | 75 | 64 | 33 | 24 | 19 |
| 30..... | 21 | 21 | 20 | | | 30 | 50 | 74 | 60 | 33 | 24 | 18 |
| 31..... | 17 | | 20 | | | 27 | | 74 | | 33 | 23 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 50 | 16 | 20.9 | 2.61 | 3.01 | 1,290 |
| November..... | 86 | 17 | 25.3 | 3.16 | 3.53 | 1,510 |
| December..... | 37 | 17 | 20.0 | 2.50 | 2.88 | 1,230 |
| January..... | 22 | | 17.7 | 2.21 | 2.55 | 1,090 |
| February..... | | | 15 | 1.88 | 1.96 | 833 |
| March..... | 97 | 16 | 28.1 | 3.51 | 4.05 | 1,730 |
| April..... | 67 | 19 | 33.4 | 4.18 | 4.66 | 1,990 |
| May..... | 124 | 51 | 87.1 | 10.9 | 12.57 | 5,360 |
| June..... | 91 | 60 | 75.5 | 9.44 | 10.53 | 4,490 |
| July..... | 58 | 32 | 42.5 | 5.31 | 6.12 | 2,610 |
| August..... | 33 | 23 | 27.0 | 3.38 | 3.90 | 1,680 |
| September..... | 30 | 18 | 21.8 | 2.72 | 3.04 | 1,300 |
| The year..... | 124 | | 34.6 | 4.32 | 58.80 | 25,100 |

SALMON RIVER BELOW LINNEY CREEK, OREG.

LOCATION.—Water-stage recorder 200 feet below Linney Creek, 9 miles southeast 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, 1929.

EXTREMES.—Maximum discharge during year, 771 second-feet May 13 (gage height, 2.43 feet); minimum, 57 second-feet Oct. 1 (gage height, 0.29 foot).

1927-1929: Maximum discharge, 2,800 second-feet Nov. 25, 1927 (gage height, 4.30 feet); minimum, 54 second-feet Sept. 30, 1928 (gage height, 0.27 foot).

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

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1 | 57 | 75 | 110 | 110 | 96 | 84 | 218 | 489 | 387 | 176 | 98 | 72 |
| 2 | 66 | 77 | 99 | 151 | 88 | 122 | 213 | 615 | 364 | 171 | 96 | 70 |
| 3 | 77 | 82 | 93 | 145 | 85 | 120 | 213 | 620 | 346 | 164 | 96 | 68 |
| 4 | 98 | 91 | 93 | 128 | 82 | 135 | 202 | 585 | 357 | 159 | 93 | 67 |
| 5 | 88 | 85 | 88 | 118 | 82 | 143 | 189 | 540 | 357 | 156 | 92 | 67 |
| 6 | 75 | 77 | 88 | 110 | 75 | 135 | 176 | 498 | 350 | 152 | 90 | 66 |
| 7 | 93 | 72 | 90 | 104 | 118 | 128 | 171 | 502 | 332 | 145 | 88 | 64 |
| 8 | 87 | 78 | 95 | 106 | 153 | 126 | 161 | 507 | 339 | 144 | 88 | 64 |
| 9 | 79 | 374 | 118 | 103 | 141 | 135 | 154 | 521 | 321 | 139 | 87 | 64 |
| 10 | 98 | 247 | 196 | 98 | 93 | 162 | 146 | 545 | 308 | 137 | 85 | 63 |
| 11 | 87 | 166 | 145 | 95 | 81 | 151 | 139 | 590 | 301 | 133 | 85 | 64 |
| 12 | 75 | 141 | 129 | 95 | 81 | 137 | 139 | 610 | 291 | 131 | 84 | 63 |
| 13 | 70 | 131 | 120 | 93 | 81 | 131 | 146 | 672 | 288 | 129 | 82 | 61 |
| 14 | 67 | 131 | 113 | 95 | 78 | 135 | 205 | 666 | 281 | 128 | 80 | 61 |
| 15 | 113 | 122 | 110 | 93 | 78 | 145 | 197 | 666 | 297 | 126 | 80 | 61 |
| 16 | 129 | 171 | 104 | 90 | 78 | 149 | 200 | 660 | 278 | 122 | 79 | 61 |
| 17 | 85 | 145 | 99 | 95 | 77 | 153 | 194 | 648 | 265 | 119 | 78 | 60 |
| 18 | 75 | 126 | 98 | 95 | 75 | 166 | 208 | 642 | 294 | 119 | 78 | 61 |
| 19 | 71 | 118 | 96 | 81 | 74 | 190 | 232 | 666 | 350 | 115 | 78 | 60 |
| 20 | 68 | 115 | 93 | 162 | 82 | 294 | 272 | 690 | 278 | 115 | 76 | 61 |
| 21 | 67 | 113 | 95 | 98 | 90 | 636 | 294 | 696 | 256 | 116 | 76 | 66 |
| 22 | 66 | 110 | 95 | 93 | 85 | 407 | 350 | 690 | 244 | 110 | 76 | 86 |
| 23 | 66 | 104 | 90 | 90 | 84 | 300 | 410 | 678 | 232 | 108 | 78 | 95 |
| 24 | 67 | 108 | 91 | 96 | 84 | 294 | 446 | 714 | 229 | 108 | 78 | 79 |
| 25 | 68 | 99 | 99 | 98 | 87 | 256 | 459 | 654 | 221 | 108 | 74 | 68 |
| 26 | 67 | 106 | 104 | 93 | 82 | 241 | 502 | 575 | 210 | 105 | 73 | 64 |
| 27 | 67 | 120 | 104 | 88 | 79 | 275 | 530 | 507 | 205 | 101 | 74 | 64 |
| 28 | 68 | 110 | 99 | 88 | 79 | 318 | 545 | 459 | 197 | 101 | 73 | 61 |
| 29 | 70 | 101 | 122 | 88 | 79 | 291 | 580 | 434 | 192 | 100 | 73 | 60 |
| 30 | 96 | 101 | 113 | 87 | ----- | 262 | 502 | 410 | 181 | 100 | 73 | 60 |
| 31 | 81 | ----- | 108 | 128 | ----- | 232 | ----- | 398 | ----- | 98 | 73 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 129 | 57 | 78.7 | 1.46 | 1.68 | 4,840 |
| November | 374 | 72 | 123 | 2.28 | 2.54 | 7,320 |
| December | 196 | 88 | 106 | 1.96 | 2.26 | 6,520 |
| January | 162 | 81 | 104 | 1.93 | 2.22 | 6,400 |
| February | 153 | 74 | 88.1 | 1.63 | 1.70 | 4,890 |
| March | 636 | 84 | 212 | 3.93 | 4.53 | 13,060 |
| April | 580 | 139 | 280 | 5.19 | 5.79 | 16,700 |
| May | 714 | 398 | 585 | 10.8 | 12.45 | 35,060 |
| June | 387 | 181 | 285 | 5.28 | 5.89 | 17,000 |
| July | 176 | 98 | 127 | 2.35 | 2.71 | 7,810 |
| August | 98 | 73 | 81.7 | 1.51 | 1.74 | 5,020 |
| September | 95 | 60 | 65.8 | 1.22 | 1.36 | 3,920 |
| The year | 714 | 57 | 179 | 3.31 | 44.87 | 129,000 |

SALMON RIVER AT WELCHES, OREG.

LOCATION.—Staff gage in S. $\frac{1}{2}$ sec. 9, T. 3 S., R. 7 E., just below mouth of Sheeny Creek, 200 feet west of Tawney's hotel, and three-fourths mile southeast of Welches post office. Gage used prior to July 20, 1929, 10 feet downstream. Gages not to same datum.

DRAINAGE AREA.—100 square miles.

RECORDS AVAILABLE.—August, 1913, to September, 1914; July, 1920, to September, 1921; April, 1925, to September, 1929.

EXTREMES.—Maximum discharge, 3,720 second-feet Mar. 21 (gage height, 4.10 feet); minimum, 75 second-feet Oct. 1 (gage height, -0.20 foot).

1913-14, 1920-21, 1925-1929: Maximum discharge, 8,760 second-feet Nov. 25, 1927 (gage height, 7.3 feet, present datum); minimum, 68 second-feet Aug. 11-16, 1926.

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

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 75 | 102 | 214 | 410 | 184 | 228 | 520 | 875 | 640 | 254 | 132 | 90 |
| 2 | 90 | 102 | 207 | 945 | 184 | 410 | 465 | 1,140 | 610 | 235 | 126 | 90 |
| 3 | 111 | 146 | 200 | 980 | 184 | 360 | 465 | 1,140 | 580 | 235 | 126 | 87 |
| 4 | 120 | 135 | 188 | 580 | 181 | 465 | 465 | 1,060 | 580 | 235 | 126 | 87 |
| 5 | 125 | 125 | 175 | 410 | 169 | 705 | 438 | 980 | 705 | 228 | 126 | 87 |
| 6 | 102 | 125 | 163 | 315 | 140 | 610 | 360 | 840 | 672 | 221 | 121 | 83 |
| 7 | 169 | 135 | 157 | 274 | 128 | 580 | 338 | 840 | 640 | 214 | 121 | 83 |
| 8 | 163 | 157 | 181 | 254 | 154 | 550 | 315 | 875 | 672 | 214 | 116 | 83 |
| 9 | 152 | 1,810 | 254 | 235 | 140 | 492 | 315 | 910 | 672 | 207 | 116 | 83 |
| 10 | 175 | 1,060 | 770 | 214 | 135 | 705 | 315 | 980 | 580 | 207 | 112 | 79 |
| 11 | 140 | 465 | 465 | 207 | 135 | 610 | 294 | 910 | 550 | 200 | 112 | 79 |
| 12 | 115 | 254 | 410 | 207 | 140 | 465 | 274 | 1,060 | 520 | 194 | 112 | 79 |
| 13 | 102 | 315 | 338 | 214 | 140 | 410 | 315 | 1,060 | 520 | 188 | 107 | 79 |
| 14 | 94 | 315 | 274 | 221 | 135 | 360 | 705 | 1,060 | 520 | 188 | 107 | 83 |
| 15 | 228 | 315 | 228 | 214 | 135 | 410 | 770 | 980 | 580 | 181 | 107 | 83 |
| 16 | 315 | 705 | 200 | 200 | 146 | 438 | 705 | 980 | 550 | 175 | 107 | 83 |
| 17 | 181 | 580 | 198 | 221 | 140 | 360 | 640 | 980 | 520 | 169 | 103 | 79 |
| 18 | 146 | 315 | 169 | 254 | 128 | 465 | 640 | 980 | 640 | 169 | 103 | 79 |
| 19 | 125 | 294 | 169 | 214 | 128 | 520 | 672 | 980 | 840 | 169 | 103 | 76 |
| 20 | 115 | 235 | 163 | 163 | 152 | 1,140 | 945 | 1,060 | 640 | 162 | 103 | 79 |
| 21 | 107 | 221 | 157 | 194 | 315 | 3,300 | 945 | 1,060 | 492 | 154 | 98 | 87 |
| 22 | 107 | 200 | 157 | 188 | 140 | 1,320 | 980 | 1,060 | 465 | 154 | 98 | 98 |
| 23 | 102 | 181 | 140 | 181 | 274 | 875 | 980 | 980 | 410 | 154 | 98 | 165 |
| 24 | 94 | 169 | 140 | 169 | 274 | 738 | 980 | 1,140 | 360 | 148 | 98 | 154 |
| 25 | 90 | 188 | 274 | 274 | 360 | 705 | 980 | 980 | 360 | 148 | 98 | 143 |
| 26 | 90 | 254 | 274 | 360 | 274 | 705 | 1,060 | 910 | 338 | 143 | 98 | 98 |
| 27 | 86 | 235 | 410 | 274 | 274 | 705 | 1,140 | 805 | 315 | 143 | 94 | 90 |
| 28 | 86 | 221 | 315 | 274 | 235 | 1,020 | 1,230 | 738 | 315 | 137 | 94 | 87 |
| 29 | 86 | 194 | 580 | 200 | ----- | 840 | 1,320 | 705 | 294 | 137 | 94 | 83 |
| 30 | 140 | 200 | 705 | 194 | ----- | 705 | 1,140 | 672 | 274 | 132 | 94 | 79 |
| 31 | 115 | ----- | 770 | 169 | ----- | 580 | ----- | 672 | ----- | 132 | 94 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-foot |
| October | 315 | 75 | 127 | 1.27 | 1.46 | 7,810 |
| November | 1,810 | 102 | 325 | 3.25 | 3.63 | 19,800 |
| December | 770 | 140 | 291 | 2.91 | 3.36 | 17,900 |
| January | 980 | 163 | 297 | 2.97 | 3.42 | 18,800 |
| February | 360 | 128 | 183 | 1.83 | 1.91 | 10,200 |
| March | 3,300 | 228 | 702 | 7.02 | 8.09 | 45,200 |
| April | 1,320 | 274 | 690 | 6.90 | 7.70 | 41,100 |
| May | 1,140 | 672 | 949 | 9.49 | 10.94 | 58,400 |
| June | 840 | 274 | 528 | 5.28 | 5.89 | 31,400 |
| July | 254 | 132 | 182 | 1.82 | 2.10 | 11,200 |
| August | 132 | 94 | 108 | 1.08 | 1.24 | 6,640 |
| September | 165 | 76 | 91.0 | .91 | 1.02 | 5,410 |
| The year | 3,300 | 75 | 374 | 3.74 | 50.76 | 271,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 3,100 second-feet Mar. 21 (gauge height, 4.60 feet); minimum, 83 second-feet Oct. 1 (gauge height, 0.30 foot).

1895-1929: Maximum discharge, 20,300 second-feet Nov. 20, 1921, at spill-way of diversion dam; minimum, 63 second-feet Aug. 13-16, 1926.

REMARKS.—Records excellent except those for days when gage readings at dam were used (Nov. 4-10, Dec. 23-29, Jan. 19-24, Mar. 2-8, 11-15, Apr. 11, 12, May 23, 24, and 26), which are fair. No diversions above station. Flow is 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 83 | 162 | 538 | 1,530 | 456 | 560 | 840 | 261 | 695 | 297 | 115 | 97 |
| 2..... | 119 | 150 | 484 | 2,040 | 585 | 800 | 722 | 359 | 722 | 269 | 117 | 94 |
| 3..... | 209 | 188 | 417 | 2,290 | 515 | 810 | 673 | 336 | 684 | 249 | 125 | 92 |
| 4..... | 433 | 220 | 373 | 1,540 | 443 | 800 | 615 | 305 | 695 | 233 | 128 | 94 |
| 5..... | 470 | 230 | 333 | 1,220 | 401 | 980 | 550 | 467 | 780 | 225 | 128 | 92 |
| 6..... | 258 | 200 | 301 | 845 | 369 | 1,220 | 490 | 780 | 750 | 214 | 128 | 94 |
| 7..... | 685 | 190 | 289 | 660 | 321 | 1,020 | 470 | 646 | 695 | 207 | 128 | 94 |
| 8..... | 533 | 260 | 430 | 546 | 297 | 840 | 460 | 535 | 695 | 193 | 128 | 97 |
| 9..... | 461 | 1,900 | 635 | 461 | 285 | 710 | 436 | 485 | 722 | 182 | 128 | 97 |
| 10..... | 502 | 2,360 | 1,530 | 409 | 262 | 875 | 418 | 431 | 673 | 176 | 125 | 97 |
| 11..... | 409 | 1,900 | 845 | 377 | 248 | 660 | 420 | 450 | 640 | 169 | 125 | 99 |
| 12..... | 313 | 1,750 | 1,220 | 353 | 237 | 480 | 430 | 510 | 605 | 163 | 125 | 99 |
| 13..... | 262 | 1,530 | 845 | 337 | 230 | 340 | 540 | 520 | 630 | 159 | 122 | 99 |
| 14..... | 234 | 1,060 | 635 | 329 | 220 | 380 | 1,480 | 565 | 646 | 156 | 117 | 99 |
| 15..... | 610 | 760 | 528 | 313 | 216 | 570 | 1,950 | 1,190 | 930 | 156 | 117 | 99 |
| 16..... | 1,120 | 1,030 | 452 | 292 | 216 | 710 | 1,620 | 1,190 | 960 | 150 | 115 | 97 |
| 17..... | 996 | 1,030 | 393 | 345 | 237 | 685 | 1,260 | 1,190 | 1,020 | 147 | 115 | 99 |
| 18..... | 815 | 845 | 357 | 538 | 244 | 1,000 | 1,080 | 1,190 | 1,160 | 140 | 115 | 99 |
| 19..... | 528 | 660 | 329 | 400 | 234 | 995 | 1,050 | 1,300 | 1,190 | 137 | 115 | 102 |
| 20..... | 413 | 524 | 301 | 350 | 265 | 1,110 | 1,580 | 1,330 | 960 | 134 | 115 | 99 |
| 21..... | 349 | 448 | 293 | 340 | 595 | 2,510 | 1,800 | 1,260 | 810 | 134 | 112 | 99 |
| 22..... | 293 | 381 | 269 | 380 | 533 | 2,020 | 1,760 | 1,260 | 684 | 128 | 112 | 102 |
| 23..... | 254 | 333 | 280 | 330 | 685 | 1,670 | 1,540 | 1,200 | 605 | 125 | 112 | 109 |
| 24..... | 230 | 305 | 280 | 370 | 710 | 1,580 | 1,260 | 1,500 | 545 | 122 | 117 | 107 |
| 25..... | 209 | 285 | 480 | 710 | 905 | 1,490 | 1,220 | 1,670 | 495 | 137 | 109 | 104 |
| 26..... | 192 | 425 | 1,040 | 995 | 788 | 1,490 | 1,330 | 1,380 | 445 | 134 | 104 | 102 |
| 27..... | 178 | 735 | 1,500 | 965 | 710 | 1,850 | 1,330 | 1,050 | 408 | 150 | 102 | 102 |
| 28..... | 175 | 575 | 1,220 | 686 | 635 | 2,200 | 1,300 | 870 | 372 | 144 | 99 | 99 |
| 29..... | 169 | 474 | 2,000 | 538 | ----- | 1,900 | 1,340 | 780 | 350 | 137 | 99 | 99 |
| 30..... | 185 | 434 | 2,190 | 452 | ----- | 1,330 | 648 | 685 | 323 | 131 | 96 | 97 |
| 31..... | 175 | ----- | 2,040 | 417 | ----- | 1,050 | ----- | 668 | ----- | 120 | 99 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acro-feet |
| October..... | 1,120 | 83 | 383 | 3.75 | 4.32 | 23,600 |
| November..... | 2,360 | 150 | 715 | 7.01 | 7.82 | 42,500 |
| December..... | 2,190 | 269 | 736 | 7.22 | 8.32 | 45,200 |
| January..... | 2,290 | 293 | 699 | 6.85 | 7.90 | 43,000 |
| February..... | 905 | 216 | 423 | 4.15 | 4.32 | 23,500 |
| March..... | 2,510 | 340 | 1,120 | 11.0 | 12.68 | 68,900 |
| April..... | 1,950 | 418 | 1,020 | 10.0 | 11.16 | 60,700 |
| May..... | 1,670 | 261 | 851 | 8.34 | 9.62 | 52,300 |
| June..... | 1,190 | 323 | 696 | 6.82 | 7.61 | 41,400 |
| July..... | 297 | 120 | 168 | 1.65 | 1.90 | 10,300 |
| August..... | 128 | 99 | 116 | 1.14 | 1.31 | 7,130 |
| September..... | 109 | 92 | 98.6 | .967 | 1.08 | 5,870 |
| The year..... | 2,510 | 83 | 586 | 5.75 | 78.04 | 424,000 |

LITTLE SANDY RIVER NEAR BULL RUN, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 10, T. 2 S., R. 5 E., three-eighths mile above Portland Electric Power 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, 1929.

EXTREMES.—Maximum discharge during year, 1,780 second-feet Mar. 21 (gage height, 6.25 feet); minimum, 12 second-feet Sept. 7-19, and 30. 1911-1913, 1919-1929: Maximum discharge, 3,950 second-feet Nov. 20, 1921 (gage height, 8.90 feet); minimum, 10 second-feet Sept. 17, 1924.

REMARKS.—Records good. No diversions or regulation above station. Gage-height record furnished by Portland Electric Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|-------|-------|-----|-------|------|------|-------|
| 1..... | 18 | 34 | 113 | 306 | 122 | 149 | 171 | 249 | 182 | 55 | 20 | 14 |
| 2..... | 27 | 33 | 92 | 527 | 157 | 200 | 155 | 371 | 178 | 51 | 20 | 14 |
| 3..... | 37 | 32 | 82 | 417 | 134 | 188 | 140 | 341 | 166 | 48 | 20 | 13 |
| 4..... | 86 | 41 | 74 | 282 | 116 | 192 | 131 | 306 | 192 | 47 | 19 | 13 |
| 5..... | 73 | 38 | 69 | 212 | 102 | 241 | 116 | 309 | 215 | 45 | 18 | 13 |
| 6..... | 46 | 33 | 63 | 173 | 94 | 257 | 108 | 291 | 192 | 43 | 18 | 13 |
| 7..... | 98 | 30 | 62 | 144 | 91 | 212 | 108 | 257 | 173 | 41 | 17 | 12 |
| 8..... | 74 | 54 | 94 | 123 | 99 | 175 | 105 | 246 | 192 | 40 | 17 | 12 |
| 9..... | 69 | 512 | 132 | 108 | 88 | 166 | 101 | 230 | 190 | 38 | 16 | 12 |
| 10..... | 88 | 447 | 325 | 98 | 69 | 210 | 99 | 228 | 168 | 36 | 16 | 12 |
| 11..... | 72 | 246 | 349 | 91 | 67 | 198 | 101 | 263 | 157 | 35 | 16 | 12 |
| 12..... | 52 | 173 | 182 | 81 | 63 | 168 | 96 | 288 | 153 | 34 | 15 | 12 |
| 13..... | 42 | 159 | 138 | 75 | 62 | 146 | 116 | 297 | 162 | 33 | 15 | 12 |
| 14..... | 38 | 125 | 112 | 74 | 60 | 131 | 285 | 282 | 163 | 32 | 15 | 12 |
| 15..... | 237 | 110 | 96 | 70 | 58 | 132 | 306 | 257 | 238 | 30 | 15 | 12 |
| 16..... | 344 | 233 | 88 | 66 | 59 | 138 | 274 | 257 | 198 | 29 | 14 | 12 |
| 17..... | 200 | 175 | 81 | 77 | 63 | 132 | 233 | 257 | 225 | 28 | 14 | 12 |
| 18..... | 125 | 136 | 74 | 104 | 58 | 131 | 201 | 265 | 252 | 28 | 15 | 12 |
| 19..... | 91 | 112 | 68 | 81 | 56 | 136 | 218 | 291 | 225 | 28 | 16 | 12 |
| 20..... | 70 | 95 | 63 | 77 | 70 | 417 | 328 | 291 | 175 | 28 | 15 | 13 |
| 21..... | 59 | 84 | 59 | 73 | 138 | 1,280 | 347 | 294 | 144 | 27 | 15 | 15 |
| 22..... | 50 | 72 | 58 | 78 | 120 | 499 | 354 | 288 | 123 | 26 | 15 | 26 |
| 23..... | 45 | 63 | 55 | 69 | 140 | 309 | 291 | 291 | 110 | 25 | 18 | 39 |
| 24..... | 40 | 57 | 55 | 85 | 155 | 230 | 252 | 388 | 101 | 25 | 21 | 24 |
| 25..... | 37 | 54 | 105 | 136 | 205 | 198 | 244 | 309 | 91 | 25 | 15 | 18 |
| 26..... | 34 | 89 | 180 | 180 | 173 | 210 | 265 | 268 | 81 | 25 | 14 | 15 |
| 27..... | 32 | 153 | 235 | 175 | 182 | 244 | 268 | 210 | 74 | 25 | 14 | 14 |
| 28..... | 31 | 104 | 371 | 144 | 157 | 331 | 279 | 178 | 69 | 24 | 14 | 13 |
| 29..... | 31 | 87 | 385 | 122 | ----- | 297 | 463 | 168 | 63 | 22 | 14 | 13 |
| 30..... | 44 | 88 | 436 | 105 | ----- | 238 | 309 | 155 | 58 | 21 | 14 | 12 |
| 31..... | 38 | ----- | 374 | 98 | ----- | 198 | ----- | 155 | ----- | 21 | 14 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 344 | 18 | 75.1 | 3.27 | 3.77 | 4,620 |
| November..... | 512 | 30 | 122 | 5.30 | 5.91 | 7,260 |
| December..... | 436 | 55 | 151 | 6.57 | 7.57 | 9,280 |
| January..... | 527 | 66 | 143 | 6.22 | 7.17 | 8,790 |
| February..... | 205 | 56 | 106 | 4.61 | 4.80 | 5,890 |
| March..... | 1,280 | 131 | 250 | 10.9 | 12.57 | 15,400 |
| April..... | 463 | 96 | 216 | 9.39 | 10.48 | 12,900 |
| May..... | 388 | 155 | 267 | 11.6 | 13.37 | 16,400 |
| June..... | 252 | 58 | 157 | 6.83 | 7.62 | 9,340 |
| July..... | 55 | 21 | 32.7 | 1.42 | 1.64 | 2,010 |
| August..... | 21 | 14 | 16.1 | .700 | .81 | 990 |
| September..... | 39 | 12 | 14.6 | .635 | .71 | 869 |
| The year..... | 1,280 | 12 | 129 | 5.61 | 76.42 | 93,700 |

WILLAMETTE RIVER BASIN

MIDDLE FORK OF WILLAMETTE RIVER AT EULA, OREG.

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

DRAINAGE AREA.—943 square miles.

RECORDS AVAILABLE.—July, 1923, to September, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 18,200 second-feet Mar. 21 (gage height, 10.2 feet); minimum, 500 second-feet Sept. 13–21 (gage height, 1.60 feet).

1923–1929; Maximum discharge, 55,100 second-feet (revised) Feb. 21, 1927 (gage height, 17.0 feet); minimum, 480 second-feet Aug. 6–17, 1926.

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

Revised daily discharge, in second-feet, for high-water periods, 1924–1928

| Date | Dis-charge | Date | Dis-charge | Date | Dis-charge |
|--------------|------------|--------------|------------|--------------|------------|
| 1924 | | 1925 | | 1927 | |
| Oct. 31..... | 14,400 | Feb. 5..... | 21,500 | Nov. 25..... | 10,100 |
| Nov. 20..... | 13,600 | Feb. 6..... | 13,600 | Nov. 26..... | 15,200 |
| Nov. 21..... | 11,800 | | | Nov. 27..... | 10,500 |
| Nov. 22..... | 15,700 | 1926 | | Nov. 28..... | 21,500 |
| Dec. 29..... | 11,500 | Feb. 6..... | 14,400 | Nov. 29..... | 17,300 |
| Dec. 30..... | 27,000 | Feb. 7..... | 13,200 | Nov. 30..... | 11,500 |
| Dec. 31..... | 11,200 | Nov. 30..... | 14,400 | | |
| 1925 | | 1927 | | 1928 | |
| Jan. 29..... | 11,800 | Feb. 20..... | 15,700 | Jan. 13..... | 10,500 |
| Jan. 30..... | 14,400 | Feb. 21..... | 40,000 | Mar. 11..... | 22,000 |
| Jan. 31..... | 11,500 | Feb. 22..... | 15,700 | Mar. 12..... | 13,200 |
| Feb. 4..... | 18,700 | Feb. 23..... | 11,500 | | |

NOTE.—These revised figures are based upon a better definition of the high-water rating curve and supersede those published in previous water-supply papers.

Daily discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|------|-------|
| 1..... | 582 | 670 | 1,000 | 2,640 | 3,130 | 1,550 | 3,130 | 4,530 | 2,880 | 1,640 | 860 | 555 |
| 2..... | 555 | 670 | 930 | 3,000 | 3,260 | 1,550 | 2,760 | 3,940 | 2,880 | 1,550 | 860 | 555 |
| 3..... | 795 | 730 | 860 | 4,850 | 3,390 | 1,740 | 2,520 | 4,080 | 2,880 | 1,460 | 860 | 555 |
| 4..... | 795 | 730 | 860 | 3,940 | 2,880 | 2,400 | 2,400 | 3,800 | 2,760 | 1,370 | 930 | 555 |
| 5..... | 1,210 | 730 | 795 | 3,260 | 2,280 | 2,520 | 2,280 | 3,800 | 3,000 | 1,290 | 930 | 555 |
| 6..... | 828 | 670 | 795 | 2,400 | 1,740 | 2,880 | 1,950 | 3,660 | 3,390 | 1,210 | 930 | 555 |
| 7..... | 742 | 670 | 730 | 1,640 | 1,550 | 3,000 | 1,950 | 3,390 | 3,260 | 1,210 | 860 | 555 |
| 8..... | 700 | 670 | 730 | 1,550 | 1,460 | 2,760 | 1,950 | 3,130 | 3,130 | 1,140 | 860 | 555 |
| 9..... | 670 | 860 | 670 | 1,460 | 1,460 | 2,400 | 1,840 | 3,000 | 3,260 | 1,140 | 860 | 555 |
| 10..... | 700 | 1,000 | 930 | 1,460 | 1,370 | 2,760 | 1,840 | 3,000 | 3,390 | 1,070 | 860 | 555 |
| 11..... | 700 | 1,070 | 1,550 | 1,290 | 1,290 | 3,130 | 1,950 | 3,130 | 3,260 | 1,070 | 860 | 555 |
| 12..... | 670 | 1,070 | 1,210 | 1,070 | 1,210 | 2,640 | 1,950 | 3,940 | 3,260 | 1,000 | 795 | 555 |
| 13..... | 1,000 | 1,070 | 1,070 | 1,070 | 1,210 | 2,520 | 2,060 | 4,690 | 3,260 | 1,000 | 795 | 500 |
| 14..... | 860 | 930 | 930 | 1,070 | 1,140 | 2,280 | 2,760 | 4,850 | 3,390 | 1,000 | 795 | 500 |
| 15..... | 795 | 930 | 930 | 1,070 | 1,140 | 2,060 | 6,900 | 4,850 | 3,800 | 1,000 | 795 | 500 |
| 16..... | 730 | 1,210 | 930 | 1,140 | 1,140 | 2,060 | 5,900 | 4,690 | 4,380 | 1,000 | 670 | 500 |
| 17..... | 730 | 1,070 | 930 | 1,140 | 1,070 | 2,520 | 5,010 | 4,530 | 4,080 | 1,000 | 610 | 500 |
| 18..... | 670 | 930 | 930 | 1,210 | 1,070 | 2,640 | 4,380 | 4,530 | 3,800 | 1,000 | 610 | 500 |
| 19..... | 670 | 860 | 860 | 1,140 | 1,070 | 2,400 | 4,080 | 4,530 | 3,260 | 1,000 | 610 | 500 |
| 20..... | 610 | 795 | 860 | 1,070 | 1,070 | 2,280 | 3,660 | 5,530 | 3,130 | 930 | 555 | 500 |
| 21..... | 610 | 795 | 860 | 1,070 | 1,000 | 18,200 | 3,260 | 4,690 | 2,880 | 930 | 555 | 555 |
| 22..... | 610 | 795 | 795 | 1,070 | 1,000 | 9,430 | 5,530 | 5,180 | 2,640 | 930 | 555 | 555 |
| 23..... | 610 | 730 | 795 | 1,210 | 1,370 | 7,110 | 5,180 | 5,010 | 2,520 | 860 | 610 | 555 |
| 24..... | 610 | 730 | 795 | 1,550 | 1,640 | 6,090 | 4,690 | 5,530 | 2,400 | 860 | 610 | 555 |
| 25..... | 610 | 730 | 1,550 | 2,280 | 1,640 | 4,080 | 4,080 | 4,850 | 2,400 | 860 | 610 | 555 |
| 26..... | 610 | 730 | 1,370 | 2,060 | 1,640 | 3,660 | 3,940 | 5,010 | 2,170 | 860 | 610 | 555 |
| 27..... | 610 | 795 | 2,060 | 1,840 | 1,550 | 3,520 | 3,800 | 4,690 | 2,060 | 795 | 610 | 555 |
| 28..... | 610 | 795 | 2,280 | 1,640 | 1,550 | 3,660 | 4,080 | 4,230 | 1,950 | 795 | 610 | 555 |
| 29..... | 610 | 795 | 2,280 | 1,550 | ----- | 3,520 | 4,690 | 2,760 | 1,840 | 795 | 555 | 555 |
| 30..... | 670 | 795 | 2,400 | 1,550 | ----- | 3,390 | 4,850 | 2,760 | 1,740 | 795 | 555 | 555 |
| 31..... | 670 | ----- | 2,520 | 1,370 | ----- | 3,260 | ----- | 2,760 | ----- | 795 | 555 | ----- |

Monthly discharge, in second-feet, of Middle Fork of Willamette River at Eula, Oreg., 1924-1929

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| 1924-25 | | | | | | |
| October..... | 14,400 | 610 | 1,340 | 1.42 | 1.64 | 82,400 |
| November..... | 15,700 | 2,390 | 5,730 | 6.08 | 6.78 | 341,000 |
| December..... | 27,000 | 1,750 | 4,340 | 4.60 | 5.30 | 267,000 |
| January..... | 14,400 | 2,920 | 5,890 | 6.25 | 7.21 | 362,000 |
| February..... | 21,500 | 3,330 | 6,820 | 7.23 | 7.53 | 379,000 |
| March..... | 3,330 | 2,150 | 2,640 | 2.80 | 3.23 | 162,000 |
| April..... | 6,620 | 2,400 | 3,850 | 4.08 | 4.55 | 229,000 |
| May..... | 6,620 | 3,190 | 3,940 | 4.18 | 4.82 | 242,000 |
| June..... | 5,120 | 1,700 | 2,730 | 2.90 | 3.24 | 162,000 |
| July..... | 1,700 | 850 | 1,100 | 1.17 | 1.35 | 67,600 |
| August..... | 1,110 | 700 | 785 | .832 | .96 | 48,300 |
| September..... | 980 | 574 | 747 | .792 | .88 | 44,400 |
| The year..... | 27,000 | 574 | 3,300 | 3.50 | 47.49 | 2,370,000 |
| 1925-26 | | | | | | |
| October..... | 850 | 500 | 652 | .691 | .80 | 40,100 |
| November..... | 3,330 | 500 | 1,150 | 1.22 | 1.36 | 68,400 |
| December..... | 7,100 | 1,110 | 2,510 | 2.66 | 3.07 | 154,000 |
| January..... | 3,780 | 1,500 | 2,690 | 2.85 | 3.29 | 165,000 |
| February..... | 14,400 | 2,920 | 5,890 | 6.25 | 6.51 | 327,000 |
| March..... | 4,440 | 1,610 | 2,500 | 2.65 | 3.06 | 154,000 |
| April..... | 3,480 | 1,350 | 1,880 | 1.99 | 2.22 | 112,000 |
| May..... | 2,920 | 1,150 | 1,590 | 1.69 | 1.95 | 97,800 |
| June..... | 1,110 | 710 | 855 | .907 | 1.01 | 50,900 |
| July..... | 710 | 530 | 591 | .627 | .72 | 36,300 |
| August..... | 1,190 | 480 | 585 | .620 | .71 | 36,000 |
| September..... | 1,190 | 530 | 670 | .710 | .79 | 39,900 |
| The year..... | 14,400 | 480 | 1,770 | 1.88 | 25.49 | 1,280,000 |
| 1926-27 | | | | | | |
| October..... | 1,350 | 675 | 935 | .991 | 1.14 | 57,500 |
| November..... | 14,400 | 710 | 3,540 | 3.75 | 4.18 | 211,000 |
| December..... | 9,770 | 2,400 | 4,280 | 4.49 | 5.18 | 260,000 |
| January..... | 8,670 | 2,530 | 4,130 | 4.38 | 5.05 | 254,000 |
| February..... | 40,000 | 2,400 | 6,700 | 7.10 | 7.39 | 372,000 |
| March..... | 5,460 | 2,920 | 4,180 | 4.43 | 5.11 | 257,000 |
| April..... | 4,190 | 2,450 | 3,060 | 3.24 | 3.62 | 182,000 |
| The period..... | | | | | | 1,590,000 |
| 1927-28 | | | | | | |
| October..... | | | 1,300 | 1.38 | 1.59 | 79,900 |
| November..... | 21,500 | | 5,290 | 5.61 | 6.26 | 315,000 |
| December..... | 9,430 | 1,950 | 3,060 | 3.24 | 3.74 | 188,000 |
| January..... | 10,500 | 2,680 | 5,410 | 5.74 | 6.62 | 333,000 |
| February..... | 4,530 | 1,610 | 2,280 | 2.36 | 2.64 | 128,000 |
| March..... | 22,000 | 1,860 | 4,850 | 5.14 | 5.93 | 298,000 |
| April..... | 7,760 | 2,560 | 3,780 | 4.01 | 4.47 | 225,000 |
| May..... | 3,870 | 1,690 | 3,000 | 3.18 | 3.67 | 184,000 |
| June..... | 1,690 | 1,000 | 1,280 | 1.36 | 1.52 | 76,200 |
| July..... | 1,140 | 795 | 929 | .985 | 1.14 | 57,100 |
| August..... | 795 | 610 | 702 | .744 | .86 | 43,200 |
| September..... | 1,000 | 555 | 612 | .649 | .72 | 36,400 |
| The year..... | 22,000 | | 2,710 | 2.87 | 39.06 | 1,960,000 |
| 1928-29 | | | | | | |
| October..... | 1,210 | 555 | 694 | .736 | 0.85 | 42,700 |
| November..... | 1,210 | 670 | 832 | .882 | .98 | 49,500 |
| December..... | 2,520 | 670 | 1,170 | 1.24 | 1.43 | 71,900 |
| January..... | 4,850 | 1,070 | 1,760 | 1.87 | 2.16 | 108,000 |
| February..... | 3,890 | 1,000 | 1,620 | 1.72 | 1.79 | 90,000 |
| March..... | 18,200 | 1,550 | 3,680 | 3.90 | 4.50 | 226,000 |
| April..... | 6,900 | 1,840 | 3,510 | 3.72 | 4.15 | 209,000 |
| May..... | 5,530 | 2,760 | 4,160 | 4.41 | 5.08 | 256,000 |
| June..... | 4,380 | 1,740 | 2,970 | 3.15 | 3.51 | 177,000 |
| July..... | 1,640 | 795 | 1,040 | 1.10 | 1.27 | 64,000 |
| August..... | 930 | 555 | 719 | .762 | .88 | 44,200 |
| September..... | 610 | 500 | 542 | .575 | .64 | 32,300 |
| The year..... | 18,200 | 500 | 1,890 | 2.00 | 27.24 | 1,370,000 |

NOTE.—The records of monthly discharge from 1924 to 1928 in the above table supersede those published in previous water-supply papers, the discharge for high water having been revised for the periods indicated in the daily table on p. 70.

WILLAMETTE RIVER AT SPRINGFIELD, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ 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 (revised).

RECORDS AVAILABLE.—November, 1911, to September, 1913; October, 1928, to September, 1929. Comparable record at Eugene, 4 miles downstream, June, 1919, to September, 1928.

EXTREMES.—Maximum discharge during year, 35,400 second-feet Mar. 21 (gage height, 12.5 feet); minimum, 594 second-feet Sept. 21–24 (gage height, 1.59 feet).

1911–1913, 1919–1929: 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 fair. Discharge determined from gage readings at Eugene, Oct. 1 to Nov. 24, Jan. 18 to Feb. 4, Mar. 9–21, June 6–15, and 17–29. Slight diurnal fluctuation during low water due to logging operations. No diversions above station.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
| 1 | 770 | 980 | 1,410 | 6,310 | 15,400 | 3,980 | 6,310 | 6,800 | 2,880 | 2,360 | 1,180 | 686 |
| 2 | 770 | 910 | 1,720 | 8,800 | 17,400 | 4,380 | 5,630 | 6,550 | 4,180 | 2,120 | 1,180 | 688 |
| 3 | 770 | 910 | 1,470 | 16,800 | 15,400 | 4,900 | 5,320 | 7,060 | 3,980 | 2,050 | 1,180 | 694 |
| 4 | 910 | 840 | 1,300 | 10,000 | 10,500 | 5,210 | 5,000 | 6,800 | 4,680 | 1,910 | 1,160 | 702 |
| 5 | 1,220 | 840 | 1,180 | 7,060 | 7,330 | 6,310 | 4,680 | 7,060 | 5,850 | 1,840 | 1,140 | 718 |
| 6 | 1,310 | 910 | 1,110 | 5,320 | 6,310 | 6,550 | 4,380 | 6,800 | 6,200 | 1,780 | 1,120 | 726 |
| 7 | 1,060 | 840 | 1,060 | 4,380 | 5,420 | 5,630 | 4,280 | 6,080 | 6,080 | 1,650 | 1,100 | 734 |
| 8 | 980 | 840 | 1,030 | 3,790 | 4,680 | 5,000 | 4,790 | 5,420 | 5,880 | 1,590 | 1,080 | 742 |
| 9 | 840 | 910 | 1,010 | 3,320 | 4,180 | 4,710 | 4,790 | 5,210 | 6,510 | 1,530 | 1,060 | 750 |
| 10 | 840 | 1,220 | 1,920 | 2,950 | 3,700 | 5,480 | 4,790 | 5,000 | 6,080 | 1,470 | 1,050 | 758 |
| 11 | 910 | 2,250 | 4,280 | 2,690 | 3,320 | 6,730 | 5,100 | 4,900 | 5,480 | 1,410 | 1,080 | 766 |
| 12 | 980 | 1,490 | 2,950 | 2,520 | 3,040 | 6,290 | 5,420 | 5,210 | 5,090 | 1,410 | 1,020 | 766 |
| 13 | 910 | 2,020 | 2,200 | 2,440 | 2,860 | 5,680 | 5,630 | 6,080 | 4,710 | 1,360 | 947 | 750 |
| 14 | 840 | 1,690 | 1,780 | 2,360 | 2,690 | 4,710 | 11,300 | 6,550 | 4,710 | 1,360 | 848 | 742 |
| 15 | 840 | 1,590 | 1,590 | 2,200 | 2,520 | 3,830 | 22,700 | 6,080 | 5,280 | 1,360 | 839 | 726 |
| 16 | 910 | 1,490 | 1,410 | 2,120 | 2,440 | 3,830 | 14,800 | 5,850 | 6,050 | 1,300 | 798 | 702 |
| 17 | 1,060 | 1,910 | 1,300 | 2,050 | 2,360 | 3,830 | 11,700 | 5,630 | 6,080 | 1,300 | 782 | 670 |
| 18 | 980 | 1,910 | 1,250 | 2,900 | 2,360 | 3,830 | 9,400 | 5,850 | 5,880 | 1,250 | 774 | 656 |
| 19 | 910 | 1,400 | 1,190 | 3,350 | 2,360 | 3,830 | 8,800 | 5,850 | 5,480 | 1,250 | 782 | 649 |
| 20 | 840 | 1,220 | 1,150 | 3,050 | 2,120 | 4,000 | 10,000 | 6,310 | 5,090 | 1,250 | 806 | 614 |
| 21 | 840 | 1,140 | 1,100 | 2,500 | 2,200 | 26,000 | 11,000 | 6,310 | 4,170 | 1,200 | 758 | 600 |
| 22 | 840 | 1,060 | 1,070 | 2,370 | 2,440 | 24,000 | 12,800 | 6,310 | 3,830 | 1,190 | 742 | 594 |
| 23 | 840 | 980 | 1,060 | 2,900 | 3,040 | 15,600 | 12,500 | 6,310 | 3,600 | 1,180 | 750 | 594 |
| 24 | 770 | 980 | 1,100 | 2,630 | 3,880 | 11,400 | 10,300 | 5,850 | 3,350 | 1,160 | 750 | 607 |
| 25 | 840 | 920 | 2,690 | 4,530 | 4,680 | 9,100 | 9,100 | 5,630 | 3,200 | 1,160 | 766 | 649 |
| 26 | 840 | 920 | 4,790 | 6,730 | 5,210 | 8,200 | 7,900 | 5,210 | 3,050 | 1,140 | 742 | 656 |
| 27 | 840 | 1,010 | 8,500 | 9,160 | 4,480 | 7,900 | 7,610 | 4,580 | 2,900 | 1,120 | 734 | 663 |
| 28 | 770 | 1,200 | 8,200 | 8,650 | 4,180 | 8,500 | 7,330 | 4,080 | 2,760 | 1,080 | 726 | 663 |
| 29 | 840 | 1,150 | 6,550 | 6,730 | ----- | 9,400 | 7,900 | 3,700 | 2,500 | 1,060 | 718 | 656 |
| 30 | 840 | 1,100 | 8,500 | 5,680 | ----- | 8,200 | 7,610 | 3,500 | 2,520 | 1,060 | 710 | 649 |
| 31 | 980 | ----- | 7,900 | 5,680 | ----- | 7,060 | ----- | 3,600 | ----- | 1,070 | 686 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 1,310 | 770 | 900 | 0.443 | 0.51 | 55,300 |
| November | 2,250 | 840 | 1,220 | .601 | .67 | 72,600 |
| December | 8,500 | 1,010 | 2,700 | 1.33 | 1.53 | 166,000 |
| January | 16,800 | 2,050 | 4,900 | 2.41 | 2.78 | 301,000 |
| February | 17,400 | 2,120 | 5,230 | 2.58 | 2.69 | 290,000 |
| March | 26,000 | 3,830 | 7,550 | 3.72 | 4.29 | 464,000 |
| April | 22,700 | 4,280 | 8,300 | 4.09 | 4.56 | 494,000 |
| May | 7,060 | 3,500 | 5,680 | 2.80 | 3.23 | 349,000 |
| June | 6,550 | 2,500 | 4,650 | 2.29 | 2.56 | 277,000 |
| July | 2,360 | 1,060 | 1,420 | .700 | .81 | 87,300 |
| August | 1,180 | 686 | 902 | .444 | .51 | 55,500 |
| September | 766 | 594 | 686 | .338 | .38 | 40,800 |
| The year | 26,000 | 594 | 3,660 | 1.80 | 24.52 | 2,650,000 |

WILLAMETTE RIVER AT ALBANY, OREG.

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

DRAINAGE AREA.—4,840 square miles (revised).

RECORDS AVAILABLE.—November, 1878, to April, 1882; January, 1892, to September, 1929; some fragmentary records 1883 to 1888.

EXTREMES.—Maximum discharge during year, 50,800 second-feet Mar. 23 (gage height, 13.3 feet); minimum, 2,340 second-feet Sept. 7–27 (gage height, 0.5 foot).

1878–1882, 1892–1929: Maximum discharge, 229,000 second-feet Jan. 14, 1881 (gage height, 32.8 feet); minimum, 1,870 second-feet, somewhat uncertain, Sept. 21–27, 1879 (gage height, 0.2 foot). Minimum discharge in recent years, 2,020 second-feet Sept. 10–16, 1926.

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, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| 1 | 2,520 | 2,720 | 4,680 | 39,100 | 16,500 | 10,700 | 19,600 | 20,400 | 9,180 | 6,520 | 3,340 | 2,520 |
| 2 | 2,520 | 2,720 | 5,420 | 32,200 | 26,900 | 10,100 | 17,200 | 18,800 | 8,580 | 5,960 | 3,340 | 2,520 |
| 3 | 2,520 | 2,720 | 6,240 | 34,300 | 34,800 | 9,480 | 15,700 | 17,200 | 10,100 | 5,680 | 3,340 | 2,520 |
| 4 | 2,720 | 2,720 | 5,420 | 46,000 | 33,500 | 10,400 | 14,200 | 18,800 | 9,780 | 5,420 | 3,340 | 2,520 |
| 5 | 2,920 | 2,720 | 4,920 | 36,900 | 28,000 | 11,100 | 13,100 | 18,800 | 9,780 | 5,420 | 3,340 | 2,520 |
| 6 | 3,550 | 2,720 | 4,450 | 31,400 | 22,700 | 13,100 | 13,100 | 19,200 | 13,100 | 5,160 | 3,340 | 2,520 |
| 7 | 3,340 | 2,720 | 3,990 | 28,000 | 18,900 | 14,600 | 12,400 | 18,400 | 13,900 | 5,160 | 3,340 | 2,340 |
| 8 | 3,340 | 2,720 | 3,990 | 21,900 | 15,300 | 13,900 | 12,400 | 16,500 | 13,100 | 4,920 | 3,130 | 2,340 |
| 9 | 3,130 | 2,920 | 3,990 | 17,600 | 13,500 | 13,500 | 13,500 | 14,600 | 12,100 | 4,920 | 3,130 | 2,340 |
| 10 | 3,130 | 3,130 | 5,160 | 13,100 | 11,700 | 12,400 | 13,500 | 13,100 | 17,200 | 4,680 | 3,130 | 2,340 |
| 11 | 2,920 | 7,080 | 9,180 | 10,100 | 10,100 | 14,900 | 13,500 | 13,100 | 15,700 | 4,680 | 3,130 | 2,340 |
| 12 | 2,920 | 7,080 | 14,600 | 9,180 | 16,100 | 14,200 | 12,800 | 13,500 | 13,500 | 4,680 | 3,130 | 2,340 |
| 13 | 2,920 | 6,240 | 10,700 | 8,580 | 8,580 | 16,900 | 14,900 | 13,500 | 12,400 | 4,450 | 3,130 | 2,340 |
| 14 | 2,920 | 7,080 | 8,880 | 8,280 | 8,280 | 13,500 | 17,200 | 14,900 | 11,400 | 4,450 | 3,130 | 2,340 |
| 15 | 2,920 | 6,520 | 7,680 | 7,980 | 8,280 | 11,400 | 29,300 | 16,100 | 11,400 | 4,220 | 3,130 | 2,340 |
| 16 | 2,720 | 5,960 | 6,800 | 7,680 | 7,980 | 10,700 | 49,800 | 14,900 | 12,400 | 3,990 | 2,130 | 2,340 |
| 17 | 2,720 | 5,680 | 5,680 | 7,380 | 7,680 | 10,100 | 42,300 | 13,900 | 15,300 | 3,990 | 2,920 | 2,340 |
| 18 | 2,720 | 6,240 | 5,160 | 7,080 | 7,680 | 9,780 | 37,400 | 13,900 | 14,600 | 3,990 | 2,920 | 2,340 |
| 19 | 2,720 | 5,680 | 4,920 | 6,800 | 7,680 | 9,480 | 28,500 | 13,900 | 14,200 | 3,770 | 2,920 | 2,340 |
| 20 | 2,720 | 5,160 | 4,680 | 7,380 | 7,380 | 10,100 | 25,600 | 14,600 | 13,500 | 3,770 | 2,920 | 2,340 |
| 21 | 2,720 | 4,220 | 4,450 | 7,380 | 7,380 | 11,100 | 23,500 | 15,700 | 12,400 | 3,770 | 2,720 | 2,340 |
| 22 | 2,720 | 3,770 | 4,220 | 7,980 | 7,880 | 38,200 | 29,300 | 15,700 | 11,400 | 3,550 | 2,720 | 2,340 |
| 23 | 2,920 | 3,770 | 3,990 | 7,980 | 7,980 | 50,800 | 31,000 | 15,700 | 10,700 | 3,550 | 2,720 | 2,340 |
| 24 | 2,720 | 3,770 | 3,990 | 7,980 | 8,280 | 37,800 | 29,300 | 15,700 | 9,780 | 3,550 | 2,720 | 2,340 |
| 25 | 2,720 | 3,550 | 6,240 | 7,980 | 8,580 | 28,500 | 26,000 | 14,900 | 9,180 | 3,550 | 2,720 | 2,340 |
| 26 | 2,720 | 3,550 | 10,100 | 11,400 | 8,880 | 23,500 | 23,500 | 14,600 | 8,580 | 3,550 | 2,720 | 2,340 |
| 27 | 2,720 | 3,770 | 27,600 | 18,400 | 8,880 | 20,000 | 21,100 | 13,500 | 8,280 | 3,550 | 2,520 | 2,340 |
| 28 | 2,720 | 3,770 | 30,100 | 22,700 | 11,700 | 20,800 | 20,000 | 13,500 | 7,980 | 3,340 | 2,520 | 2,520 |
| 29 | 2,720 | 3,770 | 36,900 | 20,000 | ----- | 21,100 | 19,200 | 12,400 | 7,380 | 3,340 | 2,520 | 2,520 |
| 30 | 2,720 | 3,770 | 35,200 | 20,000 | ----- | 24,300 | 20,800 | 11,100 | 6,800 | 3,340 | 2,520 | 2,520 |
| 31 | 2,720 | ----- | 39,600 | 20,000 | ----- | 21,500 | ----- | 9,780 | ----- | 3,340 | 2,520 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 3,550 | 2,520 | 2,840 | 0.587 | 0.68 | 175,000 |
| November | 7,080 | 2,720 | 4,270 | .882 | .98 | 254,000 |
| December | 39,600 | 3,990 | 10,600 | 2.19 | 2.52 | 652,000 |
| January | 46,000 | 6,800 | 17,200 | 3.55 | 4.09 | 1,060,000 |
| February | 34,800 | 7,380 | 13,300 | 2.75 | 2.86 | 739,000 |
| March | 50,800 | 9,480 | 17,400 | 3.60 | 4.15 | 1,070,000 |
| April | 49,800 | 12,400 | 22,000 | 4.55 | 5.08 | 1,310,000 |
| May | 20,400 | 9,780 | 15,200 | 3.14 | 3.62 | 935,000 |
| June | 17,200 | 6,800 | 11,500 | 2.38 | 2.66 | 684,000 |
| July | 6,520 | 3,340 | 4,330 | .895 | 1.03 | 266,000 |
| August | 3,340 | 2,520 | 2,970 | .614 | .71 | 183,000 |
| September | 2,520 | 2,340 | 2,390 | .494 | .55 | 142,000 |
| The year | 50,800 | 2,340 | 10,300 | 2.13 | 28.93 | 7,470,000 |

WILLAMETTE RIVER AT SALEM, OREG.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 22, T. 7 S., R. 3 W., on pier of 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, 1929.

EXTREMES.—Maximum discharge during year, 73,600 second-feet Dec. 31 (gage height, 11.6 feet); minimum, 3,200 second-feet Sept. 17-25 (gage height, -2.8 feet).

1909-1916, 1917-1929: Maximum discharge, 315,000 second-feet Nov. 25, 1909 (gage height, 30.5 feet); minimum, 3,200 second-feet Sept. 26 and 27, 1928, and Sept. 17-25, 1929.

Maximum known discharge (estimated), 500,000 second-feet Dec. 4, 1861 (gage height, about 39 feet). Flood of Jan. 16, 1881, reached a discharge of 428,000 second-feet (gage height, 36.3 feet).

REMARKS.—Records fair except those for estimated periods (Nov. 9-14, 18, 23, 27, 28, Dec. 11, 27, Jan. 13-28, and June 4-24), which are poor. A few small irrigation diversions above station; part of the 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|
| 1 | 3,410 | 3,870 | 10,400 | 72,100 | 24,600 | 17,800 | 30,100 | 35,400 | 13,900 | 9,800 | 4,130 | 3,750 |
| 2 | 3,630 | 3,870 | 11,800 | 72,100 | 23,600 | 16,600 | 26,200 | 34,200 | 13,200 | 10,400 | 4,130 | 3,750 |
| 3 | 3,620 | 3,870 | 11,800 | 64,800 | 43,400 | 15,400 | 24,600 | 30,100 | 14,300 | 8,600 | 4,130 | 3,750 |
| 4 | 3,630 | 4,130 | 11,100 | 63,400 | 49,900 | 14,700 | 22,600 | 31,200 | | 8,010 | 4,000 | 3,630 |
| 5 | 3,750 | 4,280 | 9,200 | 69,100 | 55,200 | 13,900 | 20,600 | 32,400 | | 8,010 | 4,000 | 3,630 |
| 6 | 5,620 | 4,440 | 8,600 | 55,200 | 62,700 | 18,700 | 19,700 | 30,100 | | 7,470 | 4,000 | 3,630 |
| 7 | 5,190 | 4,440 | 8,600 | 36,000 | 45,600 | 24,100 | 20,100 | 30,100 | | 7,220 | 4,000 | 3,630 |
| 8 | 4,780 | 4,440 | 7,470 | 29,500 | 26,800 | 26,800 | 18,700 | 26,800 | | 6,980 | 4,000 | 3,630 |
| 9 | 4,440 | | 7,470 | 24,600 | 22,100 | 27,900 | 19,700 | 24,100 | | 6,520 | 4,000 | 3,520 |
| 10 | 4,780 | | 8,010 | 21,100 | 15,400 | 29,500 | 19,700 | 22,600 | | 6,520 | 4,000 | 3,410 |
| 11 | 4,440 | 15,700 | 18,000 | 18,300 | 15,400 | 24,600 | 19,700 | 21,600 | | 6,980 | 3,870 | 3,410 |
| 12 | 4,280 | | 27,900 | 16,200 | 14,700 | 25,700 | 21,100 | 20,100 | | 6,060 | 3,870 | 3,410 |
| 13 | 4,280 | | 26,800 | | 13,900 | 26,800 | 21,600 | 22,600 | | 5,840 | 3,870 | 3,410 |
| 14 | 4,130 | | 17,800 | | 13,200 | 23,600 | 23,100 | 24,600 | 20,500 | 5,840 | 3,870 | 3,300 |
| 15 | 3,870 | 13,900 | 15,400 | | 13,200 | 18,700 | 27,900 | 25,700 | | 5,400 | 3,750 | 3,300 |
| 16 | 3,870 | 12,500 | 13,900 | | 13,200 | 17,000 | 67,600 | 24,100 | | 5,400 | 3,750 | 3,300 |
| 17 | 4,130 | 12,500 | 11,800 | | 13,900 | 16,200 | 65,500 | 23,100 | | 5,190 | 3,750 | 3,200 |
| 18 | 4,440 | 13,000 | 10,400 | | 11,800 | 15,400 | 55,200 | 22,100 | | 5,190 | 3,750 | 3,200 |
| 19 | 4,440 | 11,800 | 9,800 | | 11,800 | 16,200 | 44,700 | 20,600 | | 5,190 | 3,750 | 3,200 |
| 20 | 4,440 | 11,100 | 9,200 | | 12,500 | 16,600 | 39,700 | 23,600 | | 4,980 | 3,520 | 3,200 |
| 21 | 4,440 | 9,800 | 8,600 | 15,200 | 11,100 | 19,200 | 37,200 | 24,600 | | 4,980 | 3,750 | 3,200 |
| 22 | 4,280 | 8,600 | 8,010 | | 11,800 | 20,600 | 45,600 | 21,600 | | 4,780 | 3,630 | 3,200 |
| 23 | 4,280 | 7,500 | 7,470 | | 12,500 | 69,100 | 48,000 | 24,100 | | 4,780 | 3,630 | 3,200 |
| 24 | 4,130 | 6,520 | 7,470 | | 15,400 | 66,900 | 46,700 | 23,600 | | 4,780 | 3,630 | 3,200 |
| 25 | 4,130 | 6,520 | 9,200 | | 18,700 | 42,800 | 42,200 | 23,100 | 13,900 | 4,600 | 3,630 | 3,200 |
| 26 | 4,130 | 6,060 | 16,200 | | 19,700 | 36,000 | 39,700 | 22,600 | 13,600 | 4,600 | 3,630 | 3,300 |
| 27 | 4,130 | 8,500 | 27,500 | | 20,600 | 31,200 | 34,600 | 20,600 | 13,900 | 4,600 | 3,630 | 3,300 |
| 28 | 3,870 | 8,600 | 45,600 | | 18,700 | 32,400 | 32,400 | 18,800 | 12,200 | 4,600 | 3,630 | 3,300 |
| 29 | 3,870 | 8,600 | 59,300 | 31,800 | | 36,000 | 30,100 | 16,200 | 13,200 | 4,600 | 3,630 | 3,300 |
| 30 | 4,130 | 8,600 | 67,600 | 30,100 | | 38,700 | 37,600 | 15,000 | 11,800 | 4,600 | 3,630 | 3,300 |
| 31 | 4,130 | | 73,600 | 27,900 | | 40,900 | | 14,300 | | 4,440 | 3,630 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|--------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 5,620 | 3,410 | 4,210 | 0.578 | 0.67 | 259,000 |
| November | | 3,870 | 9,390 | 1.29 | 1.44 | 559,000 |
| December | 73,600 | 7,470 | 19,000 | 2.61 | 3.01 | 1,170,000 |
| January | 72,100 | | 28,200 | 3.87 | 4.46 | 1,730,000 |
| February | 62,700 | 11,100 | 22,700 | 3.12 | 3.25 | 1,260,000 |
| March | 69,100 | 13,900 | 27,100 | 3.72 | 4.29 | 1,670,000 |
| April | 67,600 | 18,700 | 33,500 | 4.60 | 5.13 | 1,990,000 |
| May | 35,400 | 14,300 | 24,200 | 3.32 | 3.83 | 1,490,000 |
| June | | 11,800 | 18,400 | 2.53 | 2.82 | 1,090,000 |
| July | 10,400 | 4,440 | 6,030 | .828 | .95 | 371,000 |
| August | 4,130 | 3,520 | 3,810 | .523 | .60 | 234,000 |
| September | 3,750 | 3,200 | 3,390 | .466 | .52 | 202,000 |
| The year | 73,600 | 3,200 | 16,600 | 2.28 | 30.97 | 12,000,000 |

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 highway bridge at Saginaw, 1 mile below mouth of Row River. Zero of gage, about 595.1 feet above mean sea level.

DRAINAGE AREA.—529 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 15,100 second-feet Apr. 14 (gage height, 9.5 feet); minimum, 28 second-feet Oct. 1.

1923-1929: 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 less than 200 second-feet, which are fair. No diversions or regulation above station. Gage-height record for October to April furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|--------|-------|-------|-------|------|------|-------|
| 1..... | 28 | 108 | 195 | 1,850 | 6,410 | 950 | 1,420 | 1,180 | 540 | 246 | 86 | 65 |
| 2..... | 44 | 93 | 225 | 2,970 | 6,410 | 1,080 | 1,220 | 1,130 | 652 | 225 | 79 | 58 |
| 3..... | 44 | 86 | 257 | 7,940 | 4,350 | 1,130 | 1,180 | 1,220 | 905 | 215 | 76 | 58 |
| 4..... | 124 | 65 | 210 | 3,400 | 2,970 | 1,320 | 1,180 | 1,080 | 1,040 | 205 | 76 | 54 |
| 5..... | 246 | 72 | 185 | 2,080 | 1,740 | 1,420 | 1,180 | 1,040 | 1,850 | 185 | 72 | 48 |
| 6..... | 167 | 116 | 144 | 1,630 | 1,040 | 1,520 | 1,130 | 1,040 | 1,630 | 185 | 76 | 44 |
| 7..... | 116 | 100 | 132 | 1,080 | 540 | 1,220 | 1,080 | 995 | 1,270 | 176 | 76 | 51 |
| 8..... | 86 | 65 | 132 | 905 | 1,130 | 1,040 | 1,220 | 950 | 1,220 | 167 | 86 | 40 |
| 9..... | 65 | 108 | 132 | 730 | 860 | 950 | 1,270 | 905 | 1,180 | 167 | 86 | 48 |
| 10..... | 58 | 323 | 1,320 | 652 | 860 | 815 | 1,320 | 860 | 1,080 | 158 | 82 | 37 |
| 11..... | 116 | 328 | 1,420 | 615 | 770 | 1,630 | 1,420 | 860 | 860 | 158 | 82 | 37 |
| 12..... | 124 | 345 | 770 | 540 | 652 | 1,960 | 1,520 | 905 | 730 | 149 | 65 | 34 |
| 13..... | 93 | 578 | 578 | 578 | 578 | 1,130 | 2,200 | 950 | 690 | 149 | 79 | 44 |
| 14..... | 44 | 540 | 375 | 470 | 470 | 995 | 9,120 | 860 | 950 | 140 | 79 | 30 |
| 15..... | 65 | 470 | 345 | 405 | 540 | 950 | 8,400 | 770 | 1,130 | 132 | 76 | 44 |
| 16..... | 180 | 438 | 323 | 318 | 540 | 905 | 4,870 | 730 | 1,220 | 124 | 72 | 40 |
| 17..... | 167 | 405 | 257 | 375 | 540 | 860 | 4,190 | 690 | 1,040 | 124 | 72 | 40 |
| 18..... | 108 | 185 | 215 | 470 | 540 | 860 | 3,710 | 690 | 950 | 116 | 72 | 37 |
| 19..... | 93 | 176 | 195 | 860 | 540 | 905 | 3,110 | 652 | 860 | 108 | 68 | 34 |
| 20..... | 79 | 172 | 176 | 770 | 540 | 860 | 2,700 | 652 | 815 | 93 | 65 | 44 |
| 21..... | 79 | 167 | 158 | 615 | 540 | 10,800 | 3,400 | 578 | 770 | 93 | 58 | 30 |
| 22..... | 58 | 167 | 140 | 615 | 505 | 6,200 | 4,190 | 540 | 770 | 86 | 62 | 30 |
| 23..... | 44 | 158 | 144 | 770 | 730 | 4,030 | 3,550 | 540 | 690 | 86 | 58 | 58 |
| 24..... | 37 | 132 | 140 | 1,220 | 1,130 | 2,440 | 2,080 | 540 | 615 | 79 | 58 | 68 |
| 25..... | 30 | 124 | 770 | 1,740 | 1,270 | 1,630 | 1,850 | 578 | 578 | 79 | 54 | 65 |
| 26..... | 44 | 116 | 1,220 | 2,830 | 1,420 | 1,740 | 1,740 | 505 | 470 | 93 | 51 | 51 |
| 27..... | 58 | 132 | 6,000 | 2,970 | 1,220 | 1,740 | 1,630 | 470 | 405 | 86 | 51 | 48 |
| 28..... | 79 | 200 | 3,110 | 1,740 | 1,040 | 1,740 | 1,520 | 438 | 375 | 79 | 79 | 44 |
| 29..... | 93 | 167 | 4,630 | 1,630 | ----- | 1,740 | 1,520 | 470 | 268 | 79 | 76 | 37 |
| 30..... | 108 | 149 | 3,710 | 1,420 | ----- | 1,630 | 1,420 | 470 | 257 | 72 | 72 | 44 |
| 31..... | 124 | ----- | 4,190 | 1,520 | ----- | 1,630 | ----- | 505 | ----- | 65 | 68 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 246 | 28 | 90.4 | 0.171 | 0.20 | 5,360 |
| November..... | 578 | 65 | 210 | .397 | .44 | 12,500 |
| December..... | 6,000 | 132 | 1,010 | 1.91 | 2.20 | 62,100 |
| January..... | 7,940 | 318 | 1,470 | 2.78 | 3.20 | 90,400 |
| February..... | 6,410 | 470 | 1,420 | 2.68 | 2.79 | 78,900 |
| March..... | 10,800 | 815 | 1,870 | 3.53 | 4.07 | 115,000 |
| April..... | 9,120 | 1,080 | 2,540 | 4.80 | 5.36 | 151,000 |
| May..... | 1,220 | 438 | 768 | 1.45 | 1.67 | 47,200 |
| June..... | 1,850 | 257 | 860 | 1.63 | 1.82 | 51,200 |
| July..... | 246 | 65 | 133 | .251 | .29 | 8,180 |
| August..... | 86 | 51 | 71.4 | .135 | .16 | 4,390 |
| September..... | 68 | 30 | 45.4 | .086 | .10 | 2,700 |
| The year..... | 10,800 | 28 | 869 | 1.64 | 22.30 | 626,000 |

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 measuring section $2\frac{1}{2}$ miles above gage). RECORDS AVAILABLE.—August, 1910, to September, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 3,240 second-feet Mar. 21 (gage height, 2.8 feet); minimum, 1,030 second-feet Nov. 7 and 8 (gage height, 0.56 foot).

1910-1929: Maximum discharge, 18,000 second-feet Jan. 6, 1923 (gage height, 8.3 feet, from high-water marks); minimum, 890 second-feet Oct. 13-26, 1924.

REMARKS.—Records good except those estimated (Oct. 7, 8, 14, 28, Nov. 4, 11, 12, 18, 22, 27-30, Dec. 1-6, 9, 10, 12, and 13), which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 1,070 | 1,060 | | 1,510 | 1,130 | 1,130 | 1,670 | 1,930 | 1,840 | 1,510 | 1,270 | 1,060 |
| 2..... | 1,070 | 1,060 | | 1,980 | 1,200 | 1,130 | 1,690 | 2,020 | 1,840 | 1,510 | 1,270 | 1,060 |
| 3..... | 1,070 | 1,060 | | 1,750 | 1,200 | 1,200 | 1,690 | 2,020 | 1,840 | 1,510 | 1,200 | 1,060 |
| 4..... | 1,160 | 1,060 | 1,160 | 1,060 | 1,200 | 1,200 | 1,690 | 2,110 | 1,840 | 1,510 | 1,200 | 1,060 |
| 5..... | 1,140 | 1,050 | | 1,510 | 1,200 | 1,200 | 1,510 | 2,210 | 1,840 | 1,510 | 1,200 | 1,060 |
| 6..... | 1,140 | 1,050 | | 1,430 | 1,200 | 1,200 | 1,510 | 2,110 | 1,930 | 1,510 | 1,200 | 1,060 |
| 7..... | 1,130 | 1,030 | 1,060 | 1,350 | 1,130 | 1,200 | 1,510 | 2,020 | 1,930 | 1,510 | 1,200 | 1,060 |
| 8..... | 1,120 | 1,030 | 1,060 | 1,350 | 1,130 | 1,200 | 1,430 | 2,020 | 1,930 | 1,510 | 1,200 | 1,060 |
| 9..... | 1,100 | 1,270 | 1,100 | 1,270 | 1,130 | 1,200 | 1,430 | 2,020 | 2,020 | 1,430 | 1,200 | 1,060 |
| 10..... | 1,070 | 1,200 | 1,400 | 1,270 | 1,130 | 1,200 | 1,430 | 2,020 | 2,020 | 1,430 | 1,200 | 1,060 |
| 11..... | 1,070 | 1,200 | 1,240 | 1,270 | 1,130 | 1,200 | 1,430 | 2,020 | 2,020 | 1,430 | 1,200 | 1,060 |
| 12..... | 1,070 | 1,200 | 1,180 | 1,270 | 1,130 | 1,270 | 1,430 | 2,110 | 2,020 | 1,430 | 1,200 | 1,060 |
| 13..... | 1,070 | 1,200 | 1,150 | 1,270 | 1,130 | 1,270 | 1,430 | 2,110 | 2,020 | 1,430 | 1,200 | 1,060 |
| 14..... | 1,070 | 1,130 | 1,130 | 1,270 | 1,060 | 1,270 | 2,020 | 2,110 | 2,020 | 1,430 | 1,200 | 1,060 |
| 15..... | 1,070 | 1,130 | 1,130 | 1,200 | 1,060 | 1,270 | 1,930 | 2,020 | 2,020 | 1,430 | 1,200 | 1,060 |
| 16..... | 1,120 | 1,130 | 1,130 | 1,200 | 1,060 | 1,270 | 1,930 | 2,020 | 2,020 | 1,430 | 1,200 | 1,060 |
| 17..... | 1,060 | 1,130 | 1,130 | 1,200 | 1,060 | 1,270 | 1,840 | 2,020 | 2,020 | 1,430 | 1,200 | 1,060 |
| 18..... | 1,070 | 1,130 | 1,130 | 1,200 | 1,060 | 1,270 | 1,750 | 2,110 | 2,020 | 1,430 | 1,130 | 1,060 |
| 19..... | 1,070 | 1,130 | 1,130 | 1,200 | 1,060 | 1,270 | 1,750 | 2,210 | 2,020 | 1,430 | 1,130 | 1,060 |
| 20..... | 1,070 | 1,120 | 1,130 | 1,200 | 1,060 | 1,430 | 1,930 | 2,210 | 2,020 | 1,430 | 1,130 | 1,060 |
| 21..... | 1,060 | 1,100 | 1,130 | 1,200 | 1,130 | 2,620 | 2,620 | 2,210 | 1,930 | 1,350 | 1,130 | 1,060 |
| 22..... | 1,060 | 1,100 | 1,130 | 1,200 | 1,130 | 2,210 | 2,620 | 2,210 | 1,930 | 1,350 | 1,130 | 1,060 |
| 23..... | 1,060 | 1,070 | 1,130 | 1,200 | 1,130 | 2,020 | 1,830 | 2,110 | 1,840 | 1,350 | 1,130 | 1,060 |
| 24..... | 1,060 | 1,060 | 1,130 | 1,130 | 1,130 | 1,670 | 1,930 | 2,110 | 1,840 | 1,270 | 1,130 | 1,060 |
| 25..... | 1,060 | 1,060 | 1,130 | 1,130 | 1,130 | 1,670 | 1,930 | 2,110 | 1,750 | 1,270 | 1,130 | 1,060 |
| 26..... | 1,060 | 1,270 | 1,160 | 1,200 | 1,130 | 1,670 | 1,840 | 2,020 | 1,670 | 1,270 | 1,130 | 1,060 |
| 27..... | 1,060 | | 1,270 | 1,200 | 1,130 | 1,670 | 1,840 | 2,020 | 1,670 | 1,270 | 1,060 | 1,060 |
| 28..... | 1,060 | | 1,350 | 1,130 | 1,130 | 2,020 | 1,840 | 2,020 | 1,590 | 1,270 | 1,060 | 1,060 |
| 29..... | 1,050 | 1,220 | 1,430 | 1,130 | | 1,840 | 1,930 | 1,930 | 1,590 | 1,270 | 1,060 | 1,060 |
| 30..... | 1,060 | | 1,510 | 1,130 | | 1,750 | 1,930 | 1,930 | 1,590 | 1,270 | 1,060 | 1,060 |
| 31..... | 1,060 | | 1,350 | 1,130 | | 1,670 | | 1,840 | | 1,270 | 1,060 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acree-feet |
| October..... | 1,160 | 1,050 | 1,080 | 3.06 | 3.53 | 66,400 |
| November..... | | 1,030 | 1,130 | 3.20 | 3.57 | 67,200 |
| December..... | 1,510 | 1,060 | 1,190 | 3.37 | 3.88 | 73,200 |
| January..... | 1,980 | 1,130 | 1,290 | 3.65 | 4.21 | 79,300 |
| February..... | 1,200 | 1,060 | 1,120 | 3.17 | 3.30 | 62,200 |
| March..... | 2,620 | 1,130 | 1,470 | 4.16 | 4.80 | 90,400 |
| April..... | 2,020 | 1,430 | 1,730 | 4.90 | 5.47 | 103,000 |
| May..... | 2,210 | 1,840 | 2,060 | 5.84 | 6.73 | 127,000 |
| June..... | 2,020 | 1,590 | 1,890 | 5.35 | 5.97 | 112,000 |
| July..... | 1,510 | 1,270 | 1,400 | 3.97 | 4.58 | 86,100 |
| August..... | 1,270 | 1,060 | 1,160 | 3.29 | 3.79 | 71,300 |
| September..... | 1,060 | 1,060 | 1,060 | 3.00 | 3.35 | 63,100 |
| The year..... | 2,620 | 1,030 | 1,380 | 3.91 | 53.18 | 1,000,000 |

WILLAMETTE RIVER NEAR VIDA, OREG.

LOCATION.—Water-stage recorder in NE $\frac{1}{4}$ sec. 5, T. 17 S., R. 3 E., at Rennie ranch and suspension bridge, 1 mile above head of Martin Rapids and 5 miles east of Vida. Staff gage used prior to Nov. 17, 1928. Zero of gage is 855.33 feet above mean sea level.

DRAINAGE AREA.—930 square miles.

RECORDS AVAILABLE.—September, 1924, to September, 1929. At head of Martin Rapids, gage heights only, June, 1910, to March, 1911.

EXTREMES.—Maximum discharge during year, 18,900 second-feet Mar. 21 (gage height, 9.6 feet); minimum, 1,460 second-feet Sept. 29 (gage height, 0.55 foot).

1924-1929: Maximum discharge, 47,200 second-feet Feb. 20, 1927 (gage height, 14.2 feet); minimum, 1,430 second-feet Sept. 14 and 15, 1926.

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

REMARKS.—Records good. Discharge estimated Aug. 12-17, Sept. 25, and 27. No diversion or regulation above station. Gage-height record furnished by Eugene Water Board.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|
| 1..... | 1,680 | 1,680 | 2,550 | 4,320 | 3,140 | 2,630 | 4,120 | 5,350 | 4,020 | 2,880 | 1,890 | 1,570 |
| 2..... | 1,680 | 1,620 | 2,250 | 8,340 | 3,740 | 3,060 | 3,920 | 5,840 | 3,920 | 2,800 | 1,890 | 1,560 |
| 3..... | 1,920 | 1,620 | 2,050 | 7,470 | 3,650 | 3,220 | 3,830 | 6,240 | 3,830 | 2,720 | 1,820 | 1,560 |
| 4..... | 2,050 | 1,620 | 1,980 | 4,880 | 3,310 | 3,480 | 3,650 | 5,840 | 4,120 | 2,630 | 1,820 | 1,560 |
| 5..... | 1,980 | 1,620 | 1,920 | 3,920 | 3,060 | 4,220 | 3,480 | 5,840 | 5,110 | 2,550 | 1,820 | 1,560 |
| 6..... | 1,860 | 1,620 | 1,860 | 3,400 | 2,880 | 4,320 | 3,310 | 5,470 | 4,880 | 2,550 | 1,820 | 1,530 |
| 7..... | 1,800 | 1,620 | 1,800 | 3,140 | 2,630 | 3,830 | 3,310 | 4,880 | 4,540 | 2,470 | 1,820 | 1,520 |
| 8..... | 1,680 | 1,680 | 1,800 | 2,880 | 2,470 | 3,480 | 3,220 | 4,650 | 4,880 | 2,400 | 1,760 | 1,510 |
| 9..... | 1,570 | 2,470 | 1,860 | 2,720 | 2,400 | 3,560 | 3,140 | 4,680 | 4,650 | 2,400 | 1,760 | 1,510 |
| 10..... | 1,800 | 2,630 | 3,120 | 2,550 | 2,320 | 4,320 | 3,060 | 4,540 | 4,320 | 2,320 | 1,760 | 1,510 |
| 11..... | 1,740 | 2,120 | 2,970 | 2,470 | 2,240 | 4,120 | 3,140 | 4,760 | 4,220 | 2,320 | 1,760 | 1,510 |
| 12..... | 1,680 | 2,320 | 2,550 | 2,470 | 2,240 | 3,650 | 3,060 | 5,350 | 4,020 | 2,320 | | 1,510 |
| 13..... | 1,680 | 2,180 | 2,320 | 2,470 | 2,240 | 3,400 | 3,220 | 6,100 | 4,120 | 2,240 | | 1,500 |
| 14..... | 1,680 | 2,250 | 2,170 | 2,470 | 2,170 | 3,140 | 7,260 | 5,970 | 4,320 | 2,240 | | 1,500 |
| 15..... | 1,680 | 2,120 | 2,100 | 2,400 | 2,170 | 3,140 | 7,750 | 5,590 | 4,880 | 2,240 | 1,730 | 1,490 |
| 16..... | 1,800 | 2,470 | 2,030 | 2,320 | 2,170 | 3,140 | 6,240 | 5,590 | 5,720 | 2,170 | | 1,490 |
| 17..... | 1,800 | 2,400 | 1,960 | 2,320 | 2,170 | 3,060 | 5,470 | 5,590 | 5,350 | 2,170 | | 1,490 |
| 18..... | 1,680 | 2,120 | 1,890 | 2,470 | 2,100 | 3,220 | 4,880 | 5,840 | 5,000 | 2,170 | 1,700 | 1,490 |
| 19..... | 1,680 | 1,980 | 1,820 | 2,320 | 2,100 | 3,310 | 5,230 | 6,100 | 5,110 | 2,100 | 1,700 | 1,490 |
| 20..... | 1,680 | 1,920 | 1,820 | 2,170 | 2,100 | 5,980 | 7,470 | 6,370 | 4,540 | 2,100 | 1,630 | 1,490 |
| 21..... | 1,680 | 1,860 | 1,760 | 2,170 | 2,240 | 17,000 | 7,050 | 6,500 | 4,220 | 2,100 | 1,630 | 1,490 |
| 22..... | 1,620 | 1,800 | 1,760 | 2,240 | 2,400 | 10,200 | 6,910 | 6,500 | 4,020 | 2,100 | 1,630 | 1,490 |
| 23..... | 1,620 | 1,800 | 1,760 | 2,100 | 2,720 | 7,050 | 6,100 | 6,240 | 3,830 | 2,030 | 1,630 | 1,530 |
| 24..... | 1,620 | 1,800 | 1,760 | 2,170 | 2,720 | 5,590 | 5,590 | 6,100 | 3,650 | 2,030 | 1,630 | 1,520 |
| 25..... | 1,570 | 1,740 | 2,550 | 2,470 | 2,970 | 4,760 | 5,230 | 5,590 | 3,560 | 2,030 | 1,620 | 1,500 |
| 26..... | 1,570 | 1,800 | 2,880 | 2,970 | 2,880 | 4,650 | 5,230 | 5,000 | 3,400 | 1,960 | 1,620 | 1,480 |
| 27..... | 1,570 | 2,180 | 4,020 | 3,220 | 2,720 | 5,110 | 5,470 | 4,540 | 3,220 | 1,960 | 1,620 | 1,480 |
| 28..... | 1,570 | 2,050 | 3,650 | 2,800 | 2,630 | 5,840 | 5,470 | 4,120 | 3,140 | 1,960 | 1,610 | 1,470 |
| 29..... | 1,680 | 1,920 | 4,020 | 2,550 | ----- | 5,840 | 6,500 | 4,020 | 3,060 | 1,960 | 1,610 | 1,470 |
| 30..... | 1,740 | 2,050 | 5,060 | 2,320 | ----- | 5,000 | 6,100 | 3,920 | 2,970 | 1,890 | 1,590 | 1,470 |
| 31..... | 1,680 | ----- | 4,880 | 2,400 | ----- | 4,430 | ----- | 4,020 | ----- | 1,890 | 1,590 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 2,050 | 1,570 | 1,710 | 1.84 | 2.12 | 105,000 |
| November..... | 2,630 | 1,620 | 1,970 | 2.12 | 2.36 | 117,000 |
| December..... | 5,000 | 1,760 | 2,480 | 2.67 | 3.08 | 152,000 |
| January..... | 8,340 | 2,100 | 3,060 | 3.29 | 3.79 | 188,000 |
| February..... | 3,740 | 2,100 | 2,590 | 2.78 | 2.90 | 144,000 |
| March..... | 17,000 | 2,680 | 4,770 | 5.13 | 5.91 | 293,000 |
| April..... | 7,750 | 3,060 | 4,960 | 5.32 | 5.94 | 295,000 |
| May..... | 6,500 | 3,920 | 5,390 | 5.80 | 6.69 | 331,000 |
| June..... | 5,720 | 2,970 | 4,220 | 4.54 | 5.06 | 251,000 |
| July..... | 2,880 | 1,890 | 2,280 | 2.42 | 2.79 | 138,000 |
| August..... | 1,890 | 1,590 | 1,710 | 1.84 | 2.12 | 105,000 |
| September..... | 1,570 | 1,470 | 1,510 | 1.62 | 1.81 | 89,800 |
| The year..... | 17,000 | 1,470 | 3,060 | 3.28 | 44.57 | 2,210,000 |

EUGENE POWER CANAL NEAR WALTERVILLE, 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 Walterville.

RECORDS AVAILABLE.—July, 1926, to September, 1929. September, 1911, to March, 1915, at station 3 miles downstream.

EXTREMES.—Maximum discharge during year, 1,350 second-feet Mar. 20 (gage height, 4.00 feet); minimum, 425 second-feet Nov. 25 (gage height, 1.60 feet).

1911-1915, 1926-1929: Maximum discharge, that of Mar. 20, 1929; canal probably dry at times.

REMARKS.—Records good. This canal diverts from McKenzie River in SE. $\frac{1}{4}$ sec. 23, T. 17 S., R. 1 W., and extends $3\frac{1}{4}$ miles to power plant of city of Eugene in NW. $\frac{1}{4}$ sec. 29; the tailrace discharges into Camp Creek 4 miles above its mouth. Gage-height record furnished by Eugene Water Board.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|-----------|--------|--------|---------|-------|-------|---------|---------|-------|----------------------|---------|--------|-------|-----|
| 1 | *1,020 | 992 | * 1,020 | 1,000 | 1,030 | 1,000 | 1,050 | 1,050 | 1,060 | 1,040 | 1,100 | 1,000 | |
| 2 | | | 984 | 1,010 | 1,040 | 1,030 | 1,000 | 1,000 | 960 | 1,000 | 1,050 | 1,000 | |
| 3 | | | | 1,030 | 880 | 1,050 | 1,010 | 1,050 | 1,060 | 992 | 1,050 | 984 | |
| 4 | | | | 1,020 | 1,010 | 1,000 | 1,030 | 1,040 | 1,070 | 960 | 960 | 992 | |
| 5 | | | | 1,040 | 1,010 | 1,010 | 1,030 | 856 | 1,140 | 944 | 1,030 | 984 | |
| 6 | 1,000 | *1,020 | *1,020 | 765 | 1,010 | 1,020 | 1,030 | 1,050 | 1,030 | 928 | 1,040 | 964 | |
| 7 | | | | 1,050 | 1,020 | 1,030 | 920 | 1,040 | 1,050 | 920 | 1,040 | 964 | |
| 8 | | | | 1,050 | 1,010 | 1,020 | 1,050 | 1,050 | 912 | 1,030 | 984 | 964 | |
| 9 | | | | 976 | 1,050 | 1,010 | 1,020 | 1,080 | 1,050 | 920 | 912 | 1,040 | 984 |
| 10 | | | | 1,090 | 1,040 | 984 | 976 | 1,080 | 1,050 | 1,050 | 912 | 1,050 | 992 |
| 11 | *1,020 | 992 | 1,020 | 1,030 | 1,010 | 1,020 | 1,090 | 1,050 | 1,050 | 912 | 960 | 992 | |
| 12 | | | | 1,010 | 1,030 | 1,020 | 1,030 | 1,050 | 1,060 | 952 | 1,040 | 992 | 992 |
| 13 | | | | 1,000 | 984 | 1,010 | 1,040 | 1,090 | 1,100 | 1,070 | 1,040 | 1,050 | 992 |
| 14 | | | | 1,010 | 1,010 | 1,010 | 1,000 | 960 | 1,060 | 1,050 | 992 | 1,040 | 992 |
| 15 | | | | 1,020 | 1,010 | 1,000 | 1,010 | 960 | 1,050 | 1,150 | 1,110 | 1,040 | 984 |
| 16 | *1,020 | 1,000 | 920 | 1,010 | 1,000 | 1,010 | 992 | 1,040 | 840 | 1,050 | 1,040 | 984 | |
| 17 | | | 1,040 | 1,010 | 984 | 952 | 1,040 | 1,050 | 1,090 | 1,060 | 1,040 | 984 | |
| 18 | | | 1,040 | 1,030 | 992 | 1,010 | 1,020 | 1,030 | 1,050 | 1,050 | 960 | 984 | |
| 19 | | | 1,030 | 1,020 | 992 | 1,020 | 1,000 | 872 | 1,050 | 1,040 | 1,040 | 984 | |
| 20 | | | 1,020 | 976 | 992 | 1,350 | 976 | 1,080 | 1,050 | 1,040 | 1,040 | 984 | |
| 21 | 992 | *1,020 | 1,010 | 1,010 | 992 | 928 | 848 | 1,070 | 1,070 | 940 | 1,040 | 984 | |
| 22 | | | 1,010 | 1,010 | 1,000 | 920 | 1,000 | 1,050 | 1,050 | 1,050 | 1,040 | 984 | |
| 23 | | | 928 | 1,010 | 1,000 | 936 | 1,010 | 1,040 | 960 | 1,050 | 1,040 | 1,040 | |
| 24 | | | 1,080 | 1,010 | 992 | 758 | 1,020 | 1,050 | 1,050 | 1,050 | 1,050 | 1,040 | |
| 25 | | | 1,060 | 1,010 | 1,050 | 1,000 | 1,030 | 1,080 | 1,100 | 1,040 | 1,000 | 1,040 | |
| 26 | 992 | *1,020 | 1,090 | 1,020 | 1,010 | 1,010 | 1,050 | 840 | 1,070 | 1,040 | 1,040 | 1,040 | |
| 27 | | | 1,080 | 984 | 1,010 | 1,010 | 1,060 | 1,050 | 1,050 | 1,030 | 1,030 | 1,040 | |
| 28 | | | 1,060 | 1,010 | 1,000 | 1,090 | 872 | 1,050 | 1,050 | 840 | 1,020 | 1,040 | |
| 29 | | | 1,090 | 1,010 | ----- | 1,000 | 1,090 | 1,040 | 1,050 | 1,300 | 1,010 | 1,040 | |
| 30 | | | 920 | 1,010 | ----- | 1,000 | 1,090 | 1,050 | 960 | 1,050 | 1,000 | 1,040 | |
| 31 | *1,020 | ----- | 1,050 | 1,010 | ----- | 880 | ----- | 1,070 | ----- | 1,050 | 1,000 | ----- | |
| | | | | | | | | | | | | | |
| Month | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | | | |
| October | | ----- | | | | | | ----- | 992 | 1,020 | 62,700 | | |
| November | | ----- | | | | | | ----- | 425 | 998 | 59,400 | | |
| December | ----- | | | | | | ----- | 920 | 1,020 | 62,700 | | | |
| January | ----- | | | | | | 1,050 | 765 | 1,010 | 62,100 | | | |
| February | ----- | | | | | | 1,040 | 880 | 1,000 | 58,500 | | | |
| March | ----- | | | | | | 1,350 | 758 | 1,000 | 61,500 | | | |
| April | ----- | | | | | | 1,090 | 848 | 1,020 | 60,700 | | | |
| May | ----- | | | | | | 1,100 | 840 | 1,040 | 64,000 | | | |
| June | ----- | | | | | | 1,150 | 840 | 1,040 | 61,900 | | | |
| July | ----- | | | | | | 1,300 | 840 | 1,000 | 61,500 | | | |
| August | ----- | | | | | | 1,100 | 960 | 1,030 | 63,300 | | | |
| September | ----- | | | | | | 1,040 | 984 | 1,000 | 59,500 | | | |
| The year | | | | | | | ----- | 425 | 1,020 | 735,000 | | | |

* Estimated; water slightly over top of gage.

LONG TOM RIVER NEAR MONROE, OREG.

LOCATION.—Staff gage in sec. 21, T. 14 S., R. 5 W., at highway bridge $1\frac{1}{2}$ miles north of Monroe. Zero of gage is 259.08 feet above mean sea level.

DRAINAGE AREA.—394 square miles.

RECORDS AVAILABLE.—November, 1920, to September, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 5,450 second-feet Apr. 2 (gage height, 10.85 feet); minimum, 14 second-feet Aug. 16 and Sept. 13–18 (gage height, 0.38 foot).

1920–1929: Maximum discharge, 18,600 second-feet Jan. 7, 1923 (gage height, 14.4 feet); minimum, 8 second-feet Sept. 5–19 and 23, 1924 (gage height, 0.26 foot).

REMARKS.—Records good except those less than 50 second-feet or more than 2,500 second-feet, which are poor. Discharge estimated Sept. 30. No diversions above station. Some fluctuation at low stages due to pondage at mill dam at Monroe.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | 15 | 25 | 120 | 4,820 | 2,140 | 525 | 525 | 472 | 132 | 79 | 36 | 17 |
| 2..... | 18 | 21 | 128 | 4,280 | 2,390 | 472 | 498 | 422 | 124 | 79 | 34 | 17 |
| 3..... | 21 | 23 | 128 | 3,810 | 2,930 | 422 | 398 | 375 | 124 | 76 | 34 | 17 |
| 4..... | 21 | 21 | 128 | 3,600 | 2,780 | 398 | 375 | 352 | 132 | 79 | 34 | 17 |
| 5..... | 20 | 32 | 124 | 2,510 | 2,390 | 375 | 352 | 330 | 140 | 72 | 34 | 16 |
| 6..... | 21 | 26 | 112 | 2,850 | 1,810 | 352 | 352 | 375 | 160 | 69 | 31 | 16 |
| 7..... | 30 | 21 | 108 | 2,090 | 1,310 | 330 | 375 | 330 | 160 | 66 | 29 | 16 |
| 8..... | 26 | 25 | 112 | 1,410 | 1,100 | 308 | 525 | 286 | 181 | 63 | 27 | 16 |
| 9..... | 28 | 42 | 96 | 1,130 | 901 | 308 | 780 | 265 | 181 | 66 | 31 | 16 |
| 10..... | 18 | 150 | 265 | 964 | 722 | 422 | 693 | 254 | 160 | 63 | 41 | 15 |
| 11..... | 28 | 244 | 398 | 780 | 646 | 552 | 693 | 223 | 140 | 60 | 22 | 15 |
| 12..... | 25 | 286 | 472 | 664 | 552 | 525 | 901 | 223 | 136 | 60 | 31 | 15 |
| 13..... | 21 | 375 | 693 | 580 | 498 | 447 | 932 | 212 | 124 | 57 | 21 | 14 |
| 14..... | 17 | 286 | 552 | 525 | 472 | 375 | 1,570 | 202 | 120 | 63 | 29 | 14 |
| 15..... | 20 | 244 | 422 | 447 | 447 | 352 | 2,640 | 202 | 138 | 54 | 19 | 14 |
| 16..... | 16 | 202 | 330 | 422 | 447 | 352 | 3,700 | 181 | 132 | 54 | 14 | 14 |
| 17..... | 25 | 181 | 286 | 398 | 447 | 330 | 3,810 | 181 | 160 | 57 | 18 | 14 |
| 18..... | 25 | 160 | 286 | 398 | 447 | 308 | 2,850 | 170 | 160 | 51 | 15 | 14 |
| 19..... | 20 | 160 | 212 | 552 | 422 | 286 | 2,090 | 170 | 160 | 63 | 18 | 15 |
| 20..... | 16 | 136 | 181 | 636 | 398 | 308 | 1,650 | 160 | 140 | 57 | 30 | 15 |
| 21..... | 17 | 120 | 170 | 751 | 398 | 398 | 1,490 | 160 | 140 | 51 | 15 | 15 |
| 22..... | 17 | 104 | 160 | 608 | 398 | 664 | 1,490 | 140 | 120 | 54 | 17 | 15 |
| 23..... | 17 | 96 | 150 | 525 | 498 | 693 | 1,380 | 136 | 116 | 51 | 17 | 15 |
| 24..... | 17 | 93 | 160 | 525 | 580 | 693 | 1,170 | 136 | 104 | 48 | 17 | 15 |
| 25..... | 25 | 82 | 422 | 552 | 664 | 722 | 964 | 136 | 100 | 46 | 21 | 15 |
| 26..... | 20 | 82 | 780 | 664 | 693 | 498 | 780 | 136 | 112 | 43 | 17 | 15 |
| 27..... | 25 | 86 | 2,090 | 901 | 636 | 472 | 664 | 136 | 86 | 41 | 17 | 15 |
| 28..... | 16 | 104 | 3,090 | 1,200 | 580 | 472 | 608 | 136 | 89 | 41 | 18 | 16 |
| 29..... | 26 | 93 | 4,280 | 1,940 | ----- | 472 | 580 | 132 | 82 | 41 | 17 | 15 |
| 30..... | 25 | 104 | 4,970 | 2,510 | ----- | 552 | 552 | 132 | 82 | 38 | 18 | 15 |
| 31..... | 20 | ----- | 5,450 | 2,240 | ----- | 580 | ----- | 136 | ----- | 36 | 18 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 30 | 15 | 21.2 | 0.054 | 0.06 | 1,800 |
| November..... | 375 | 21 | 121 | .307 | .34 | 7,200 |
| December..... | 5,450 | 96 | 867 | 2.20 | 2.54 | 53,800 |
| January..... | 4,820 | 398 | 1,490 | 3.78 | 4.36 | 91,600 |
| February..... | 2,930 | 398 | 988 | 2.51 | 2.61 | 54,900 |
| March..... | 722 | 286 | 450 | 1.14 | 1.31 | 27,700 |
| April..... | 3,810 | 352 | 1,180 | 2.99 | 3.34 | 70,200 |
| May..... | 472 | 132 | 223 | .566 | .65 | 13,700 |
| June..... | 181 | 82 | 131 | .332 | .37 | 7,800 |
| July..... | 79 | 36 | 57.4 | .146 | .17 | 3,580 |
| August..... | 41 | 14 | 23.9 | .061 | .07 | 1,470 |
| September..... | 17 | 14 | 15.3 | .039 | .04 | 910 |
| The year..... | 5,450 | 14 | 461 | 1.170 | 15.86 | 324,000 |

NORTH SANTIAM RIVER AT DETROIT, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 12, T. 10 S., R. 5 E., one-fourth 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, 1929. Comparable records at gage above Boulder Creek near Hoover, August, 1910, to October, 1913.

EXTREMES.—Maximum discharge during year, 2,520 second-feet Mar. 21 (gage height, 3.60 feet); minimum, 374 second-feet Sept. 30 (gage height, 0.54 foot). 1907–1909, 1928–29: Maximum discharge, 9,220 second-feet Feb. 5, 1907; minimum, that of Sept. 30, 1929.

REMARKS.—Records good. Daily discharge interpolated Nov. 22 and estimated Nov. 24–29. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 403 | 411 | 620 | 1,140 | 595 | 488 | 1,170 | 1,940 | 1,310 | 932 | 520 | 419 |
| 2..... | 423 | 407 | 595 | 1,610 | 620 | 502 | 1,060 | 2,030 | 1,240 | 932 | 511 | 415 |
| 3..... | 447 | 419 | 516 | 1,530 | 645 | 595 | 1,030 | 2,030 | 1,240 | 870 | 502 | 411 |
| 4..... | 620 | 415 | 475 | 1,240 | 645 | 645 | 1,030 | 1,940 | 1,380 | 810 | 493 | 411 |
| 5..... | 525 | 407 | 498 | 998 | 620 | 645 | 932 | 1,940 | 1,610 | 810 | 475 | 403 |
| 6..... | 455 | 411 | 480 | 965 | 620 | 810 | 900 | 1,770 | 1,610 | 780 | 475 | 403 |
| 7..... | 520 | 415 | 467 | 870 | 595 | 780 | 840 | 1,610 | 1,530 | 750 | 475 | 395 |
| 8..... | 498 | 415 | 484 | 810 | 540 | 750 | 900 | 1,530 | 1,530 | 750 | 467 | 395 |
| 9..... | 488 | 1,450 | 530 | 780 | 570 | 780 | 840 | 1,450 | 1,380 | 695 | 467 | 395 |
| 10..... | 560 | 1,060 | 1,170 | 750 | 570 | 965 | 840 | 1,450 | 1,380 | 670 | 463 | 395 |
| 11..... | 463 | 840 | 870 | 695 | 516 | 965 | 810 | 1,530 | 1,310 | 645 | 459 | 395 |
| 12..... | 439 | 750 | 780 | 670 | 493 | 900 | 720 | 1,770 | 1,310 | 645 | 459 | 395 |
| 13..... | 415 | 750 | 780 | 670 | 480 | 810 | 720 | 1,850 | 1,310 | 670 | 459 | 395 |
| 14..... | 419 | 720 | 780 | 670 | 480 | 750 | 1,450 | 1,770 | 1,380 | 620 | 459 | 392 |
| 15..... | 435 | 645 | 750 | 670 | 484 | 780 | 1,450 | 1,690 | 1,770 | 620 | 459 | 388 |
| 16..... | 447 | 720 | 670 | 645 | 493 | 780 | 1,530 | 1,690 | 1,850 | 595 | 455 | 388 |
| 17..... | 415 | 670 | 545 | 645 | 488 | 780 | 1,450 | 1,770 | 1,770 | 595 | 451 | 388 |
| 18..... | 411 | 620 | 540 | 670 | 493 | 780 | 1,310 | 1,940 | 1,690 | 570 | 455 | 388 |
| 19..... | 407 | 560 | 530 | 620 | 502 | 780 | 1,310 | 2,120 | 1,850 | 570 | 447 | 388 |
| 20..... | 403 | 545 | 516 | 620 | 502 | 965 | 1,450 | 2,320 | 1,530 | 545 | 443 | 399 |
| 21..... | 411 | 540 | 502 | 620 | 511 | 2,520 | 1,610 | 2,320 | 1,450 | 520 | 443 | 403 |
| 22..... | 403 | 521 | 480 | 595 | 502 | 1,940 | 1,690 | 2,320 | 1,380 | 560 | 435 | 407 |
| 23..... | 403 | 502 | 480 | 550 | 535 | 1,530 | 1,770 | 2,220 | 1,310 | 550 | 435 | 431 |
| 24..... | 407 | 540 | 595 | 565 | 565 | 1,310 | 1,610 | 2,420 | 1,240 | 540 | 435 | 431 |
| 25..... | 399 | 780 | 570 | 570 | 570 | 1,240 | 1,530 | 2,120 | 1,240 | 545 | 435 | 419 |
| 26..... | 399 | 520 | 998 | 620 | 555 | 1,240 | 1,610 | 1,770 | 1,170 | 535 | 435 | 407 |
| 27..... | 395 | 1,140 | 595 | 525 | 525 | 1,240 | 1,530 | 1,610 | 1,140 | 530 | 435 | 392 |
| 28..... | 399 | 965 | 570 | 511 | 511 | 1,450 | 1,610 | 1,450 | 1,100 | 525 | 435 | 384 |
| 29..... | 399 | 1,310 | 570 | ----- | ----- | 1,530 | 1,850 | 1,450 | 998 | 525 | 427 | 381 |
| 30..... | 451 | 493 | 1,310 | 570 | ----- | 1,450 | 2,030 | 1,380 | 965 | 530 | 427 | 374 |
| 31..... | 423 | ----- | 1,170 | 520 | ----- | 1,240 | ----- | 1,380 | ----- | 525 | 427 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 620 | 395 | 441 | 1.91 | 2.20 | 27,100 |
| November..... | 1,450 | 407 | 594 | 2.57 | 2.87 | 35,300 |
| December..... | 1,310 | 467 | 718 | 3.11 | 3.58 | 44,100 |
| January..... | 1,610 | 520 | 763 | 3.30 | 3.80 | 46,900 |
| February..... | 645 | 480 | 544 | 2.35 | 2.45 | 30,200 |
| March..... | 2,520 | 488 | 1,030 | 4.46 | 5.14 | 63,800 |
| April..... | 2,030 | 720 | 1,290 | 5.58 | 6.23 | 76,800 |
| May..... | 2,420 | 1,880 | 1,830 | 7.92 | 9.13 | 113,000 |
| June..... | 1,850 | 965 | 1,400 | 6.06 | 6.76 | 83,300 |
| July..... | 932 | 525 | 644 | 2.79 | 3.22 | 39,600 |
| August..... | 520 | 427 | 457 | 1.98 | 2.28 | 28,100 |
| September..... | 431 | 374 | 400 | 1.73 | 1.93 | 23,800 |
| The year..... | 2,520 | 374 | 843 | 3.65 | 49.59 | 612,000 |

NORTH SANTIAM RIVER AT MEHAMA, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 18, T. 9 S., R. 2 E., at Mehama, half a mile below mouth of 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, 1929.

EXTREMES.—Maximum discharge during year, 13,800 second-feet Mar. 21 (gage height, 7.50 feet); minimum, 520 second-feet Sept. 30.

1905–1907, 1910–1914, 1921–1929: Maximum discharge, 62,000 second-feet Nov. 20, 1921, and Jan. 6, 1923 (gage height, 17.5 feet); minimum, 420 second-feet Sept. 18, 1924 (gage height, 1.45 feet).

REMARKS.—Records good except those for June and July and those over 5,000 second-feet, which are fair. No diversions for irrigation or regulation above station. Gage-height record October to May furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|------|-------|
| 1 | 695 | 740 | 2,250 | 5,460 | 2,610 | 2,010 | 3,850 | 5,720 | 2,770 | 1,740 | 845 | 595 |
| 2 | 634 | 740 | 2,250 | 8,480 | 2,940 | 2,150 | 3,470 | 5,720 | 2,770 | 1,740 | 845 | 595 |
| 3 | 740 | 740 | 1,930 | 9,300 | 2,610 | 2,610 | 3,290 | 7,600 | 2,610 | 1,740 | 845 | 583 |
| 4 | 930 | 740 | 1,780 | 6,240 | 2,450 | 2,770 | 3,110 | 6,240 | 2,610 | 1,610 | 802 | 580 |
| 5 | 1,930 | 930 | 1,640 | 4,710 | 2,300 | 3,290 | 2,940 | 5,980 | 3,850 | 1,540 | 802 | 585 |
| 6 | 1,140 | 830 | 1,500 | 3,660 | 2,010 | 4,050 | 2,610 | 5,460 | 3,850 | 1,480 | 760 | 572 |
| 7 | 1,250 | 785 | 1,370 | 3,110 | 1,740 | 3,470 | 2,450 | 4,480 | 3,470 | 1,480 | 760 | 558 |
| 8 | 1,570 | 740 | 1,250 | 2,770 | 1,740 | 2,940 | 2,450 | 4,260 | 3,110 | 1,420 | 718 | 550 |
| 9 | 1,250 | 9,600 | 1,370 | 2,450 | 1,610 | 2,940 | 2,300 | 4,260 | 3,110 | 1,360 | 718 | 550 |
| 10 | 1,370 | 8,220 | 5,460 | 2,300 | 1,540 | 4,050 | 2,300 | 4,260 | 2,940 | 1,360 | 718 | 550 |
| 11 | 1,250 | 5,220 | 5,000 | 2,150 | 1,480 | 3,850 | 2,300 | 5,720 | 2,940 | 1,300 | 718 | 550 |
| 12 | 1,030 | 4,210 | 3,830 | 2,010 | 1,420 | 3,290 | 2,300 | 5,720 | 2,770 | 1,240 | 718 | 550 |
| 13 | 930 | 3,460 | 3,100 | 2,010 | 1,360 | 2,770 | 2,450 | 5,980 | 3,110 | 1,180 | 718 | 550 |
| 14 | 880 | 3,100 | 2,760 | 2,010 | 1,360 | 2,610 | 8,160 | 6,240 | 3,110 | 1,180 | 675 | 550 |
| 15 | 880 | 2,590 | 2,250 | 2,010 | 1,360 | 2,450 | 8,740 | 5,460 | 3,470 | 1,180 | 675 | 542 |
| 16 | 1,440 | 2,930 | 2,090 | 1,870 | 1,360 | 2,610 | 6,780 | 5,200 | 4,480 | 1,130 | 675 | 542 |
| 17 | 1,250 | 3,280 | 1,930 | 1,740 | 1,300 | 2,450 | 5,980 | 4,950 | 4,260 | 1,130 | 675 | 535 |
| 18 | 1,140 | 2,760 | 1,780 | 2,150 | 1,300 | 2,610 | 4,950 | 5,200 | 4,050 | 1,130 | 675 | 535 |
| 19 | 1,030 | 2,250 | 1,640 | 2,010 | 1,180 | 2,770 | 4,480 | 5,720 | 5,460 | 1,060 | 675 | 528 |
| 20 | 930 | 2,090 | 1,500 | 1,610 | 1,240 | 2,940 | 6,780 | 6,240 | 4,260 | 1,060 | 675 | 528 |
| 21 | 880 | 1,780 | 1,500 | 1,610 | 1,870 | 13,800 | 6,780 | 5,980 | 3,660 | 1,030 | 635 | 542 |
| 22 | 830 | 1,640 | 1,440 | 1,610 | 2,150 | 9,320 | 6,510 | 5,980 | 3,290 | 982 | 635 | 558 |
| 23 | 830 | 1,500 | 1,310 | 1,540 | 2,300 | 6,510 | 6,240 | 5,980 | 2,940 | 935 | 635 | 595 |
| 24 | 785 | 1,370 | 1,310 | 1,480 | 2,300 | 4,950 | 5,980 | 5,980 | 2,940 | 982 | 635 | 635 |
| 25 | 740 | 1,310 | 2,590 | 2,150 | 2,610 | 4,260 | 5,460 | 5,720 | 2,610 | 982 | 635 | 572 |
| 26 | 740 | 1,250 | 2,930 | 2,770 | 2,450 | 4,480 | 5,720 | 4,710 | 2,610 | 935 | 635 | 550 |
| 27 | 740 | 2,250 | 6,920 | 3,110 | 2,150 | 4,710 | 5,980 | 3,850 | 2,300 | 890 | 635 | 535 |
| 28 | 740 | 1,930 | 5,460 | 2,450 | 2,010 | 5,460 | 5,460 | 3,290 | 2,300 | 890 | 595 | 535 |
| 29 | 695 | 1,780 | 7,180 | 2,150 | ----- | 6,510 | 8,450 | 3,290 | 2,150 | 890 | 595 | 528 |
| 30 | 785 | 1,640 | 7,700 | 1,870 | ----- | 5,200 | 7,320 | 2,940 | 2,010 | 890 | 595 | 520 |
| 31 | 830 | ----- | 7,700 | 1,740 | ----- | 4,260 | ----- | 2,940 | ----- | 890 | 595 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 1,930 | 634 | 996 | 1.80 | 1.73 | 61,200 |
| November | 9,600 | 740 | 2,410 | 3.62 | 4.04 | 143,000 |
| December | 7,700 | 1,250 | 2,990 | 4.50 | 5.19 | 184,000 |
| January | 9,300 | 1,480 | 2,920 | 4.39 | 5.06 | 180,000 |
| February | 2,940 | 1,180 | 1,880 | 2.83 | 2.95 | 104,000 |
| March | 13,800 | 2,010 | 4,130 | 6.21 | 7.16 | 254,000 |
| April | 8,740 | 2,300 | 4,850 | 7.29 | 8.13 | 289,000 |
| May | 7,600 | 2,940 | 5,200 | 7.82 | 9.02 | 320,000 |
| June | 5,460 | 2,010 | 3,190 | 4.80 | 5.36 | 190,000 |
| July | 1,740 | 890 | 1,210 | 1.82 | 2.10 | 74,400 |
| August | 845 | 595 | 694 | 1.04 | 1.20 | 42,700 |
| September | 635 | 520 | 553 | .832 | .93 | 32,900 |
| The year | 13,800 | 520 | 2,590 | 3.89 | 52.87 | 1,880,000 |

SOUTH SANTIAM RIVER AT WATERLOO, OREG.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ 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, 1929.

EXTREMES.—Maximum discharge during year, 21,000 second-feet Mar. 21 (gage height, 10.7 feet); minimum, 146 second-feet Oct. 1, 2, and Sept. 11-30 (gage height, 2.10 feet).

1905-1907, 1910-11, 1923-1929: Maximum discharge, 60,000 second-feet Feb. 21, 1927 (gage height, 19.4 feet); minimum, 100 second-feet in September, October, and November, 1925.

REMARKS.—Records good. 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|--------|--------|-------|-------|-------|------|-------|
| 1 | 146 | 342 | 1,190 | 8,200 | 3,510 | 2,620 | 6,300 | 4,500 | 2,170 | 1,060 | 310 | 194 |
| 2 | 146 | 342 | 1,130 | 7,940 | 3,320 | 2,460 | 5,840 | 4,720 | 2,170 | 1,440 | 310 | 184 |
| 3 | 194 | 310 | 1,130 | 5,780 | 3,140 | 2,300 | 5,840 | 4,940 | 2,010 | 830 | 310 | 184 |
| 4 | 375 | 310 | 1,070 | 5,130 | 3,140 | 2,300 | 5,160 | 4,940 | 1,860 | 715 | 298 | 170 |
| 5 | 1,380 | 280 | 1,070 | 3,890 | 3,140 | 2,460 | 4,080 | 5,160 | 2,880 | 662 | 298 | 156 |
| 6 | 830 | 280 | 1,010 | 3,700 | 2,960 | 2,460 | 3,660 | 4,940 | 2,690 | 565 | 298 | 156 |
| 7 | 830 | 250 | 950 | 3,320 | 2,790 | 2,460 | 3,070 | 4,940 | 2,510 | 520 | 280 | 156 |
| 8 | 715 | 250 | 950 | 2,790 | 2,620 | 3,510 | 2,340 | 4,600 | 2,340 | 482 | 280 | 156 |
| 9 | 520 | 5,780 | 1,070 | 2,460 | 2,620 | 3,890 | 2,510 | 8,460 | 2,340 | 445 | 280 | 156 |
| 10 | 445 | 4,920 | 2,960 | 2,150 | 2,460 | 6,000 | 2,510 | 2,690 | 2,170 | 445 | 280 | 156 |
| 11 | 410 | 3,320 | 3,140 | 2,150 | 2,150 | 5,560 | 2,510 | 2,170 | 2,170 | 445 | 262 | 146 |
| 12 | 375 | 2,460 | 3,320 | 2,000 | 1,860 | 5,340 | 2,690 | 2,170 | 2,010 | 482 | 262 | 146 |
| 13 | 375 | 2,150 | 2,960 | 1,860 | 1,650 | 3,510 | 2,880 | 2,880 | 1,860 | 482 | 262 | 146 |
| 14 | 323 | 2,000 | 2,460 | 1,860 | 1,450 | 3,140 | 6,540 | 3,070 | 2,010 | 460 | 250 | 146 |
| 15 | 375 | 1,790 | 2,000 | 1,790 | 1,380 | 3,140 | 11,800 | 3,260 | 2,170 | 445 | 250 | 146 |
| 16 | 389 | 1,720 | 1,650 | 1,580 | 1,320 | 2,790 | 10,900 | 3,260 | 2,340 | 431 | 237 | 146 |
| 17 | 342 | 1,450 | 1,320 | 1,580 | 1,190 | 3,700 | 8,580 | 3,260 | 3,070 | 431 | 280 | 146 |
| 18 | 362 | 1,380 | 1,260 | 1,450 | 1,130 | 5,660 | 6,540 | 3,460 | 3,660 | 431 | 222 | 146 |
| 19 | 362 | 1,320 | 1,260 | 1,450 | 1,070 | 6,700 | 5,160 | 3,460 | 3,460 | 431 | 222 | 146 |
| 20 | 362 | 1,260 | 1,190 | 1,380 | 1,070 | 8,720 | 5,380 | 3,660 | 3,260 | 410 | 205 | 146 |
| 21 | 342 | 1,130 | 1,190 | 1,320 | 1,010 | 21,000 | 5,380 | 3,660 | 3,070 | 410 | 205 | 146 |
| 22 | 310 | 950 | 1,190 | 1,320 | 1,070 | 11,500 | 5,160 | 3,660 | 2,510 | 410 | 205 | 146 |
| 23 | 280 | 830 | 1,260 | 1,380 | 1,130 | 7,280 | 5,160 | 3,460 | 2,170 | 389 | 194 | 146 |
| 24 | 280 | 772 | 1,260 | 1,450 | 1,580 | 5,840 | 4,940 | 3,460 | 2,010 | 375 | 194 | 146 |
| 25 | 280 | 610 | 1,380 | 1,580 | 2,000 | 4,940 | 4,940 | 3,660 | 1,720 | 362 | 194 | 146 |
| 26 | 222 | 715 | 2,960 | 1,790 | 2,300 | 5,160 | 4,940 | 3,070 | 1,580 | 342 | 194 | 146 |
| 27 | 222 | 830 | 4,500 | 1,860 | 2,620 | 5,380 | 4,720 | 2,340 | 1,440 | 342 | 194 | 146 |
| 28 | 222 | 950 | 6,000 | 1,860 | 2,790 | 5,840 | 4,720 | 2,170 | 1,310 | 323 | 194 | 146 |
| 29 | 222 | 1,070 | 7,430 | 1,860 | ----- | 6,300 | 4,500 | 2,010 | 1,240 | 323 | 194 | 146 |
| 30 | 250 | 1,190 | 7,940 | 2,150 | ----- | 6,780 | 4,500 | 1,860 | 1,180 | 310 | 194 | 146 |
| 31 | 310 | ----- | 8,460 | 2,790 | ----- | 6,540 | ----- | 1,860 | ----- | 310 | 194 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 1,380 | 146 | 393 | 0.614 | 0.71 | 24,200 |
| November | 5,780 | 250 | 1,370 | 2.14 | 2.39 | 81,500 |
| December | 8,460 | 950 | 2,470 | 3.86 | 4.45 | 162,000 |
| January | 8,200 | 1,320 | 2,640 | 4.12 | 4.75 | 162,000 |
| February | 3,510 | 1,010 | 2,090 | 3.27 | 3.40 | 116,000 |
| March | 21,000 | 2,300 | 5,330 | 8.33 | 9.60 | 328,000 |
| April | 11,800 | 2,340 | 5,110 | 7.98 | 8.90 | 304,000 |
| May | 5,160 | 1,860 | 3,450 | 5.39 | 6.21 | 212,000 |
| June | 3,660 | 1,180 | 2,250 | 3.52 | 3.93 | 134,000 |
| July | 1,440 | 310 | 500 | .781 | .90 | 30,700 |
| August | 310 | 194 | 244 | .381 | .44 | 15,000 |
| September | 194 | 146 | 153 | .239 | .27 | 9,100 |
| The year | 21,000 | 146 | 2,170 | 3.39 | 45.95 | 1,570,000 |

ALBANY POWER CANAL NEAR LEBANON, OREG.

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

RECORDS AVAILABLE.—April, 1926, to September, 1929. February to December, 1919, a station near Albany; records comparable.

EXTREMES.—Maximum discharge during year from weekly readings, 265 second-feet May 20 (gage height, 3.20 feet); minimum (estimated), 10 second-feet during period of shutdown, Oct. 17–28.

1919, 1926–1929: Maximum discharge, 295 second-feet Mar. 2 and May 29–31, 1919; probably almost dry at times.

REMARKS.—Records fair. Gage read about once a week; mean monthly discharge is mean of discharges on days gage was read. 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, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 142 | | | | | | | | | | | |
| 2 | | | | | | | 200 | | 153 | 188 | | 60 |
| 3 | | | | | | | | | | | | |
| 4 | | | 153 | | 122 | | | | | | | |
| 5 | 148 | 73 | | | | | | | | | 164 | |
| 6 | | | | | | 226 | | | | | | |
| 7 | | | | 164 | | | 188 | 239 | | | | |
| 8 | | | | | | | | | | | | |
| 9 | 153 | | | 164 | | | | | | 188 | | |
| 10 | | | 117 | | | | | | 142 | | | |
| 11 | | | | | 122 | 213 | | | | | | |
| 12 | 128 | | | | | | | | | | 164 | 60 |
| 13 | | | | | | | | 252 | | | | |
| 14 | | 66 | | 87 | | | 188 | | | 188 | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | 102 | | 66 | | | | | | 132 | | | 73 |
| 18 | | | | | | 213 | | | | | | |
| 19 | | 66 | | | 103 | | | | | | | |
| 20 | | | | | | | | 265 | | | | |
| 21 | | | | 142 | 153 | | | | | | 142 | |
| 22 | | | | | | | 176 | | | 188 | | |
| 23 | 10 | | | | | | | | | | | 103 |
| 24 | | 95 | | | | | | | 142 | | | |
| 25 | | | | | 213 | 200 | | | | | | |
| 26 | | | | | | | 239 | 176 | | | | |
| 27 | | 95 | | | | 213 | | | | | | |
| 28 | | | | 132 | | | | | | | 142 | |
| 29 | 36 | | 73 | | | | 239 | | | 188 | | |
| 30 | 70 | | | | | | | | | | | 30 |
| 31 | 70 | | | | | | | | | | | |

| Month | Mean | Run-off in acre-feet | Month | Mean | Run-off in acre-feet |
|----------|------|-------------------------|-----------|------|-------------------------|
| October | 80.5 | 4,950 | May | 233 | 14,300 |
| November | 79.0 | 4,700 | June | 142 | 8,450 |
| December | 102 | 6,270 | July | 158 | 11,600 |
| January | 138 | 8,480 | August | 153 | 9,410 |
| February | 143 | 7,940 | September | 71.2 | 4,240 |
| March | 213 | 13,100 | | | |
| April | 205 | 12,200 | The year | 146 | 106,000 |

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, 1929. Records of stage below locks, October, 1908, to September, 1914.

EXTREMES.—Maximum discharge during year, 15,800 second-feet Dec. 31 (gage height, 16.7 feet); minimum, 35 second-feet Sept. 19-23 and 26 (gage height, 3.3 feet).

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

REMARKS.—Records fair above and poor below 300 second-feet. No diversions or regulation above station. Gage-height record furnished by Engineer Corps, United States Army.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|--------|--------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 68 | 240 | 920 | 13,200 | 2,320 | 2,440 | 2,440 | 1,460 | 390 | 200 | 112 | 80 |
| 2 | 68 | 240 | 1,090 | 9,520 | 2,440 | 2,320 | 2,440 | 1,360 | 335 | 200 | 112 | 80 |
| 3 | 95 | 240 | 840 | 8,330 | 2,570 | 1,980 | 2,090 | 1,360 | 335 | 165 | 112 | 80 |
| 4 | 112 | 240 | 840 | 7,830 | 2,700 | 1,760 | 1,870 | 1,270 | 285 | 165 | 95 | 80 |
| 5 | 165 | 285 | 760 | 6,100 | 2,440 | 1,660 | 1,760 | 1,270 | 335 | 165 | 95 | 80 |
| 6 | 240 | 335 | 690 | 4,540 | 1,870 | 1,560 | 1,560 | 1,180 | 390 | 165 | 112 | 80 |
| 7 | 165 | 285 | 620 | 3,360 | 1,760 | 1,560 | 1,560 | 1,090 | 390 | 165 | 112 | 68 |
| 8 | 240 | 285 | 620 | 2,830 | 1,460 | 1,360 | 2,090 | 1,000 | 335 | 165 | 112 | 53 |
| 9 | 240 | 760 | 620 | 2,200 | 1,180 | 1,270 | 1,870 | 1,090 | 335 | 165 | 112 | 46 |
| 10 | 200 | 3,930 | 2,570 | 1,980 | 1,000 | 1,760 | 1,760 | 840 | 335 | 165 | 112 | 40 |
| 11 | 200 | 4,700 | 5,370 | 1,760 | 1,000 | 1,360 | 1,760 | 840 | 335 | 165 | 95 | 40 |
| 12 | 240 | 2,570 | 4,230 | 1,560 | 920 | 1,360 | 1,870 | 840 | 285 | 165 | 80 | 40 |
| 13 | 240 | 2,200 | 2,960 | 1,560 | 920 | 1,270 | 1,980 | 760 | 285 | 165 | 80 | 40 |
| 14 | 240 | 1,870 | 2,200 | 1,360 | 920 | 1,180 | 2,440 | 690 | 240 | 165 | 80 | 40 |
| 15 | 200 | 2,090 | 1,760 | 1,270 | 920 | 1,180 | 2,000 | 620 | 285 | 165 | 68 | 40 |
| 16 | 200 | 1,870 | 1,660 | 1,180 | 920 | 1,270 | 8,650 | 620 | 335 | 112 | 68 | 40 |
| 17 | 200 | 1,460 | 1,660 | 1,090 | 1,000 | 1,090 | 7,100 | 560 | 445 | 112 | 68 | 40 |
| 18 | 200 | 1,360 | 1,180 | 1,000 | 1,090 | 1,000 | 4,540 | 500 | 500 | 95 | 68 | 40 |
| 19 | 200 | 1,090 | 1,000 | 1,560 | 1,090 | 920 | 3,360 | 500 | 500 | 95 | 80 | 35 |
| 20 | 200 | 840 | 920 | 1,460 | 1,270 | 920 | 3,090 | 500 | 690 | 95 | 80 | 38 |
| 21 | 165 | 760 | 840 | 1,090 | 1,760 | 1,090 | 3,220 | 500 | 560 | 80 | 80 | 35 |
| 22 | 165 | 690 | 690 | 1,090 | 2,320 | 1,760 | 3,090 | 445 | 445 | 95 | 95 | 35 |
| 23 | 165 | 620 | 760 | 1,180 | 2,960 | 1,560 | 2,570 | 390 | 390 | 95 | 95 | 35 |
| 24 | 165 | 560 | 690 | 1,090 | 3,360 | 1,460 | 2,440 | 445 | 390 | 135 | 80 | 40 |
| 25 | 165 | 500 | 1,660 | 1,180 | 3,780 | 1,270 | 2,200 | 445 | 335 | 165 | 95 | 46 |
| 26 | 165 | 500 | 4,380 | 2,830 | 3,640 | 1,270 | 2,090 | 500 | 285 | 165 | 95 | 35 |
| 27 | 165 | 620 | 8,000 | 3,640 | 3,090 | 2,570 | 1,760 | 500 | 240 | 165 | 95 | 40 |
| 28 | 200 | 1,090 | 9,380 | 4,230 | 2,700 | 2,570 | 1,760 | 445 | 240 | 165 | 95 | 40 |
| 29 | 200 | 920 | 11,600 | 3,640 | ----- | 2,440 | 1,760 | 445 | 200 | 165 | 80 | 40 |
| 30 | 200 | 760 | 14,500 | 2,960 | ----- | 2,830 | 1,560 | 390 | 200 | 165 | 80 | 46 |
| 31 | 240 | ----- | 15,800 | 2,440 | ----- | 2,700 | ----- | 390 | ----- | 135 | 60 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-foot |
| October | 240 | 68 | 184 | 0.253 | 0.29 | 11,200 |
| November | 4,700 | 240 | 1,130 | 1.55 | 1.73 | 67,200 |
| December | 15,800 | 620 | 3,260 | 4.48 | 5.16 | 200,000 |
| January | 13,200 | 1,000 | 3,200 | 4.40 | 5.07 | 197,000 |
| February | 8,780 | 920 | 1,910 | 2.62 | 2.73 | 106,000 |
| March | 2,830 | 920 | 1,640 | 2.25 | 2.59 | 101,000 |
| April | 8,650 | 1,560 | 2,820 | 3.87 | 4.32 | 168,000 |
| May | 1,460 | 390 | 750 | 1.03 | 1.19 | 46,100 |
| June | 690 | 200 | 355 | .488 | .54 | 21,100 |
| July | 200 | 80 | 148 | .208 | .23 | 9,100 |
| August | 112 | 68 | 91.1 | .125 | .14 | 5,600 |
| September | 80 | 35 | 49.0 | .067 | .07 | 2,920 |
| The year | 15,800 | 35 | 1,290 | 1.77 | 24.06 | 935,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 154 second-feet Apr. 14 (gauge height, 2.16 feet); minimum, 1.2 second-feet Sept. 16 and 17 (gauge height, 0.55 foot).

REMARKS.—Records good except those estimated; estimated records poor Oct. 1–30 and fair Jan. 30 to Feb. 4. No diversions or regulation above station. Gauge-height record furnished by city of McMinnville.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | | 3.3 | 11 | 82 | | 35 | 36 | 22 | 7.5 | 3.8 | 2.2 | 1.8 |
| 2..... | | 3.3 | 10 | 86 | 31 | 34 | 32 | 22 | 7.1 | 3.6 | 2.3 | 1.8 |
| 3..... | | 3.4 | 10 | 86 | | 33 | 30 | 21 | 6.7 | 3.6 | 2.3 | 1.6 |
| 4..... | | 5.0 | 9.2 | 69 | | 32 | 28 | 20 | 7.5 | 3.4 | 2.3 | 1.5 |
| 5..... | | 3.8 | 8.8 | 59 | 22 | 32 | 26 | 19 | 8.4 | 3.4 | 2.2 | 1.5 |
| 6..... | | 3.3 | 8.4 | 53 | 21 | 30 | 24 | 18 | 8.0 | 3.4 | 2.2 | 1.5 |
| 7..... | | 3.2 | 9.2 | 55 | 21 | 29 | 26 | 17 | 7.1 | 3.3 | 2.1 | 1.5 |
| 8..... | | 18 | 12 | 38 | 20 | 27 | 26 | 17 | 6.4 | 3.2 | 2.0 | 1.5 |
| 9..... | | 63 | 28 | 34 | 19 | 28 | 25 | 15 | 6.7 | 3.0 | 1.9 | 1.5 |
| 10..... | | 47 | 66 | 29 | 18 | 30 | 25 | 15 | 6.4 | 3.2 | 1.8 | 1.5 |
| 11..... | | 28 | 43 | 27 | 17 | 28 | 26 | 15 | 6.1 | 3.0 | 1.8 | 1.5 |
| 12..... | | 23 | 39 | 25 | 17 | 26 | 26 | 15 | 6.1 | 3.0 | 1.8 | 1.5 |
| 13..... | | 20 | 28 | 23 | 15 | 24 | 31 | 14 | 6.1 | 2.8 | 1.7 | 1.5 |
| 14..... | | 21 | 25 | 22 | 14 | 22 | 116 | 13 | 5.6 | 3.0 | 1.7 | 1.5 |
| 15..... | | 21 | 21 | 21 | 14 | 21 | 85 | 13 | 11 | 2.8 | 1.8 | 1.5 |
| 16..... | 2.5 | 21 | 21 | 20 | 14 | 20 | 69 | 11 | 8.8 | 2.8 | 1.8 | 1.4 |
| 17..... | | 21 | 15 | 19 | 15 | 20 | 63 | 11 | 9.2 | 2.7 | 1.8 | 1.4 |
| 18..... | | 15 | 14 | 21 | 14 | 19 | 55 | 11 | 15 | 2.8 | 1.8 | 1.5 |
| 19..... | | 13 | 13 | 20 | 14 | 18 | 49 | 10 | 12 | 2.8 | 1.9 | 1.5 |
| 20..... | | 12 | 12 | 17 | 19 | 22 | 47 | 10 | 9.6 | 2.8 | 1.8 | 1.5 |
| 21..... | | 10 | 11 | 17 | 23 | 23 | 46 | 9.6 | 8.4 | 2.7 | 1.8 | 1.7 |
| 22..... | | 9.2 | 11 | 17 | 30 | 22 | 41 | 9.2 | 7.1 | 2.8 | 1.8 | 1.8 |
| 23..... | | 8.4 | 10 | 15 | 47 | 21 | 37 | 8.8 | 6.1 | 2.7 | 2.0 | 1.9 |
| 24..... | | 7.5 | 11 | 19 | 44 | 20 | 34 | 11 | 5.6 | 2.6 | 1.9 | 1.8 |
| 25..... | | 6.7 | 40 | 29 | 49 | 20 | 32 | 11 | 5.3 | 2.7 | 1.8 | 1.8 |
| 26..... | | 12 | 52 | 47 | 44 | 46 | 29 | 9.6 | 5.0 | 2.8 | 1.8 | 1.8 |
| 27..... | | 14 | 55 | 46 | 41 | 56 | 28 | 9.2 | 4.7 | 2.7 | 1.8 | 1.6 |
| 28..... | | 11 | 55 | 38 | 37 | 50 | 26 | 8.4 | 4.5 | 2.6 | 1.7 | 1.5 |
| 29..... | | 10 | 116 | 35 | ----- | 47 | 26 | 8.4 | 4.2 | 2.4 | 1.7 | 1.5 |
| 30..... | | 11 | 125 | 34 | ----- | 43 | 23 | 7.5 | 3.9 | 2.3 | 1.7 | 1.4 |
| 31..... | 2.4 | ----- | 105 | 36 | ----- | 39 | ----- | 7.5 | ----- | 2.2 | 1.7 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-foot |
| October..... | | | 2.5 | 0.439 | 0.51 | 154 |
| November..... | 63 | 3.2 | 14.8 | 2.60 | 2.90 | 881 |
| December..... | 125 | 8.4 | 32.1 | 5.63 | 6.49 | 1,970 |
| January..... | 86 | 15 | 36.7 | 6.44 | 7.42 | 2,360 |
| February..... | 49 | 14 | 25.5 | 4.47 | 4.66 | 1,420 |
| March..... | 56 | 18 | 29.6 | 5.19 | 5.98 | 1,820 |
| April..... | 116 | 23 | 38.9 | 6.82 | 7.61 | 2,310 |
| May..... | 22 | 7.5 | 13.2 | 2.32 | 2.68 | 812 |
| June..... | 15 | 3.9 | 7.19 | 1.26 | 1.41 | 428 |
| July..... | 3.8 | 2.2 | 2.93 | .514 | .59 | 180 |
| August..... | 2.3 | 1.7 | 1.90 | .333 | .38 | 117 |
| September..... | 1.9 | 1.4 | 1.58 | .277 | .31 | 94 |
| The year..... | 125 | 1.4 | 17.2 | 3.02 | 40.94 | 12,400 |

MOLALLA RIVER NEAR CANBY, OREG.

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

DRAINAGE AREA.—323 square miles.

RECORDS AVAILABLE.—August, 1928, and September, 1929.

EXTREMES.—Maximum discharge during year, 5,720 second-feet Apr. 14 (gage height, 6.3 feet); minimum, 41 second-feet Sept. 12 (gage height, 0.75 foot). 1928-29: Extremes, those of 1929.

REMARKS.—Records excellent except those estimated (Aug. 30 to Sept. 3), which are fair. A few small irrigation diversions above gage.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 66 | 118 | 183 | 3,440 | 1,330 | 760 | 1,420 | 2,010 | 650 | 338 | 90 | 80 |
| 2..... | 63 | 111 | 582 | 3,740 | 1,510 | 760 | 1,240 | 2,120 | 650 | 338 | 97 | 70 |
| 3..... | 88 | 108 | 550 | 4,230 | 1,330 | 885 | 1,150 | 2,010 | 615 | 316 | 92 | 60 |
| 4..... | 131 | 99 | 491 | 2,860 | 1,150 | 910 | 1,030 | 1,700 | 615 | 294 | 92 | 47 |
| 5..... | 316 | 99 | 436 | 2,120 | 1,070 | 1,150 | 950 | 1,900 | 1,150 | 286 | 92 | 46 |
| 6..... | 197 | 118 | 385 | 1,600 | 950 | 1,330 | 872 | 1,800 | 1,150 | 286 | 92 | 68 |
| 7..... | 183 | 116 | 385 | 1,420 | 885 | 1,150 | 885 | 1,600 | 960 | 286 | 90 | 58 |
| 8..... | 221 | 111 | 362 | 1,150 | 760 | 1,070 | 885 | 1,420 | 960 | 200 | 92 | 45 |
| 9..... | 200 | 1,240 | 385 | 1,030 | 760 | 990 | 760 | 1,380 | 960 | 210 | 88 | 55 |
| 10..... | 174 | 3,290 | 1,600 | 910 | 585 | 1,240 | 798 | 1,330 | 885 | 210 | 92 | 68 |
| 11..... | 171 | 1,700 | 1,800 | 885 | 615 | 1,240 | 910 | 1,240 | 760 | 203 | 79 | 53 |
| 12..... | 177 | 1,330 | 1,330 | 760 | 550 | 1,070 | 910 | 1,510 | 722 | 203 | 92 | 41 |
| 13..... | 148 | 1,070 | 1,070 | 722 | 520 | 950 | 990 | 1,600 | 685 | 190 | 92 | 61 |
| 14..... | 126 | 950 | 910 | 722 | 520 | 872 | 5,720 | 1,420 | 685 | 190 | 90 | 61 |
| 15..... | 131 | 798 | 760 | 685 | 491 | 872 | 3,140 | 1,240 | 990 | 183 | 88 | 50 |
| 16..... | 180 | 835 | 582 | 615 | 491 | 910 | 2,600 | 1,150 | 872 | 159 | 88 | 61 |
| 17..... | 168 | 990 | 550 | 582 | 491 | 872 | 2,120 | 1,070 | 1,070 | 159 | 88 | 55 |
| 18..... | 159 | 835 | 520 | 722 | 464 | 885 | 1,700 | 1,070 | 1,240 | 159 | 88 | 61 |
| 19..... | 140 | 722 | 464 | 685 | 436 | 885 | 1,700 | 1,150 | 1,420 | 165 | 88 | 65 |
| 20..... | 137 | 550 | 436 | 650 | 436 | 1,080 | 2,480 | 1,150 | 1,150 | 162 | 88 | 65 |
| 21..... | 126 | 491 | 410 | 582 | 520 | 4,060 | 2,120 | 1,070 | 990 | 137 | 88 | 60 |
| 22..... | 124 | 436 | 362 | 615 | 615 | 2,600 | 2,120 | 1,070 | 835 | 134 | 83 | 61 |
| 23..... | 106 | 385 | 362 | 550 | 885 | 1,900 | 1,900 | 990 | 722 | 126 | 72 | 106 |
| 24..... | 106 | 362 | 491 | 760 | 990 | 1,600 | 1,700 | 1,150 | 650 | 132 | 72 | 106 |
| 25..... | 97 | 316 | 1,070 | 1,070 | 1,070 | 1,420 | 1,600 | 1,070 | 582 | 137 | 72 | 88 |
| 26..... | 94 | 294 | 2,120 | 1,330 | 1,070 | 1,330 | 1,600 | 990 | 520 | 126 | 70 | 79 |
| 27..... | 94 | 615 | 3,290 | 1,330 | 950 | 1,510 | 1,600 | 910 | 464 | 88 | 83 | 72 |
| 28..... | 90 | 582 | 2,860 | 1,240 | 835 | 2,480 | 1,600 | 798 | 436 | 111 | 77 | 68 |
| 29..... | 94 | 104 | 5,140 | 1,070 | ----- | 2,240 | 2,600 | 760 | 385 | 111 | 75 | 53 |
| 30..... | 111 | 111 | 4,400 | 872 | ----- | 1,900 | 1,150 | 685 | 385 | 111 | 75 | 68 |
| 31..... | 153 | ----- | 3,900 | 835 | ----- | 1,600 | ----- | 650 | ----- | 101 | 75 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 316 | 63 | 141 | 0.437 | 0.50 | 8,670 |
| November..... | 3,290 | 99 | 629 | 1.95 | 2.18 | 37,400 |
| December..... | 5,140 | 183 | 1,230 | 3.81 | 4.39 | 75,600 |
| January..... | 4,230 | 550 | 1,280 | 3.96 | 4.56 | 78,700 |
| February..... | 4,510 | 436 | 796 | 2.46 | 2.56 | 44,200 |
| March..... | 4,060 | 760 | 1,370 | 4.24 | 4.89 | 84,200 |
| April..... | 5,720 | 760 | 1,670 | 5.17 | 5.77 | 99,400 |
| May..... | 2,120 | 650 | 1,290 | 3.99 | 4.60 | 79,300 |
| June..... | 1,420 | 385 | 803 | 2.49 | 2.78 | 47,800 |
| July..... | 338 | 88 | 189 | .585 | .67 | 11,000 |
| August..... | 97 | 70 | 85.0 | .263 | .30 | 5,230 |
| September..... | 106 | 41 | 64.4 | .199 | .22 | 3,830 |
| The year..... | 5,720 | 41 | 796 | 2.50 | 33.42 | 576,000 |

PUDDING RIVER AT AURORA, OREG.

LOCATION.—Staff gage in SE. ¼ 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, 1929.

EXTREMES.—Maximum discharge during year, 5,020 second-feet Dec. 31 (gage height, 16.56 feet); minimum, 50 second-feet Sept. 11 and 14 (gage height, 0.38 foot).

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

REMARKS.—Records good except those estimated (Oct. 1 to Nov. 4), which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | | 506 | 4,880 | 1,310 | 933 | 1,500 | 1,380 | 347 | 201 | 80 | 68 |
| 2..... | 110 | 611 | 4,666 | 1,740 | 884 | 1,330 | 1,230 | 347 | 193 | 80 | 68 |
| 3..... | | 590 | 4,610 | 1,860 | 860 | 1,210 | 1,230 | 328 | 186 | 80 | 68 |
| 4..... | | 548 | 4,700 | 1,800 | 836 | 1,110 | 1,210 | 328 | 170 | 74 | 63 |
| 5..... | 116 | 485 | 4,400 | 1,680 | 836 | 1,080 | 1,180 | 310 | 170 | 74 | 58 |
| 6..... | 122 | 445 | 3,880 | 1,560 | 908 | 1,010 | 1,210 | 347 | 156 | 80 | 58 |
| 7..... | 135 | 405 | 3,240 | 1,360 | 1,010 | 968 | 1,160 | 385 | 156 | 74 | 54 |
| 8..... | 128 | 405 | 2,230 | 1,160 | 958 | 958 | 1,060 | 347 | 149 | 74 | 52 |
| 9..... | 178 | 445 | 1,770 | 1,030 | 884 | 1,010 | 983 | 328 | 135 | 74 | 52 |
| 10..... | 1,440 | 676 | 1,500 | 1,010 | 908 | 983 | 908 | 328 | 135 | 68 | 51 |
| 11..... | 2,160 | 1,770 | 1,310 | 958 | 1,080 | 1,010 | 860 | 328 | 128 | 68 | 50 |
| 12..... | 1,770 | 1,620 | 1,160 | 789 | 1,080 | 1,130 | 812 | 310 | 122 | 63 | 51 |
| 13..... | 1,360 | 1,360 | 1,060 | 743 | 983 | 1,160 | 812 | 292 | 128 | 68 | 51 |
| 14..... | 1,180 | 1,160 | 983 | 720 | 860 | 1,560 | 812 | 275 | 122 | 63 | 50 |
| 15..... | 1,010 | 983 | 908 | 654 | 812 | 3,360 | 766 | 258 | 116 | 62 | 52 |
| 16..... | 860 | 860 | 860 | 654 | 860 | 3,760 | 698 | 310 | 116 | 61 | 52 |
| 17..... | 812 | 766 | 812 | 676 | 884 | 3,640 | 632 | 425 | 116 | 61 | 54 |
| 18..... | 766 | 676 | 766 | 743 | 836 | 3,000 | 590 | 485 | 109 | 61 | 54 |
| 19..... | 676 | 611 | 958 | 720 | 812 | 2,540 | 569 | 654 | 109 | 61 | 54 |
| 20..... | 590 | 569 | 958 | 698 | 789 | 2,440 | 548 | 743 | 103 | 63 | 54 |
| 21..... | 527 | 506 | 789 | 698 | 958 | 2,440 | 506 | 654 | 109 | 63 | 54 |
| 22..... | 465 | 485 | 654 | 812 | 1,410 | 2,440 | 485 | 548 | 109 | 63 | 54 |
| 23..... | 425 | 465 | 720 | 884 | 1,710 | 2,190 | 445 | 506 | 103 | 62 | 56 |
| 24..... | 385 | 445 | 720 | 1,110 | 1,560 | 1,920 | 425 | 385 | 103 | 61 | 61 |
| 25..... | 347 | 654 | 789 | 1,180 | 1,470 | 1,710 | 445 | 347 | 97 | 63 | 63 |
| 26..... | 328 | 1,530 | 1,160 | 1,180 | 1,280 | 1,530 | 485 | 310 | 97 | 63 | 63 |
| 27..... | 385 | 2,440 | 1,560 | 1,110 | 1,230 | 1,410 | 465 | 275 | 91 | 68 | 68 |
| 28..... | 569 | 3,600 | 1,770 | 1,010 | 1,280 | 1,310 | 445 | 258 | 91 | 63 | 63 |
| 29..... | 548 | 4,120 | 1,620 | ----- | 1,650 | 1,380 | 405 | 241 | 85 | 62 | 63 |
| 30..... | 485 | 4,750 | 1,410 | ----- | 1,800 | 1,560 | 866 | 225 | 85 | 61 | 60 |
| 31..... | ----- | 4,970 | 1,280 | ----- | 1,710 | ----- | 347 | ----- | 85 | 61 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | ----- | ----- | 162 | 0.329 | 0.38 | 9,960 |
| November..... | 2,160 | ----- | 605 | 1.23 | 1.37 | 36,000 |
| December..... | 4,970 | 405 | 1,270 | 2.58 | 2.97 | 78,100 |
| January..... | 4,880 | 654 | 1,870 | 3.79 | 4.37 | 115,000 |
| February..... | 1,860 | 654 | 1,070 | 2.17 | 2.26 | 59,400 |
| March..... | 1,800 | 789 | 1,100 | 2.23 | 2.57 | 67,600 |
| April..... | 3,760 | 958 | 1,750 | 3.55 | 3.96 | 104,000 |
| May..... | 1,380 | 347 | 757 | 1.54 | 1.78 | 46,500 |
| June..... | 743 | 225 | 374 | 1.759 | .85 | 22,300 |
| July..... | 201 | 85 | 125 | .254 | .29 | 7,690 |
| August..... | 80 | 61 | 67.1 | .136 | .16 | 4,130 |
| September..... | 68 | 50 | 57.3 | .116 | .13 | 3,410 |
| The year..... | 4,970 | 50 | 766 | 1.55 | 21.09 | 554,000 |

* Estimated by comparison with record for Molalla River near Canby, Oreg.

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, 1929.

EXTREMES.—Maximum discharge during year, 5,750 second-feet Jan. 3 (gage height, 8.58 feet); minimum, 3 second-feet Aug. 4 (gage height, 0.30 foot).
1928-29: Maximum discharge, that of Jan. 3, 1929; minimum, 2 second-feet Aug. 14-21, 1928 (gage height, 0.25 foot).

REMARKS.—Records excellent. 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 37 | 97 | 378 | 5,120 | 1,010 | 1,840 | 1,500 | 1,250 | 329 | 216 | 14 | 28 |
| 2 | 38 | 83 | 378 | 5,500 | 1,120 | 1,700 | 1,370 | 1,060 | 329 | 216 | 5 | 27 |
| 3 | 46 | 86 | 378 | 5,750 | 1,180 | 1,560 | 1,310 | 1,060 | 329 | 216 | 5 | 26 |
| 4 | 52 | 90 | 361 | 5,620 | 1,180 | 1,430 | 1,180 | 955 | 329 | 216 | 3 | 24 |
| 5 | 103 | 94 | 345 | 5,620 | 1,120 | 1,370 | 1,060 | 900 | 329 | 214 | 6 | 22 |
| 6 | 157 | 97 | 314 | 5,250 | 1,060 | 1,370 | 1,010 | 900 | 329 | 191 | 21 | 22 |
| 7 | 191 | 107 | 299 | 4,520 | 1,010 | 1,310 | 1,010 | 850 | 329 | 191 | 34 | 21 |
| 8 | 191 | 121 | 284 | 4,170 | 900 | 1,250 | 955 | 800 | 329 | 191 | 39 | 18 |
| 9 | 216 | 229 | 284 | 3,180 | 750 | 1,120 | 1,010 | 800 | 329 | 191 | 39 | 16 |
| 10 | 216 | 361 | 455 | 3,080 | 700 | 1,120 | 1,010 | 700 | 329 | 180 | 38 | 14 |
| 11 | 191 | 900 | 1,010 | 2,670 | 700 | 1,180 | 1,010 | 650 | 314 | 168 | 32 | 13 |
| 12 | 168 | 1,180 | 1,560 | 2,150 | 700 | 1,120 | 1,010 | 650 | 299 | 168 | 27 | 12 |
| 13 | 144 | 1,120 | 1,770 | 1,630 | 700 | 1,120 | 1,010 | 600 | 284 | 157 | 26 | 12 |
| 14 | 138 | 955 | 1,630 | 1,560 | 700 | 1,120 | 1,370 | 555 | 270 | 146 | 24 | 12 |
| 15 | 138 | 800 | 1,310 | 1,180 | 700 | 955 | 2,310 | 555 | 270 | 142 | 23 | 12 |
| 16 | 123 | 750 | 1,180 | 1,080 | 700 | 955 | 2,770 | 515 | 270 | 138 | 22 | 14 |
| 17 | 111 | 650 | 850 | 1,010 | 650 | 955 | 2,970 | 495 | 314 | 133 | 22 | 16 |
| 18 | 99 | 650 | 750 | 955 | 650 | 900 | 3,080 | 475 | 361 | 129 | 22 | 18 |
| 19 | 92 | 555 | 650 | 955 | 800 | 900 | 3,080 | 455 | 396 | 127 | 25 | 19 |
| 20 | 86 | 515 | 600 | 1,010 | 900 | 800 | 2,970 | 435 | 396 | 125 | 17 | 20 |
| 21 | 86 | 475 | 515 | 955 | 955 | 800 | 2,770 | 416 | 396 | 121 | 17 | 17 |
| 22 | 86 | 416 | 495 | 900 | 1,180 | 800 | 2,580 | 396 | 361 | 121 | 19 | 17 |
| 23 | 86 | 361 | 475 | 800 | 1,370 | 800 | 2,400 | 378 | 329 | 121 | 22 | 17 |
| 24 | 83 | 345 | 455 | 800 | 1,636 | 800 | 2,070 | 378 | 284 | 115 | 24 | 17 |
| 25 | 79 | 314 | 600 | 750 | 1,910 | 750 | 1,700 | 361 | 270 | 109 | 26 | 17 |
| 26 | 76 | 299 | 955 | 800 | 1,990 | 700 | 1,500 | 361 | 256 | 109 | 27 | 17 |
| 27 | 76 | 299 | 2,580 | 955 | 2,070 | 750 | 1,310 | 361 | 242 | 105 | 27 | 18 |
| 28 | 105 | 329 | 3,290 | 1,250 | 1,910 | 1,060 | 1,180 | 361 | 242 | 105 | 27 | 20 |
| 29 | 131 | 396 | 4,060 | 1,370 | ----- | 1,310 | 1,180 | 361 | 242 | 105 | 26 | 23 |
| 30 | 146 | 416 | 4,880 | 1,250 | ----- | 1,430 | 1,250 | 361 | 229 | 101 | 22 | 24 |
| 31 | 168 | ----- | 5,120 | 1,120 | ----- | 1,500 | ----- | 329 | ----- | 113 | 20 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|----------------------|
| October | 216 | 37 | 118 | 7,260 |
| November | 1,180 | 83 | 436 | 25,900 |
| December | 5,120 | 284 | 1,230 | 75,600 |
| January | 5,750 | 750 | 2,350 | 144,000 |
| February | 2,070 | 650 | 1,080 | 60,000 |
| March | 1,840 | 700 | 1,120 | 68,900 |
| April | 3,080 | 955 | 1,700 | 101,000 |
| May | 1,250 | 329 | 604 | 37,100 |
| June | 396 | 229 | 310 | 18,400 |
| July | 216 | 101 | 151 | 9,280 |
| August | 39 | 3 | 22.6 | 1,390 |
| September | 27 | 12 | 18.3 | 1,090 |
| The year | 5,750 | 3 | 761 | 550,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 170 second-feet Jan. 3 (gage height, 6.54 feet); minimum (estimated), 12 second-feet Feb. 21–26 (gage height, about –0.3 foot).

REMARKS.—Records good except those for Oct. 1 to Nov. 14 and Feb. 21–26, which are poor, and those for Apr. 26 to Aug. 10, which are fair. Oswego Canal diverts from Tualatin River in NW. $\frac{1}{4}$ sec. 20, three-fourths 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, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 61 | | 43 | 161 | 47 | 27 | 57 | 51 | 36 | 29 | 39 | 51 |
| 2..... | 61 | | 43 | 167 | 49 | 25 | 55 | 49 | 36 | 29 | 41 | 51 |
| 3..... | 61 | | 43 | 170 | 45 | 24 | 53 | 47 | 36 | 29 | 45 | 51 |
| 4..... | 61 | | 41 | 170 | 51 | 23 | 51 | 47 | 36 | 29 | 47 | 51 |
| 5..... | 61 | | 39 | 167 | 49 | 23 | 51 | 46 | 36 | 29 | 49 | 51 |
| 6..... | | 55 | | | | | | | | | | |
| 7..... | | 64 | | 39 | 157 | 49 | 21 | 49 | 46 | 36 | 29 | 49 |
| 8..... | | | | 37 | 143 | 45 | 21 | 51 | 46 | 36 | 29 | 49 |
| 9..... | | | | 37 | 131 | 43 | 21 | 49 | 43 | 36 | 29 | 49 |
| 10..... | | | | 37 | 112 | 41 | 21 | 51 | 43 | 36 | 29 | 49 |
| 11..... | | | 53 | 41 | 98 | 41 | 20 | 49 | 43 | 37 | 26 | 50 |
| 12..... | | | | | | | | | | | | |
| 13..... | | | 78 | 53 | 87 | 41 | 21 | 49 | 42 | 36 | 25 | 49 |
| 14..... | | | 81 | 70 | 77 | 41 | 21 | 49 | 42 | 36 | 25 | 51 |
| 15..... | | | 78 | 75 | 63 | 39 | 20 | 51 | 42 | 36 | 25 | 51 |
| 16..... | | | 73 | 72 | 55 | 39 | 19 | 66 | 41 | 33 | 25 | 51 |
| 17..... | | | 68 | 66 | 51 | 39 | 19 | 85 | 41 | 33 | 25 | 49 |
| 18..... | | | | | | | | | | | | |
| 19..... | | | 68 | 53 | 47 | 39 | 19 | 95 | 41 | 36 | 25 | 49 |
| 20..... | | | 66 | 49 | 45 | 41 | 19 | 101 | 40 | 36 | 25 | 49 |
| 21..... | | | 47 | 49 | 45 | 41 | 19 | 101 | 38 | 36 | 25 | 51 |
| 22..... | | | 43 | 47 | 45 | 43 | 17 | 101 | 38 | 36 | 25 | 51 |
| 23..... | | | 43 | 47 | 45 | 35 | 19 | 98 | 38 | 36 | 25 | 51 |
| 24..... | | | | | | | | | | | | |
| 25..... | | | 43 | 45 | 45 | | 21 | 93 | 38 | 36 | 25 | 51 |
| 26..... | | | 43 | 45 | 43 | | 21 | 90 | 35 | 36 | 25 | 51 |
| 27..... | | | 43 | 43 | 43 | | 21 | 82 | 35 | 33 | 25 | 51 |
| 28..... | | | 41 | 43 | 41 | 12 | 21 | 77 | 34 | 33 | 25 | 51 |
| 29..... | | | 41 | 45 | 41 | | 21 | 68 | 34 | 33 | 25 | 51 |
| 30..... | | | | | | | | | | | | |
| 31..... | | | 41 | 61 | 41 | | 20 | 57 | 37 | 33 | 25 | 53 |
| 1..... | | | 41 | 101 | 47 | 29 | 20 | 53 | 37 | 33 | 25 | 53 |
| 2..... | | | 43 | 121 | 53 | 29 | 24 | 51 | 37 | 33 | 25 | 53 |
| 3..... | | | 43 | 147 | 55 | | 55 | 53 | 37 | 32 | 25 | 51 |
| 4..... | | | 43 | 150 | 53 | | 57 | 51 | 36 | 33 | 25 | 51 |
| 5..... | | | | 157 | 51 | | 57 | | 36 | | 29 | 51 |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|-------------------------|
| October..... | | | 60.3 | 3,710 |
| November..... | | | 53.8 | 3,200 |
| December..... | 157 | 37 | 62.5 | 3,840 |
| January..... | 170 | 41 | 82.2 | 5,060 |
| February..... | 51 | | 35.3 | 1,960 |
| March..... | 57 | 17 | 24.4 | 1,500 |
| April..... | 101 | 49 | 66.2 | 3,940 |
| May..... | 51 | 34 | 40.6 | 2,500 |
| June..... | 37 | 32 | 35.0 | 2,080 |
| July..... | 29 | 25 | 26.3 | 1,620 |
| August..... | 53 | 39 | 49.5 | 3,040 |
| September..... | 53 | 49 | 50.0 | 2,980 |
| The year..... | 170 | | 48.9 | 35,400 |

CLACKAMAS RIVER AT BIG BOTTOM, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 26, T. 6 S., R. 7 E., half a mile above proposed dam site, just below Pot Creek, and 28 miles southeast of Estacada.

DRAINAGE AREA.—132 square miles.

RECORDS AVAILABLE.—April, 1920, to September, 1929.

EXTREMES.—Maximum discharge during year, 1,110 second-feet May 24 (gage height, 3.72 feet); minimum, 208 second-feet Sept. 10, 11, 15, and 16 (gage height, 1.55 feet).

1920-1929: Maximum discharge, 6,600 second-feet Jan. 7, 1923 (gage height, 8.15 feet); minimum, that of Sept. 10, 11, 15, and 16, 1929.

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

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-------|-------|------|------|-------|
| 1..... | 248 | 255 | 262 | 336 | 274 | 244 | 445 | 685 | 640 | 350 | 241 | 215 |
| 2..... | 252 | 257 | 250 | 515 | 283 | 250 | 428 | 785 | 595 | 344 | 238 | 215 |
| 3..... | 262 | 262 | 244 | 480 | 268 | 259 | 428 | 835 | 575 | 334 | 238 | 215 |
| 4..... | 317 | 260 | 241 | 428 | 262 | 268 | 410 | 785 | 595 | 328 | 238 | 212 |
| 5..... | 292 | 257 | 238 | 389 | 256 | 283 | 400 | 760 | 785 | 319 | 235 | 212 |
| 6..... | 267 | 250 | 235 | 358 | 250 | 307 | 389 | 685 | 710 | 313 | 232 | 210 |
| 7..... | 267 | 250 | 235 | 344 | 235 | 301 | 382 | 640 | 640 | 307 | 229 | 210 |
| 8..... | 264 | 264 | 235 | 334 | 235 | 295 | 372 | 640 | 640 | 301 | 226 | 210 |
| 9..... | 262 | 595 | 256 | 325 | 247 | 301 | 358 | 662 | 595 | 295 | 223 | 210 |
| 10..... | 272 | 462 | 403 | 313 | 244 | 334 | 347 | 662 | 575 | 292 | 220 | 210 |
| 11..... | 267 | 354 | 347 | 307 | 250 | 334 | 347 | 685 | 555 | 289 | 220 | 210 |
| 12..... | 257 | 331 | 316 | 301 | 256 | 328 | 340 | 760 | 555 | 286 | 218 | 210 |
| 13..... | 255 | 313 | 298 | 298 | 256 | 319 | 347 | 862 | 555 | 280 | 215 | 210 |
| 14..... | 255 | 295 | 283 | 295 | 250 | 313 | 535 | 890 | 555 | 280 | 212 | 210 |
| 15..... | 260 | 286 | 274 | 292 | 247 | 310 | 555 | 835 | | 274 | 212 | 210 |
| 16..... | 262 | 304 | 268 | 289 | 247 | 310 | 535 | 835 | | 271 | 212 | 208 |
| 17..... | 257 | 295 | 262 | 286 | 244 | 310 | 515 | 835 | | 268 | 210 | 208 |
| 18..... | 255 | 274 | 259 | 292 | 241 | 316 | 498 | 835 | | 265 | 212 | 210 |
| 19..... | 255 | 268 | 253 | 274 | 238 | 325 | 498 | 890 | | 259 | 210 | 210 |
| 20..... | 252 | 262 | 250 | 253 | 241 | 368 | 535 | 945 | | 256 | 210 | 212 |
| 21..... | 252 | 256 | 247 | 286 | 244 | 618 | 555 | 972 | | 253 | 212 | 218 |
| 22..... | 252 | 250 | 244 | 277 | 244 | 575 | 618 | 1,000 | 460 | 250 | 215 | 220 |
| 23..... | 252 | 250 | 241 | 262 | 247 | 515 | 640 | 1,000 | | 247 | 215 | 226 |
| 24..... | 252 | 244 | 247 | 271 | 247 | 462 | 618 | 1,080 | | 244 | 220 | 220 |
| 25..... | 250 | 241 | 298 | 274 | 253 | 428 | 618 | 972 | | 244 | 220 | 215 |
| 26..... | 250 | 250 | 340 | 280 | 247 | 428 | 618 | 862 | | 241 | 215 | 215 |
| 27..... | 250 | 262 | 364 | 271 | 244 | 462 | 640 | 760 | | 241 | 212 | 212 |
| 28..... | 250 | 256 | 331 | 262 | 241 | 515 | 662 | 685 | | 241 | 212 | 212 |
| 29..... | 252 | 247 | 462 | 265 | ----- | 535 | 760 | 662 | | 241 | 215 | 210 |
| 30..... | 272 | 250 | 445 | 262 | ----- | 498 | 710 | 640 | | 238 | 212 | 210 |
| 31..... | 257 | ----- | 392 | 241 | ----- | 462 | ----- | 640 | ----- | 235 | 215 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acra-feet |
| October..... | 317 | 248 | 260 | 1.97 | 2.27 | 16,000 |
| November..... | 595 | 241 | 287 | 2.17 | 2.42 | 17,100 |
| December..... | 462 | 235 | 291 | 2.20 | 2.54 | 17,900 |
| January..... | 515 | 241 | 313 | 2.37 | 2.73 | 19,200 |
| February..... | 283 | 235 | 250 | 1.89 | 1.97 | 13,900 |
| March..... | 618 | 244 | 373 | 2.83 | 3.26 | 22,900 |
| April..... | 760 | 340 | 503 | 3.81 | 4.25 | 29,900 |
| May..... | 1,080 | 640 | 769 | 6.05 | 6.98 | 49,100 |
| June..... | 785 | ----- | 531 | 4.02 | 4.48 | 31,600 |
| July..... | 350 | 235 | 277 | 2.10 | 2.42 | 17,000 |
| August..... | 241 | 210 | 220 | 1.67 | 1.92 | 13,500 |
| September..... | 226 | 208 | 212 | 1.61 | 1.80 | 12,600 |
| The year..... | 1,080 | 208 | 360 | 2.73 | 37.04 | 261,000 |

CLACKAMAS RIVER ABOVE THREE LYNX CREEK, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 21, T. 5 S., R. 6 E., one-fourth 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, 1929.

EXTREMES.—Maximum discharge during year, 6,000 second-feet Mar. 21 (gage height, 5.74 feet); minimum, 485 second-feet Sept. 29 (gage height, 0.87 foot); flow may have been less at times of no record in September.

1911-1913, 1921-1929: Maximum discharge, 33,700 second-feet Jan. 6, 1923 (gage height, 15.2 feet); minimum, 375 second-feet Aug. 10 and 16, 1924.

REMARKS.—Records excellent, except for estimated periods (Aug. 31, Sept. 1-3, and 5-27), which are poor. Water diverted from Oak Grove Fork is used in power plant on Clackamas River just above station. Field data furnished by Portland Electric Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 676 | 706 | 1,090 | 2,300 | 1,090 | 985 | 2,030 | 3,080 | 2,460 | 1,370 | 780 | 715 |
| 2..... | 694 | 700 | 985 | 3,720 | 1,160 | 1,090 | 1,880 | 3,560 | 2,340 | 1,330 | 780 | 710 |
| 3..... | 718 | 742 | 1,020 | 3,450 | 1,090 | 1,160 | 1,790 | 3,980 | 2,240 | 1,290 | 780 | 700 |
| 4..... | 950 | 694 | 918 | 2,640 | 1,090 | 1,310 | 1,740 | 3,560 | 2,340 | 1,170 | 780 | 692 |
| 5..... | 950 | 724 | 918 | 2,140 | 1,060 | 1,560 | 1,660 | 3,350 | 3,020 | 1,170 | 780 | |
| 6..... | 820 | 712 | 852 | 1,840 | 1,020 | 1,740 | 1,610 | 3,020 | 2,890 | 1,130 | 750 | |
| 7..... | 790 | 706 | 885 | 1,740 | 885 | 1,600 | 1,530 | 2,760 | 2,640 | 1,130 | 780 | |
| 8..... | 820 | 760 | 885 | 1,520 | 918 | 1,520 | 1,530 | 2,640 | 2,640 | 1,130 | 750 | |
| 9..... | 790 | 3,790 | 950 | 1,390 | 950 | 1,390 | 1,450 | 2,700 | 2,400 | 1,060 | 750 | |
| 10..... | 820 | 3,000 | 2,510 | 1,310 | 918 | 1,840 | 1,370 | 2,820 | 2,340 | 1,060 | 720 | |
| 11..... | 820 | 1,990 | 2,090 | 1,310 | 950 | 1,840 | 1,410 | 2,960 | 2,240 | 1,020 | 750 | |
| 12..... | 760 | 1,790 | 1,700 | 1,270 | 885 | 1,740 | 1,330 | 3,490 | 2,180 | 990 | 750 | |
| 13..... | 760 | 1,560 | 1,430 | 1,230 | 885 | 1,600 | 1,410 | 3,840 | 2,290 | 955 | 720 | |
| 14..... | 754 | 1,390 | 1,270 | 1,270 | 885 | 1,470 | 3,260 | 3,840 | 2,290 | 990 | 720 | |
| 15..... | 820 | 1,310 | 1,200 | 1,230 | 820 | 1,430 | 3,420 | 3,560 | 2,700 | 990 | 750 | |
| 16..... | 852 | 1,520 | 1,090 | 1,200 | 852 | 1,390 | 2,960 | 3,560 | 2,640 | 955 | 750 | 668 |
| 17..... | 790 | 1,470 | 1,090 | 1,200 | 852 | 1,390 | 2,580 | 3,490 | 2,460 | 920 | 720 | |
| 18..... | 760 | 1,230 | 985 | 1,270 | 820 | 1,430 | 2,290 | 3,560 | 2,700 | 920 | 720 | |
| 19..... | 760 | 1,230 | 985 | 1,090 | 820 | 1,520 | 2,240 | 3,700 | 3,020 | 920 | 720 | |
| 20..... | 754 | 1,090 | 950 | 985 | 852 | 2,040 | 2,640 | 4,120 | 2,580 | 920 | 720 | |
| 21..... | 718 | 1,020 | 950 | 1,160 | 918 | 5,260 | 2,760 | 3,980 | 2,290 | 885 | 720 | |
| 22..... | 730 | 1,020 | 918 | 1,120 | 918 | 3,980 | 3,020 | 4,120 | 2,130 | 850 | 692 | |
| 23..... | 718 | 950 | 885 | 985 | 985 | 2,960 | 3,080 | 4,120 | 1,980 | 850 | 720 | |
| 24..... | 706 | 950 | 885 | 1,120 | 950 | 2,400 | 3,020 | 4,260 | 1,930 | 850 | 720 | |
| 25..... | 694 | 885 | 1,390 | 1,200 | 1,120 | 2,130 | 2,890 | 4,120 | 1,840 | 850 | 720 | |
| 26..... | 694 | 985 | 1,990 | 1,310 | 1,020 | 2,030 | 3,020 | 3,560 | 1,740 | 815 | 720 | |
| 27..... | 700 | 1,090 | 2,300 | 1,200 | 1,020 | 2,180 | 3,150 | 3,080 | 1,660 | 850 | 720 | |
| 28..... | 694 | 1,060 | 1,940 | 1,230 | 950 | 2,820 | 3,220 | 2,760 | 1,570 | 780 | 720 | 599 |
| 29..... | 730 | 950 | 3,120 | 1,190 | | 2,960 | 3,840 | 2,580 | 1,530 | 780 | 720 | 610 |
| 30..... | 736 | 1,020 | 3,120 | 1,090 | | 2,520 | 3,420 | 2,520 | 1,450 | 780 | 720 | 621 |
| 31..... | 712 | | 2,790 | 1,020 | | 2,240 | | 2,520 | | 815 | 720 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 950 | 676 | 764 | 1.57 | 1.81 | 47,000 |
| November..... | 3,790 | 694 | 1,230 | 2.52 | 2.81 | 73,200 |
| December..... | 3,120 | 852 | 1,420 | 2.91 | 3.36 | 87,300 |
| January..... | 3,720 | 985 | 1,510 | 3.09 | 3.56 | 92,800 |
| February..... | 1,160 | 820 | 953 | 1.95 | 2.03 | 52,900 |
| March..... | 5,260 | 985 | 1,980 | 4.06 | 4.08 | 122,000 |
| April..... | 3,540 | 1,330 | 2,380 | 4.88 | 5.44 | 142,000 |
| May..... | 4,260 | 2,520 | 3,390 | 6.95 | 8.01 | 208,000 |
| June..... | 3,020 | 1,450 | 2,280 | 4.67 | 5.21 | 136,000 |
| July..... | 1,370 | 780 | 985 | 2.02 | 2.33 | 60,600 |
| August..... | 780 | 692 | 737 | 1.51 | 1.74 | 45,300 |
| September..... | | | 667 | 1.37 | 1.53 | 39,700 |
| The year..... | 5,260 | | 1,530 | 3.14 | 42.51 | 1,110,000 |

CLACKAMAS RIVER NEAR CAZADERO, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 11, T. 4 S., R. 4 E., half a mile above backwater from Cazadero Dam of Portland Electric Power Co., and 3 miles southeast of Cazadero. Zero of gage is 532.0 feet above mean sea level; published gage readings have been reduced to mean sea level datum.

DRAINAGE AREA.—665 square miles.

RECORDS AVAILABLE.—January, 1909, to September, 1929.

EXTREMES.—Maximum discharge during year, 10,200 second-feet Mar. 21 (gage height, 540.43 feet); minimum, 592 second-feet Sept. 13 (gage height, 532.47 feet).

1909-1929: Maximum discharge, 60,000 second-feet Jan. 6, 1923 (gage height, 556.2 feet); minimum, 410 second-feet Oct. 20, 1925 caused by shut-down of power plant at Three Lynx (gage height, 532.03 feet).

REMARKS.—Records excellent. Some diurnal fluctuation during low water. Field data furnished by Portland Electric Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 810 | 860 | 1,510 | 3,400 | 1,480 | 1,480 | 2,970 | 4,460 | 3,070 | 1,760 | 955 | 800 |
| 2..... | 860 | 835 | 1,410 | 5,490 | 1,580 | 1,720 | 2,770 | 5,020 | 2,970 | 1,650 | 955 | 800 |
| 3..... | 885 | 800 | 1,380 | 5,630 | 1,510 | 1,870 | 2,970 | 5,660 | 2,970 | 1,590 | 955 | 795 |
| 4..... | 1,110 | 910 | 1,260 | 3,970 | 1,510 | 2,080 | 2,480 | 5,020 | 2,970 | 1,490 | 928 | 785 |
| 5..... | 1,230 | 910 | 1,230 | 2,970 | 1,440 | 2,480 | 2,300 | 4,870 | 4,090 | 1,610 | 928 | 790 |
| 6..... | 990 | 860 | 1,170 | 2,570 | 1,380 | 2,770 | 2,210 | 4,590 | 3,970 | 1,440 | 900 | 770 |
| 7..... | 1,050 | 860 | 1,140 | 2,390 | 1,230 | 2,480 | 2,080 | 4,090 | 3,620 | 1,370 | 900 | 750 |
| 8..... | 1,020 | 910 | 1,170 | 2,030 | 1,230 | 2,260 | 2,120 | 3,860 | 3,510 | 1,370 | 900 | 760 |
| 9..... | 960 | 4,410 | 1,260 | 1,870 | 1,230 | 2,120 | 2,030 | 3,850 | 3,290 | 1,510 | 900 | 785 |
| 10..... | 1,020 | 5,170 | 3,460 | 1,720 | 1,200 | 2,770 | 1,910 | 3,970 | 3,180 | 1,280 | 900 | 760 |
| 11..... | 1,050 | 3,180 | 3,070 | 1,650 | 1,260 | 2,770 | 1,950 | 4,090 | 3,070 | 1,250 | 900 | 760 |
| 12..... | 960 | 2,570 | 2,390 | 1,650 | 1,230 | 2,570 | 1,870 | 3,730 | 2,970 | 1,250 | 900 | 750 |
| 13..... | 910 | 2,160 | 1,990 | 1,580 | 1,200 | 2,210 | 1,950 | 5,170 | 3,070 | 1,190 | 872 | 755 |
| 14..... | 910 | 1,950 | 1,760 | 1,620 | 1,170 | 2,030 | 4,810 | 5,330 | 3,070 | 1,190 | 872 | 745 |
| 15..... | 1,050 | 1,760 | 1,620 | 1,620 | 1,140 | 2,030 | 5,330 | 4,870 | 3,510 | 1,190 | 872 | 780 |
| 16..... | 1,260 | 2,480 | 1,440 | 1,540 | 1,170 | 2,030 | 4,330 | 4,730 | 3,510 | 1,160 | 872 | 750 |
| 17..... | 1,080 | 2,480 | 1,410 | 1,510 | 1,140 | 1,990 | 3,850 | 4,590 | 3,290 | 1,130 | 872 | 750 |
| 18..... | 960 | 1,910 | 1,320 | 1,680 | 1,140 | 2,030 | 3,400 | 4,590 | 3,510 | 1,130 | 845 | 745 |
| 19..... | 960 | 1,760 | 1,260 | 1,480 | 1,110 | 2,160 | 3,290 | 4,870 | 4,210 | 1,130 | 845 | 750 |
| 20..... | 910 | 1,540 | 1,260 | 1,320 | 1,170 | 3,330 | 3,850 | 5,330 | 3,620 | 1,100 | 845 | 780 |
| 21..... | 885 | 1,440 | 1,200 | 1,440 | 1,380 | 9,250 | 4,090 | 5,330 | 3,180 | 1,070 | 845 | 800 |
| 22..... | 885 | 1,380 | 1,200 | 1,440 | 1,440 | 6,690 | 4,460 | 5,330 | 2,870 | 1,070 | 845 | 835 |
| 23..... | 860 | 1,320 | 1,140 | 1,290 | 1,620 | 4,590 | 4,460 | 5,170 | 2,570 | 1,040 | 845 | 900 |
| 24..... | 835 | 1,260 | 1,140 | 1,410 | 1,650 | 3,620 | 4,330 | 5,660 | 2,570 | 1,040 | 845 | 835 |
| 25..... | 835 | 1,200 | 1,910 | 1,720 | 1,790 | 3,180 | 4,210 | 5,490 | 2,390 | 1,040 | 845 | 800 |
| 26..... | 860 | 1,290 | 2,770 | 1,990 | 1,680 | 2,970 | 4,330 | 4,590 | 2,210 | 1,010 | 840 | 780 |
| 27..... | 835 | 1,480 | 3,850 | 1,910 | 1,580 | 3,180 | 4,590 | 4,090 | 2,120 | 1,010 | 840 | 760 |
| 28..... | 810 | 1,440 | 3,180 | 1,790 | 1,510 | 4,090 | 4,590 | 3,620 | 1,990 | 982 | 800 | 740 |
| 29..... | 835 | 1,320 | 4,870 | 1,580 | ----- | 4,330 | 6,170 | 3,400 | 1,870 | 982 | 805 | 745 |
| 30..... | 960 | 1,380 | 5,170 | 1,440 | ----- | 3,730 | 5,330 | 3,180 | 1,760 | 955 | 800 | 720 |
| 31..... | 885 | ----- | 4,460 | 1,380 | ----- | 3,180 | ----- | 3,180 | ----- | 982 | 800 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acro-feet |
| October..... | 1,260 | 810 | 952 | 1.43 | 1.65 | 58,500 |
| November..... | 5,170 | 835 | 1,730 | 2.60 | 2.90 | 103,000 |
| December..... | 5,170 | 1,140 | 2,050 | 3.06 | 3.55 | 120,000 |
| January..... | 5,830 | 1,290 | 2,110 | 3.17 | 3.66 | 130,000 |
| February..... | 1,790 | 1,110 | 1,360 | 2.05 | 2.14 | 75,500 |
| March..... | 9,250 | 1,480 | 3,030 | 4.56 | 5.24 | 186,000 |
| April..... | 6,170 | 1,870 | 3,490 | 5.25 | 5.86 | 208,000 |
| May..... | 5,660 | 3,180 | 4,600 | 6.92 | 7.98 | 285,000 |
| June..... | 4,210 | 1,780 | 3,030 | 4.56 | 5.09 | 180,000 |
| July..... | 1,760 | 955 | 1,210 | 1.82 | 2.10 | 74,400 |
| August..... | 955 | 800 | 872 | 1.31 | 1.51 | 53,600 |
| September..... | 900 | 720 | 776 | 1.17 | 1.30 | 46,200 |
| The year..... | 9,250 | 720 | 2,110 | 3.17 | 43.00 | 1,520,000 |

OAK GROVE FORK AT TIMOTHY MEADOWS, OREG.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 23, T. 5 S., R. 8 E., at Timothy Meadows, $11\frac{1}{4}$ miles above station at intake and 29 miles southeast of Estacada.

DRAINAGE AREA.—54 square miles.

RECORDS AVAILABLE.—February, 1913, to November, 1916; July, 1918, to September, 1929, when station was discontinued.

EXTREMES.—Maximum discharge during year, 404 second-feet sometime during period May 19 to June 4, probably May 24 (gage height, 1.59 feet); minimum, 105 second-feet Dec. 6, 7, and during period of no record, Jan. 18 to Feb. 6 (gage height, 0.54 foot).

1913-1916, 1918-1929: Maximum discharge, 970 second-feet Jan. 7, 1923 (gage height, 3.20 feet); minimum, 90 second-feet Oct. 18-25 and Oct. 28 to Nov. 5, 1926.

REMARKS.—Records fair except those estimated, which are poor. No regulation except natural storage in Clackamas Lake and in meadows. No diversions above station. Field data furnished by Portland Electric Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|---------|------|------|------|-------|-------|------|-------|-------|-------|------|-------|-------|-----|
| 1..... | 120 | 122 | 115 | 112 | 105 | 123 | * 185 | 236 | * 310 | | * 130 | | |
| 2..... | 122 | 122 | 115 | 112 | | | * 165 | 245 | * 300 | | * 130 | | |
| 3..... | 122 | 122 | 115 | 115 | | | * 150 | 265 | * 285 | | * 130 | | |
| 4..... | 125 | 122 | 112 | 112 | | | 145 | 256 | * 270 | | * 125 | | |
| 5..... | 125 | 120 | 108 | 112 | | | 145 | 256 | 262 | | 125 | | |
| 6..... | 122 | 120 | 105 | 112 | 105 | 110 | 142 | 245 | 262 | | | | |
| 7..... | 122 | 120 | 105 | 110 | | | 140 | 242 | 259 | | | | |
| 8..... | 122 | 120 | 108 | 110 | | | 138 | 239 | 256 | | | | |
| 9..... | 122 | 166 | 110 | 110 | | | 132 | 245 | 250 | | | | |
| 10..... | 122 | 150 | 125 | 110 | | | 130 | 256 | 245 | | | | |
| 11..... | 122 | 138 | 115 | 110 | | | 130 | 256 | 242 | | | | |
| 12..... | 122 | 132 | 115 | 110 | | | 128 | 265 | 239 | | | | |
| 13..... | 122 | 130 | 112 | 110 | | | 128 | 270 | | | | | |
| 14..... | 122 | 125 | 112 | 110 | | | 148 | 282 | | | | | |
| 15..... | 125 | 120 | 112 | 110 | | | 125 | 153 | 297 | | | | |
| 16..... | 125 | 122 | 112 | 110 | * 107 | 125 | 150 | 297 | * 155 | | * 110 | | |
| 17..... | 125 | 122 | 112 | 108 | | | 125 | 153 | | | | | 297 |
| 18..... | 122 | 120 | 112 | | | | 128 | 158 | | | | | 312 |
| 19..... | 122 | 120 | 112 | | | | 138 | 168 | | | | | |
| 20..... | 122 | 120 | 112 | | | | 168 | 184 | | | | | |
| 21..... | 122 | 120 | 112 | | * 107 | 166 | 245 | 201 | * 207 | | | | |
| 22..... | 122 | 120 | 112 | | | | 214 | 212 | | | | | |
| 23..... | 122 | 120 | 112 | | | | 225 | | | | | | |
| 24..... | 122 | 120 | 115 | * 107 | | | 233 | | | | | | |
| 25..... | 122 | 120 | 115 | | | | 233 | * 362 | | | | | |
| 26..... | 122 | 118 | 115 | | 239 | | | | | | | | |
| 27..... | 122 | 120 | 118 | * 196 | 242 | | | | | | | | |
| 28..... | 122 | 120 | 118 | | 236 | | | | | | | | |
| 29..... | 122 | 120 | 118 | | 245 | | | | | | | | |
| 30..... | 135 | 115 | 115 | | 236 | | | | | | | | |
| 31..... | 125 | | 115 | | | | | | | | | 105 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 125 | 120 | 123 | 2.28 | 2.63 | 7,560 |
| November..... | 166 | 115 | 124 | 2.30 | 2.57 | 7,380 |
| December..... | 125 | 105 | 113 | 2.09 | 2.41 | 6,950 |
| January..... | 115 | | 109 | 2.02 | 2.33 | 6,708 |
| February..... | | | 107 | 1.98 | 2.06 | 5,940 |
| March..... | | | 132 | 2.81 | 3.24 | 9,350 |
| April..... | 245 | 128 | 176 | 3.26 | 3.64 | 10,500 |
| May..... | | 236 | 305 | 5.55 | 6.51 | 18,900 |
| June..... | 310 | | 280 | 4.26 | 4.75 | 13,700 |
| July..... | | | 155 | 2.87 | 3.31 | 9,580 |
| August..... | | | 123 | 2.28 | 2.63 | 7,560 |
| September..... | | | 110 | 2.04 | 2.28 | 6,550 |
| The year..... | | | 153 | 2.83 | 33.36 | 111,000 |

* Estimated.

OAK GROVE FORK AT PORTLAND ELECTRIC POWER CO.'S INTAKE, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 4, T. 6 S., R. 7 E., three-fourths mile above intake of Oak Grove power development of Portland Electric Power Co. and 24 miles southeast of Estacada.

DRAINAGE AREA.—126 square miles.

RECORDS AVAILABLE.—December, 1923, to September, 1929. At site below Kink Creek, half a mile downstream, May, 1909, to December, 1923; incomplete.

EXTREMES.—Maximum discharge during year, 1,150 second-feet May 24 (gage height, 2.88 feet); minimum, 307 second-feet Feb. 18 (gage height, 1.52 feet). 1909-1929: Maximum discharge, 5,000 second-feet Jan. 7, 1923 (gage height, 5.45 feet, old gage); minimum, 286 second-feet Sept. 25-27, Oct. 4, and 5, 1926.

REMARKS.—Records good. The low-water discharge between Timothy Meadows and this station is increased by inflow of several small springs. No diversions above station. Field data furnished by Portland Electric Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-------|-------|------|------|-------|
| 1..... | 333 | 330 | 353 | 378 | 330 | 315 | 466 | 745 | 766 | 437 | 353 | 333 |
| 2..... | 341 | 330 | 345 | 423 | 330 | 326 | 461 | 822 | 731 | 428 | 353 | 333 |
| 3..... | 345 | 330 | 341 | 405 | 326 | 326 | 457 | 850 | 710 | 423 | 353 | 330 |
| 4..... | 374 | 333 | 387 | 322 | 330 | 457 | 843 | 717 | 418 | 353 | 330 | |
| 5..... | 345 | 330 | 333 | 378 | 322 | 345 | 442 | 829 | 780 | 414 | 349 | 330 |
| 6..... | 345 | 326 | 330 | 370 | 318 | 349 | 428 | 794 | 759 | 405 | 349 | 326 |
| 7..... | 349 | 326 | 330 | 362 | 318 | 345 | 423 | 773 | 738 | 400 | 349 | 322 |
| 8..... | 341 | 337 | 333 | 353 | 318 | 341 | 410 | 773 | 731 | 396 | 349 | 322 |
| 9..... | 341 | 548 | 345 | 349 | 315 | 349 | 400 | 794 | 697 | 396 | 345 | 322 |
| 10..... | 353 | 471 | 423 | 345 | 311 | 366 | 392 | 808 | 678 | 392 | 345 | 322 |
| 11..... | 341 | 405 | 378 | 341 | 311 | 366 | 392 | 836 | 652 | 392 | 345 | 322 |
| 12..... | 337 | 392 | 366 | 341 | 311 | 358 | 387 | 885 | 639 | 387 | 345 | 322 |
| 13..... | 337 | 382 | 358 | 341 | 315 | 353 | 387 | 920 | 632 | 387 | 345 | 322 |
| 14..... | 333 | 378 | 349 | 341 | 311 | 353 | 476 | 920 | 626 | 382 | 345 | 322 |
| 15..... | 374 | 370 | 345 | 341 | 311 | 358 | 461 | 920 | 678 | 378 | 345 | 322 |
| 16..... | 366 | 423 | 341 | 337 | 315 | 358 | 461 | 920 | 652 | 378 | 341 | 318 |
| 17..... | 345 | 392 | 337 | 345 | 315 | 358 | 457 | 958 | 626 | 374 | 341 | 318 |
| 18..... | 337 | 374 | 337 | 349 | 311 | 366 | 461 | 958 | 664 | 374 | 341 | 318 |
| 19..... | 337 | 366 | 333 | 330 | 311 | 370 | 482 | 995 | 658 | 370 | 341 | 318 |
| 20..... | 333 | 362 | 333 | 330 | 315 | 525 | 520 | 1,080 | 601 | 370 | 341 | 326 |
| 21..... | 330 | 358 | 330 | 330 | 318 | 920 | 554 | 1,080 | 571 | 370 | 337 | 326 |
| 22..... | 330 | 353 | 330 | 330 | 318 | 724 | 588 | 1,070 | 554 | 366 | 337 | 333 |
| 23..... | 330 | 349 | 330 | 326 | 318 | 614 | 639 | 1,070 | 536 | 366 | 337 | 330 |
| 24..... | 330 | 345 | 337 | 333 | 322 | 548 | 671 | 1,110 | 531 | 362 | 341 | 326 |
| 25..... | 226 | 345 | 353 | 337 | 326 | 509 | 684 | 1,070 | 520 | 362 | 337 | 322 |
| 26..... | 326 | 353 | 366 | 341 | 315 | 487 | 710 | 1,080 | 509 | 362 | 337 | 318 |
| 27..... | 326 | 358 | 362 | 333 | 315 | 493 | 738 | 920 | 493 | 362 | 333 | 318 |
| 28..... | 326 | 349 | 358 | 326 | 311 | 542 | 752 | 885 | 471 | 358 | 333 | 315 |
| 29..... | 330 | 345 | 400 | 333 | ----- | 531 | 808 | 843 | 461 | 358 | 333 | 315 |
| 30..... | 341 | 345 | 396 | 326 | ----- | 503 | 766 | 808 | 447 | 358 | 333 | 315 |
| 31..... | 330 | ----- | 374 | 330 | ----- | 482 | ----- | 787 | ----- | 353 | 333 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 374 | 326 | 340 | 2.70 | 3.11 | 20,960 |
| November..... | 548 | 326 | 367 | 2.91 | 3.25 | 21,800 |
| December..... | 423 | 330 | 351 | 2.79 | 3.22 | 21,000 |
| January..... | 423 | 326 | 348 | 2.76 | 3.18 | 21,400 |
| February..... | 330 | 311 | 317 | 2.52 | 2.62 | 17,600 |
| March..... | 920 | 315 | 436 | 3.46 | 3.99 | 26,860 |
| April..... | 808 | 387 | 524 | 4.16 | 4.64 | 31,200 |
| May..... | 1,110 | 745 | 903 | 7.17 | 8.27 | 55,500 |
| June..... | 780 | 447 | 628 | 4.98 | 5.56 | 37,400 |
| July..... | 437 | 353 | 383 | 3.04 | 3.50 | 23,000 |
| August..... | 353 | 333 | 343 | 2.72 | 3.14 | 21,100 |
| September..... | 333 | 315 | 323 | 2.56 | 2.86 | 19,200 |
| The year..... | 1,110 | 311 | 439 | 3.48 | 47.34 | 318,000 |

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 east of Cougar.

DRAINAGE AREA.—227 square miles.

RECORDS AVAILABLE.—August, 1927, to September, 1929. For station 1 mile downstream, record based on poorly defined curve August to October, 1909.

EXTREMES.—Maximum discharge during year, 3,630 second-feet May 22 (gage height, 4.42 feet); minimum, 231 second-feet Sept. 30 (gage height, 0.57 foot).

1927-1929: Maximum discharge, 14,500 second-feet Nov. 25, 1927 (gage height, 8.97 feet); minimum, that of Sept. 30, 1929.

REMARKS.—Records excellent. No diversions or regulation above station. Most of field data furnished by Northwestern Electric Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1 | 286 | 355 | 569 | 677 | 376 | 336 | 1,240 | 1,900 | 1,750 | 1,000 | 450 | 305 |
| 2 | 347 | 347 | 536 | 800 | 389 | 368 | 1,120 | 2,360 | 1,600 | 965 | 440 | 294 |
| 3 | 339 | 367 | 505 | 800 | 372 | 372 | 1,040 | 2,600 | 1,550 | 912 | 435 | 288 |
| 4 | 538 | 399 | 475 | 749 | 360 | 394 | 965 | 2,360 | 1,600 | 855 | 394 | 291 |
| 5 | 701 | 375 | 455 | 701 | 356 | 435 | 890 | 2,100 | 1,900 | 820 | 389 | 294 |
| 6 | 800 | 355 | 460 | 659 | 340 | 435 | 827 | 1,950 | 2,000 | 794 | 384 | 284 |
| 7 | 1,340 | 347 | 495 | 618 | 312 | 425 | 800 | 1,850 | 1,950 | 743 | 384 | 277 |
| 8 | 960 | 403 | 671 | 596 | 308 | 416 | 755 | 1,850 | 1,900 | 707 | 380 | 277 |
| 9 | 862 | 1,940 | 1,200 | 569 | 319 | 445 | 707 | 1,850 | 1,800 | 683 | 372 | 277 |
| 10 | 747 | 2,300 | 2,980 | 552 | 330 | 520 | 683 | 1,950 | 1,700 | 647 | 372 | 277 |
| 11 | 593 | 1,900 | 2,150 | 536 | 333 | 525 | 665 | 2,100 | 1,600 | 608 | 372 | 280 |
| 12 | 516 | 1,700 | 1,700 | 525 | 333 | 505 | 647 | 2,420 | 1,600 | 574 | 360 | 280 |
| 13 | 470 | 1,550 | 1,420 | 515 | 336 | 495 | 677 | 2,600 | 1,850 | 580 | 360 | 284 |
| 14 | 470 | 1,320 | 1,300 | 500 | 330 | 500 | 1,320 | 2,660 | 1,900 | 564 | 360 | 284 |
| 15 | 532 | 1,160 | 1,080 | 490 | 326 | 542 | 1,370 | 2,600 | 2,540 | 542 | 360 | 284 |
| 16 | 604 | 1,080 | 965 | 470 | 326 | 574 | 1,370 | 2,600 | 2,300 | 525 | 352 | 274 |
| 17 | 588 | 942 | 876 | 475 | 322 | 574 | 1,240 | 2,540 | 2,100 | 515 | 352 | 280 |
| 18 | 505 | 855 | 814 | 480 | 316 | 586 | 1,200 | 2,600 | 2,180 | 515 | 352 | 270 |
| 19 | 470 | 794 | 762 | 416 | 316 | 624 | 1,240 | 2,800 | 2,250 | 505 | 340 | 270 |
| 20 | 439 | 743 | 713 | 384 | 336 | 755 | 1,460 | 3,150 | 2,000 | 495 | 333 | 264 |
| 21 | 427 | 719 | 683 | 377 | 330 | 1,320 | 1,550 | 3,310 | 1,800 | 470 | 333 | 255 |
| 22 | 415 | 689 | 653 | 370 | 330 | 1,240 | 1,600 | 3,470 | 1,700 | 465 | 326 | 261 |
| 23 | 403 | 659 | 618 | 364 | 340 | 1,060 | 1,750 | 3,470 | 1,600 | 460 | 344 | 264 |
| 24 | 395 | 635 | 602 | 407 | 336 | 965 | 1,850 | 3,550 | 1,600 | 470 | 330 | 255 |
| 25 | 387 | 618 | 630 | 430 | 352 | 883 | 1,950 | 2,930 | 1,600 | 455 | 330 | 246 |
| 26 | 375 | 671 | 665 | 430 | 333 | 1,040 | 2,100 | 2,300 | 1,460 | 445 | 326 | 246 |
| 27 | 371 | 659 | 635 | 407 | 330 | 1,550 | 2,250 | 1,950 | 1,370 | 435 | 340 | 243 |
| 28 | 363 | 602 | 618 | 368 | 330 | 1,950 | 2,300 | 1,750 | 1,280 | 430 | 322 | 240 |
| 29 | 359 | 569 | 713 | 368 | ----- | 1,900 | 2,300 | 1,700 | 1,200 | 430 | 326 | 237 |
| 30 | 363 | 564 | 725 | 372 | ----- | 1,600 | 2,100 | 1,700 | 1,080 | 440 | 319 | 234 |
| 31 | 367 | ----- | 677 | 368 | ----- | 1,370 | ----- | 1,750 | ----- | 455 | 326 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 1,340 | 286 | 527 | 2.32 | 2.68 | 32,400 |
| November | 2,300 | 347 | 854 | 3.76 | 4.20 | 50,800 |
| December | 2,930 | 455 | 877 | 3.86 | 4.45 | 53,900 |
| January | 800 | 364 | 509 | 2.24 | 2.58 | 31,300 |
| February | 389 | 308 | 336 | 1.48 | 1.54 | 18,700 |
| March | 1,950 | 336 | 798 | 3.52 | 4.06 | 49,100 |
| April | 2,300 | 647 | 1,330 | 5.86 | 6.54 | 79,100 |
| May | 3,550 | 1,700 | 2,410 | 10.6 | 12.22 | 148,000 |
| June | 2,540 | 1,080 | 1,760 | 7.75 | 8.65 | 105,000 |
| July | 1,000 | 430 | 597 | 2.63 | 3.03 | 36,700 |
| August | 450 | 319 | 360 | 1.59 | 1.83 | 22,100 |
| September | 305 | 234 | 270 | 1.19 | 1.33 | 16,100 |
| The year | 3,550 | 234 | 888 | 3.91 | 53.11 | 643,000 |

LEWIS RIVER NEAR COUGAR, WASH.

LOCATION.—Water-stage recorder in SE. ¼ sec. 29, T. 7 N., R. 5 E., three-quarters of a mile above Peterson ranch, 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, 1929. July, 1909, to June, 1910, at site 1,000 feet above Swift Creek.

EXTREMES.—Maximum discharge during year, 8,200 second-feet Dec. 10 (gauge height, 5.1 feet); minimum, 598 second-feet Sept. 30 (gauge height, 0.33 foot).

1910-1912, 1924-1929: Maximum gauge height, 13.8 feet on old gage, Nov. 21, 1910 (discharge not determined); maximum discharge of recent years, 27,900 second-feet Nov. 25, 1927; minimum, 500 second-feet Sept. 22, 1924.

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

REMARKS.—Records fair. No diversions or regulation above station. Most of field data furnished by Northwestern Electric Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|--------|-------|-------|-------|--------|--------|------|-------|
| 1..... | 688 | 826 | 1,510 | 2,420 | 1,100 | 1,100 | 3,310 | 4,380 | 3,230 | *2,100 | 980 | 763 |
| 2..... | 798 | 819 | 1,460 | 3,080 | 1,100 | 1,140 | 3,000 | 5,080 | 3,080 | 2,020 | 973 | *754 |
| 3..... | 826 | 847 | 1,360 | 3,160 | 1,080 | 1,180 | 2,780 | 5,500 | 2,930 | *1,850 | 959 | *745 |
| 4..... | 1,280 | 952 | 1,320 | 2,780 | 1,020 | 1,230 | 2,560 | 5,080 | 3,000 | 1,750 | 917 | 735 |
| 5..... | 1,410 | 896 | 1,230 | 2,490 | 980 | 1,360 | 2,420 | 4,580 | 3,160 | *1,700 | 917 | 714 |
| 6..... | 1,230 | 840 | 1,230 | 2,280 | 966 | 1,410 | 2,210 | 4,180 | 3,550 | 1,660 | 903 | 707 |
| 7..... | 2,140 | 819 | 1,320 | 2,080 | 931 | 1,360 | 2,210 | 3,900 | 3,550 | 1,610 | 910 | 688 |
| 8..... | 2,350 | 980 | 1,780 | 1,900 | 924 | 1,320 | 2,210 | 3,900 | 3,470 | 1,610 | 903 | 682 |
| 9..... | 1,960 | 4,280 | 2,860 | 1,780 | 938 | 1,410 | 2,080 | 3,810 | 3,390 | 1,460 | 896 | 682 |
| 10..... | 1,720 | 5,960 | 7,200 | 1,720 | 938 | 1,610 | 2,020 | 3,810 | 3,230 | 1,460 | 889 | 694 |
| 11..... | 1,410 | 4,880 | 5,730 | 1,660 | 931 | 1,720 | 1,960 | 4,180 | 3,000 | 1,360 | 889 | 682 |
| 12..... | 1,230 | 4,090 | 4,580 | 1,560 | 917 | 1,610 | 1,900 | 4,780 | 2,930 | 1,320 | 861 | 688 |
| 13..... | 1,140 | 3,810 | 3,810 | 1,560 | 917 | 1,510 | 2,020 | 5,180 | 3,230 | 1,320 | 847 | 694 |
| 14..... | 1,100 | 3,310 | 3,310 | 1,610 | 903 | 1,510 | 3,900 | 5,290 | 3,470 | 1,280 | 840 | 688 |
| 15..... | 1,230 | 2,860 | 2,930 | 1,460 | 903 | 1,610 | 4,090 | 5,180 | 4,580 | 1,230 | 833 | 670 |
| 16..... | 1,360 | 2,780 | 2,630 | 1,410 | 917 | 1,720 | 3,900 | 5,080 | 4,480 | 1,230 | 819 | 658 |
| 17..... | 1,320 | 2,490 | 2,420 | 1,410 | 917 | 1,720 | 3,640 | 5,080 | 4,090 | 1,180 | 819 | 658 |
| 18..... | 1,180 | 2,280 | 2,210 | 1,460 | 889 | 1,720 | 3,590 | 5,180 | 4,580 | 1,180 | 812 | 652 |
| 19..... | 1,140 | 2,140 | 2,080 | 1,360 | *900 | 1,840 | 3,390 | 5,290 | 4,980 | 1,140 | 805 | 652 |
| 20..... | 1,060 | 2,020 | 1,960 | 1,280 | *950 | 2,210 | 4,280 | 5,730 | 4,280 | 1,140 | 784 | 646 |
| 21..... | 1,020 | 1,900 | 1,840 | 1,280 | *1,000 | 3,550 | 4,480 | 6,200 | 3,810 | *1,100 | 784 | 652 |
| 22..... | 980 | 1,780 | 1,780 | 1,280 | *1,000 | 3,470 | 4,380 | 6,450 | 3,470 | 1,060 | 784 | 664 |
| 23..... | 968 | 1,720 | 1,660 | 1,230 | 1,140 | 3,000 | 4,480 | 6,450 | 3,310 | 1,020 | 819 | 676 |
| 24..... | 938 | 1,610 | 1,610 | 1,230 | 1,140 | 2,700 | 4,480 | 6,450 | 3,230 | 1,060 | 798 | 646 |
| 25..... | 917 | 1,560 | 1,900 | 1,280 | 1,230 | 2,490 | 4,480 | 5,960 | 3,160 | 1,020 | 784 | 628 |
| 26..... | 896 | 1,840 | 2,140 | 1,280 | 1,140 | 3,160 | 4,880 | 4,880 | 3,000 | 1,020 | 791 | 634 |
| 27..... | 882 | 1,780 | 2,080 | 1,230 | 1,100 | 4,580 | 5,180 | 4,090 | 2,780 | 1,020 | 798 | 628 |
| 28..... | 861 | 1,660 | 1,960 | 1,180 | 1,100 | 5,500 | 5,080 | 3,550 | 2,680 | 980 | 784 | 616 |
| 29..... | 847 | 1,560 | 2,490 | 1,100 | ----- | 5,180 | 5,080 | 3,390 | 2,560 | 980 | 784 | 610 |
| 30..... | 854 | 1,510 | 2,700 | 1,100 | ----- | 4,380 | 4,780 | 3,230 | *2,300 | 980 | 777 | 598 |
| 31..... | 847 | ----- | 2,420 | 1,100 | ----- | 3,720 | ----- | 3,230 | ----- | 1,020 | 777 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 2,350 | 688 | 1,180 | 2.44 | 2.81 | 72,600 |
| November..... | 5,960 | 819 | 2,160 | 4.47 | 4.99 | 129,000 |
| December..... | 7,200 | 1,230 | 2,440 | 5.05 | 5.82 | 150,000 |
| January..... | 3,160 | 1,100 | 1,670 | 3.46 | 3.99 | 103,000 |
| February..... | 1,220 | 889 | 998 | 2.07 | 2.16 | 55,400 |
| March..... | 5,500 | 1,100 | 2,320 | 4.80 | 5.53 | 143,000 |
| April..... | 5,290 | 1,900 | 3,490 | 7.23 | 8.07 | 206,000 |
| May..... | 6,450 | 3,230 | 4,810 | 9.96 | 11.43 | 296,000 |
| June..... | 4,980 | 2,300 | 3,420 | 7.08 | 7.90 | 204,000 |
| July..... | 2,100 | 980 | 1,310 | 2.71 | 3.12 | 80,600 |
| August..... | 980 | 777 | 846 | 1.75 | 2.02 | 52,000 |
| September..... | 763 | 598 | 673 | 1.39 | 1.55 | 40,000 |
| The year..... | 7,200 | 598 | 2,120 | 4.39 | 59.44 | 1,530,000 |

* Estimated.

LEWIS RIVER NEAR AMBOY, WASH.

LOCATION.—Staff gage in sec. 36, T. 6 N., R. 3 E., at a former river crossing known as Cresaps Ferry, 1 mile below bridge on county road between Amboy and Cougar and 5 miles northeast of Amboy.

DRAINAGE AREA.—665 square miles.

RECORDS AVAILABLE.—January, 1911, to September, 1929.

EXTREMES.—Maximum discharge during year, 12,300 second-feet Dec. 10 (gage height, 5.4 feet); minimum, 720 second-feet Sept. 28-30 (gage height, 0.0 foot).

1911-1929: 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 and 19-22, 1924 (gage height, -0.20 foot).

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

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 794 | 1,180 | 2,550 | 6,290 | 1,730 | 2,360 | 4,980 | 6,020 | 3,890 | 2,620 | 1,180 | 870 |
| 2..... | 923 | 1,140 | 2,400 | 7,120 | 1,800 | 2,550 | 4,620 | 7,120 | 3,690 | 2,550 | 1,170 | 888 |
| 3..... | 991 | 1,190 | 2,360 | 7,120 | 1,610 | 2,700 | 4,090 | 8,260 | 3,600 | 2,860 | 1,180 | 880 |
| 4..... | 1,730 | 1,390 | 2,260 | 5,500 | 1,610 | 2,850 | 3,590 | 6,840 | 3,600 | 2,260 | 1,070 | 890 |
| 5..... | 2,120 | 1,290 | 2,120 | 4,620 | 1,560 | 3,240 | 3,500 | 6,290 | 3,790 | 2,120 | 1,070 | 818 |
| 6..... | 1,800 | 1,180 | 1,990 | 4,090 | 1,500 | 3,330 | 3,330 | 6,020 | 4,090 | 2,120 | 1,060 | 812 |
| 7..... | 3,890 | 1,130 | 1,990 | 3,500 | 1,390 | 3,000 | 3,530 | 5,500 | 4,090 | 1,990 | 1,110 | 770 |
| 8..... | 4,620 | 1,340 | 2,850 | 3,160 | 1,390 | 2,780 | 3,000 | 5,240 | 4,090 | 1,860 | 1,100 | 760 |
| 9..... | 3,600 | 8,900 | 4,300 | 3,000 | 1,390 | 2,850 | 2,850 | 4,980 | 3,890 | 1,860 | 1,060 | 730 |
| 10..... | 3,080 | 11,900 | 11,600 | 2,850 | 1,340 | 3,420 | 2,700 | 4,980 | 3,790 | 1,800 | 1,010 | 745 |
| 11..... | 2,480 | 8,900 | 8,900 | 2,700 | 1,340 | 3,500 | 2,780 | 5,500 | 3,500 | 1,780 | 1,000 | 745 |
| 12..... | 2,190 | 7,120 | 6,560 | 2,550 | 1,340 | 3,160 | 2,780 | 6,020 | 3,420 | 1,610 | 1,000 | 745 |
| 13..... | 1,860 | 6,020 | 5,500 | 2,400 | 1,340 | 2,850 | 3,080 | 6,560 | 3,790 | 1,610 | 1,000 | 760 |
| 14..... | 1,730 | 5,240 | 4,750 | 2,850 | 1,340 | 2,700 | 9,540 | 6,560 | 4,800 | 1,500 | 1,000 | 760 |
| 15..... | 2,120 | 4,620 | 4,090 | 2,860 | 1,340 | 3,000 | 7,690 | 6,560 | 5,500 | 1,500 | 982 | 800 |
| 16..... | 2,920 | 4,300 | 3,690 | 2,120 | 1,340 | 3,160 | 6,840 | 6,290 | 5,500 | 1,500 | 928 | 782 |
| 17..... | 2,780 | 4,090 | 3,420 | 2,260 | 1,340 | 3,160 | 6,020 | 6,020 | 5,240 | 1,440 | 919 | 755 |
| 18..... | 2,400 | 3,690 | 3,500 | 2,400 | 1,290 | 3,000 | 5,500 | 6,020 | 6,020 | 1,440 | 910 | 794 |
| 19..... | 2,120 | 3,330 | 2,920 | 2,120 | 1,340 | 3,080 | 5,240 | 6,290 | 6,840 | 1,390 | 919 | 770 |
| 20..... | 1,920 | 3,080 | 2,700 | 1,990 | 1,670 | 3,890 | 7,690 | 7,120 | 5,760 | 1,390 | 928 | 760 |
| 21..... | 1,730 | 2,850 | 2,550 | 1,990 | 1,920 | 6,840 | 7,400 | 7,120 | 4,980 | 1,390 | 946 | 750 |
| 22..... | 1,610 | 2,700 | 2,550 | 1,920 | 1,860 | 6,560 | 6,840 | 7,690 | 4,520 | 1,390 | 955 | 782 |
| 23..... | 1,560 | 2,550 | 2,360 | 1,730 | 2,550 | 4,980 | 6,560 | 7,400 | 4,090 | 1,290 | 1,030 | 818 |
| 24..... | 1,500 | 2,400 | 2,260 | 1,860 | 2,400 | 4,090 | 6,560 | 7,690 | 3,890 | 1,290 | 928 | 782 |
| 25..... | 1,390 | 2,260 | 3,160 | 1,990 | 3,000 | 3,890 | 6,290 | 7,120 | 3,890 | 1,290 | 928 | 730 |
| 26..... | 1,390 | 2,850 | 4,800 | 2,120 | 2,550 | 5,760 | 7,120 | 5,760 | 3,500 | 1,260 | 955 | 725 |
| 27..... | 1,340 | 3,080 | 4,090 | 2,060 | 2,400 | 8,280 | 7,120 | 4,980 | 3,240 | 1,190 | 937 | 730 |
| 28..... | 1,290 | 2,780 | 3,690 | 1,860 | 2,360 | 8,900 | 6,560 | 4,520 | 3,080 | 1,140 | 919 | 720 |
| 29..... | 1,290 | 2,550 | 6,290 | 1,670 | ----- | 7,690 | 7,400 | 4,080 | 3,000 | 1,240 | 919 | 720 |
| 30..... | 1,240 | 2,480 | 7,120 | 1,730 | ----- | 6,560 | 6,560 | 4,090 | 2,780 | 1,190 | 910 | 720 |
| 31..... | 1,240 | ----- | 5,760 | 1,730 | ----- | 5,760 | ----- | 3,890 | ----- | 1,190 | 910 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 4,520 | 794 | 1,990 | 2.99 | 3.45 | 122,000 |
| November..... | 11,900 | 1,130 | 3,580 | 5.38 | 6.00 | 213,000 |
| December..... | 11,600 | 1,990 | 4,020 | 6.05 | 6.98 | 247,000 |
| January..... | 7,120 | 1,670 | 2,940 | 4.42 | 5.10 | 181,000 |
| February..... | 3,000 | 1,290 | 1,720 | 2.59 | 2.70 | 95,500 |
| March..... | 8,900 | 2,360 | 4,190 | 6.30 | 7.26 | 258,000 |
| April..... | 9,540 | 2,700 | 5,390 | 8.11 | 9.05 | 321,000 |
| May..... | 8,280 | 3,890 | 6,080 | 9.14 | 10.54 | 374,000 |
| June..... | 6,840 | 2,780 | 4,180 | 6.29 | 7.02 | 249,000 |
| July..... | 2,620 | 1,140 | 1,630 | 2.45 | 2.82 | 100,000 |
| August..... | 1,180 | 910 | 999 | 1.50 | 1.73 | 61,400 |
| September..... | 870 | 720 | 772 | 1.16 | 1.29 | 45,900 |
| The year..... | 11,900 | 720 | 3,130 | 4.71 | 63.94 | 2,270,000 |

LEWIS RIVER NEAR ARIEL, WASH.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 33, T. 6 N., R. 2 E., 1 mile below proposed Ariel Dam and $3\frac{1}{2}$ miles southwest of Ariel post office.

DRAINAGE AREA.—733 square miles.

RECORDS AVAILABLE.—July, 1922, to September, 1929. July to November, 1909, for station at Ariel.

EXTREMES.—Maximum discharge during year, 14,100 second-feet Nov. 10 (gage height, 6.06 feet); minimum, 740 second-feet Sept. 27–30 (gage height, 0.70 foot).

1909, 1922–1929: Maximum discharge, 59,000 second-feet Nov. 25, 1927 (gage height, 19.5 feet); minimum, that of Sept. 27–30, 1929.

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

Daily and monthly discharge, in second-feet, 1923–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|--------|--------|-------|-------|--------|--------|-------|-------|-------|-------|-------|
| 1----- | 810 | 1,240 | 2,890 | 6,430 | 1,980 | 2,890 | 6,140 | 5,860 | 4,110 | 2,700 | 1,180 | 876 |
| 2----- | 935 | 1,180 | 2,700 | 7,300 | 1,980 | 3,080 | 5,060 | 7,900 | 3,780 | 2,000 | 1,170 | |
| 3----- | 1,270 | 1,240 | 2,510 | 8,800 | 1,900 | 3,180 | 4,810 | 8,900 | 3,890 | 2,510 | 1,170 | |
| 4----- | 1,880 | 1,400 | 2,420 | 8,200 | 1,810 | 3,280 | 4,110 | 8,500 | 3,890 | 2,420 | 1,170 | |
| 5----- | 2,500 | 1,530 | 2,240 | 6,720 | 1,730 | 3,780 | 4,110 | 6,720 | 4,110 | 2,420 | 1,160 | |
| 6----- | 3,370 | 1,280 | 2,150 | 5,320 | 1,650 | 3,890 | 3,680 | 6,140 | 4,340 | 2,240 | 1,140 | 817 |
| 7----- | 4,290 | 1,210 | 2,150 | 4,340 | 1,650 | 3,580 | 3,580 | 5,860 | 4,340 | 2,240 | 1,130 | 795 |
| 8----- | 4,060 | 1,960 | 2,980 | 3,680 | 1,650 | 3,180 | 3,380 | 5,590 | 4,340 | 2,150 | 1,120 | 784 |
| 9----- | 3,830 | 6,450 | 4,340 | 3,480 | 1,580 | 3,280 | 3,180 | 7,010 | 4,340 | 2,060 | 1,100 | 773 |
| 10----- | 3,600 | 14,100 | 13,800 | 3,180 | 1,500 | 4,110 | 3,180 | 7,900 | 3,890 | 1,980 | 1,100 | 768 |
| 11----- | 2,920 | 10,900 | 10,600 | 2,980 | 1,500 | 4,110 | 3,180 | 7,300 | 3,890 | 1,900 | 1,090 | |
| 12----- | 2,310 | 8,200 | 8,200 | 2,890 | 1,500 | 3,580 | 3,280 | 6,430 | 3,480 | 1,810 | 1,080 | |
| 13----- | 2,310 | 7,010 | 6,140 | 2,700 | 1,500 | 3,480 | 4,810 | 7,300 | 3,680 | 1,810 | 1,070 | |
| 14----- | 2,600 | 6,140 | 5,590 | 2,600 | 1,430 | 3,180 | 12,200 | 7,010 | 4,340 | 1,730 | 1,030 | |
| 15----- | 3,140 | 4,810 | 4,570 | 2,510 | 1,430 | 3,180 | 10,000 | 7,010 | 5,860 | 1,580 | 1,050 | 762 |
| 16----- | 3,370 | 5,320 | 4,110 | 2,420 | 1,430 | 3,180 | 7,900 | 6,720 | 5,590 | 1,500 | 1,040 | 762 |
| 17----- | 3,370 | 4,570 | 3,680 | 2,510 | 1,430 | 3,580 | 6,720 | 6,720 | 6,720 | 1,500 | 964 | 762 |
| 18----- | 3,140 | 4,110 | 3,580 | 2,700 | 1,430 | 3,380 | 6,140 | 6,720 | 7,000 | 1,430 | 982 | 762 |
| 19----- | 2,920 | 3,680 | 3,280 | 2,510 | 1,430 | 3,480 | 5,860 | 7,010 | 6,140 | 1,430 | 958 | 762 |
| 20----- | 2,600 | 3,430 | 3,080 | 2,330 | 1,500 | 3,890 | 8,500 | 7,900 | 5,860 | 1,430 | 950 | 762 |
| 21----- | 2,160 | 3,180 | 2,890 | 2,240 | 2,240 | 9,400 | 8,200 | 7,600 | 5,060 | 1,430 | 960 | 784 |
| 22----- | 1,720 | 2,980 | 2,800 | 1,980 | 2,150 | 7,300 | 7,900 | 7,900 | 4,670 | 1,360 | 1,010 | 828 |
| 23----- | 1,720 | 2,800 | 2,600 | 1,900 | 2,240 | 5,590 | 7,600 | 7,900 | 4,280 | 1,360 | 1,070 | 958 |
| 24----- | 1,720 | 2,600 | 2,420 | 1,980 | 2,890 | 5,590 | 7,300 | 8,500 | 3,890 | 1,360 | 970 | 904 |
| 25----- | 1,640 | 2,510 | 3,430 | 2,240 | 3,580 | 5,590 | 7,300 | 7,300 | 3,890 | 1,290 | 940 | 970 |
| 26----- | 1,540 | 2,800 | 3,680 | 2,510 | 3,480 | 6,430 | 7,300 | 6,140 | 3,890 | 1,220 | 960 | 762 |
| 27----- | 1,420 | 3,680 | 4,810 | 2,330 | 2,980 | 9,400 | 7,300 | 6,320 | 3,480 | 1,220 | 940 | 740 |
| 28----- | 1,360 | 3,180 | 6,140 | 2,060 | 2,800 | 11,900 | 7,600 | 4,810 | 3,280 | 1,220 | 922 | 740 |
| 29----- | 1,320 | 2,890 | 7,010 | 1,980 | ----- | 10,000 | 8,200 | 4,570 | 3,080 | 1,210 | 922 | 740 |
| 30----- | 1,320 | 2,700 | 9,400 | 1,980 | ----- | 7,300 | 7,010 | 4,340 | 2,890 | 1,190 | 934 | 740 |
| 31----- | 1,300 | ----- | 8,200 | 1,980 | ----- | 6,430 | ----- | 3,340 | ----- | 1,180 | 934 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October----- | 4,290 | 810 | 2,340 | 3.19 | 3.68 | 144,000 |
| November----- | 14,100 | 1,180 | 3,960 | 5.40 | 6.02 | 236,000 |
| December----- | 13,800 | 2,150 | 4,660 | 6.36 | 7.33 | 287,000 |
| January----- | 8,800 | 1,900 | 3,440 | 4.69 | 5.41 | 212,000 |
| February----- | 3,580 | 1,430 | 1,940 | 2.65 | 2.76 | 108,000 |
| March----- | 11,900 | 2,890 | 4,970 | 6.78 | 7.82 | 306,000 |
| April----- | 12,200 | 3,180 | 6,180 | 8.43 | 9.40 | 368,000 |
| May----- | 8,500 | 4,340 | 6,730 | 9.18 | 10.58 | 414,000 |
| June----- | 7,600 | 2,890 | 4,420 | 6.03 | 6.73 | 263,000 |
| July----- | 2,700 | 1,180 | 1,720 | 2.35 | 2.71 | 106,000 |
| August----- | 1,180 | 922 | 1,040 | 1.42 | 1.64 | 64,000 |
| September----- | 994 | 740 | 807 | 1.10 | 1.23 | 48,000 |
| The year----- | 14,100 | 740 | 3,530 | 4.82 | 65.31 | 2,560,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 271 second-feet May 20 (gage height, 3.37 feet); minimum, 6 second-feet, Sept. 3-20 and 28-30.

1927-1929: Extremes recorded, those of 1929. A higher stage occurred Nov. 25, 1927, but was not recorded.

REMARKS.—Records fair. Discharge estimated Oct. 14-19, Jan. 20-22, Feb. 8-13, and Aug. 10. No diversions or regulation above station. Most of field data furnished by Northwestern Electric Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 9 | 16 | 25 | 24 | 18 | 13 | 56 | 109 | 127 | 93 | 10 | 7 |
| 2..... | 16 | 15 | 22 | 26 | 18 | 13 | 53 | 160 | 110 | 31 | 10 | 7 |
| 3..... | 16 | 17 | 22 | 26 | 18 | 13 | 50 | 188 | 103 | 29 | 9 | 6 |
| 4..... | 46 | 20 | 22 | 23 | 18 | 14 | 46 | 182 | 101 | 27 | 9 | 6 |
| 5..... | 38 | 16 | 21 | 20 | 17 | 15 | 42 | 140 | 101 | 26 | 9 | 6 |
| 6..... | 33 | 16 | 21 | 18 | 17 | 15 | 39 | 194 | 102 | 24 | 8 | 6 |
| 7..... | 67 | 14 | 24 | 18 | 20 | 15 | 38 | 140 | 96 | 22 | 8 | 6 |
| 8..... | 54 | 26 | 48 | 18 | 15 | 15 | 35 | 143 | 100 | 20 | 8 | 6 |
| 9..... | 59 | 110 | 63 | 18 | 17 | 32 | 149 | 93 | 19 | 8 | 6 | 6 |
| 10..... | 48 | 114 | 146 | 18 | 16 | 20 | 31 | 160 | 87 | 18 | 8 | 6 |
| 11..... | 36 | 94 | 98 | 18 | 18 | 29 | 185 | 80 | 18 | 8 | 6 | 6 |
| 12..... | 30 | 98 | 78 | 18 | 17 | 28 | 191 | 76 | 17 | 8 | 6 | 6 |
| 13..... | 27 | 88 | 64 | 18 | 16 | 29 | 204 | 82 | 16 | 8 | 6 | 6 |
| 14..... | | 76 | 55 | 18 | 12 | 17 | 62 | 224 | 79 | 16 | 8 | 6 |
| 15..... | | 67 | 50 | 18 | 11 | 20 | 57 | 216 | 114 | 15 | 8 | 6 |
| 16..... | 30 | 59 | 42 | 18 | 12 | 20 | 61 | 224 | 104 | 15 | 8 | 6 |
| 17..... | | 55 | 38 | 18 | 12 | 20 | 56 | 224 | 97 | 14 | 8 | 6 |
| 18..... | | 47 | 35 | 18 | 12 | 21 | 59 | 216 | 127 | 13 | 8 | 6 |
| 19..... | | 43 | 32 | 18 | 11 | 23 | 65 | 224 | 122 | 13 | 8 | 6 |
| 20..... | 25 | 40 | 30 | 17 | 11 | 31 | 77 | 242 | 97 | 14 | 8 | 6 |
| 21..... | 23 | 36 | 29 | 16 | 11 | 56 | 77 | 242 | 84 | 13 | 8 | 3 |
| 22..... | 22 | 36 | 29 | 15 | 11 | 47 | 89 | 242 | 74 | 13 | 8 | 3 |
| 23..... | 21 | 31 | 26 | 14 | 11 | 40 | 101 | 233 | 66 | 13 | 9 | 9 |
| 24..... | 20 | 30 | 25 | 18 | 11 | 38 | 111 | 233 | 60 | 12 | 8 | 8 |
| 25..... | 19 | 30 | 25 | 15 | 11 | 36 | 121 | 183 | 55 | 12 | 8 | 7 |
| 26..... | 18 | 37 | 28 | 15 | 11 | 47 | 140 | 146 | 51 | 12 | 8 | 7 |
| 27..... | 18 | 35 | 28 | 15 | 12 | 79 | 142 | 123 | 46 | 11 | 7 | 7 |
| 28..... | 17 | 29 | 26 | 18 | 13 | 91 | 138 | 118 | 42 | 11 | 7 | 6 |
| 29..... | 16 | 26 | 28 | 18 | | 82 | 141 | 117 | 38 | 10 | 7 | 6 |
| 30..... | 19 | 25 | 26 | 18 | | 71 | 117 | 114 | 35 | 10 | 7 | 6 |
| 31..... | 17 | | 25 | 18 | | 62 | | 118 | | 10 | 7 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|-------------------------|
| October..... | 67 | 9 | 28.8 | 1,770 |
| November..... | 114 | 14 | 44.9 | 2,670 |
| December..... | 146 | 21 | 40.4 | 2,480 |
| January..... | 26 | 14 | 18.3 | 1,130 |
| February..... | 20 | 11 | 14.1 | 783 |
| March..... | 91 | 13 | 32.3 | 1,990 |
| April..... | 142 | 28 | 70.7 | 4,210 |
| May..... | 242 | 109 | 177 | 10,900 |
| June..... | 127 | 35 | 85.0 | 5,060 |
| July..... | 33 | 10 | 17.0 | 1,050 |
| August..... | 10 | 7 | 8.1 | 498 |
| September..... | 9 | 6 | 6.5 | 387 |
| The year..... | 242 | 6 | 45.4 | 32,900 |

RUSH CREEK ABOVE MEADOW CREEK, NEAR GULER, WASH.

LOCATION.—Water-stage recorder on line between sec. 36, T. 7 N., R. 7 E., and sec. 1, T. 6 N., R. 7 E., one-eighth mile above mouth of Meadow Creek and 16 miles west of Guler.

RECORDS AVAILABLE.—June to September, 1929.

EXTREMES.—Maximum discharge during period, 151 second-feet June 28 (gage height, 2.40 feet); minimum, 0.4 second-foot Sept. 27–30.

REMARKS.—Records good below and fair above 10 second-feet. No diversions or regulation above station. Most of field data furnished by Northwestern Electric Co.

Daily and monthly discharge, in second-feet, 1929

| Day | June | July | Aug. | Sept. | Day | June | July | Aug. | Sept. |
|-----|------|------|------|-------|-----|------|------|------|-------|
| 1 | | 67 | 4.0 | 1.4 | 16 | | 6.9 | 2.3 | .6 |
| 2 | | 59 | 3.8 | 1.4 | 17 | | 6.2 | 2.2 | .6 |
| 3 | | 52 | 3.7 | 1.3 | 18 | | 5.8 | 2.2 | .7 |
| 4 | | 48 | 3.6 | 1.2 | 19 | | 6.0 | 2.1 | .7 |
| 5 | | 48 | 3.5 | 1.1 | 20 | | 6.0 | 2.1 | .6 |
| 6 | | 43 | 3.4 | 1.1 | 21 | | 5.8 | 2.0 | .6 |
| 7 | | 32 | 3.3 | 1.0 | 22 | | 5.8 | 1.9 | .6 |
| 8 | | 27 | 3.2 | 1.0 | 23 | | 5.6 | 1.9 | .6 |
| 9 | | 23 | 2.9 | 1.0 | 24 | | 5.3 | 1.8 | .6 |
| 10 | | 18 | 2.8 | .8 | 25 | | 5.1 | 1.8 | .6 |
| 11 | | 12 | 2.7 | .8 | 26 | | 5.1 | 1.6 | .5 |
| 12 | | 11 | 2.6 | .8 | 27 | | 5.0 | 1.5 | .4 |
| 13 | | 9.8 | 2.5 | .8 | 28 | 108 | 4.7 | 1.5 | .4 |
| 14 | | 9.0 | 2.4 | .8 | 29 | 94 | 4.5 | 1.4 | .4 |
| 15 | | 8.0 | 2.3 | .7 | 30 | 72 | 4.3 | 1.4 | .4 |
| | | | | | 31 | | 4.1 | 1.4 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|------------|---------|---------|------|----------------------|
| June 28–30 | 108 | 72 | 91.3 | 543 |
| July | 67 | 4.1 | 17.8 | 1,090 |
| August | 4.0 | 1.4 | 2.45 | 151 |
| September | 1.4 | .4 | .78 | 46 |
| The period | | | | 1,830 |

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, 1929.

EXTREMES.—Maximum discharge during period, 555 second-feet June 15 (gage height, 2.66 feet); minimum, 86 second-feet Feb. 17-19, 25, and 26.

1927-1929: Extremes, same as those for 1929.

REMARKS.—Records fair. Discharge estimated Feb. 27, 28, Mar. 1-8, July 5, and 17-29. No diversions or regulation above station. Most of field data furnished by Northwestern Electric Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | 104 | 99 | 92 | 98 | 91 | 92 | 97 | 125 | 228 | 228 | 136 | 116 |
| 2..... | 106 | 99 | 92 | 100 | 90 | | 95 | 152 | 219 | 219 | 136 | 115 |
| 3..... | 108 | 99 | 91 | 99 | 89 | | 96 | 160 | 219 | 202 | 136 | 115 |
| 4..... | 122 | 100 | 90 | 96 | 89 | | 95 | 152 | 239 | 193 | 136 | 113 |
| 5..... | 118 | 100 | 90 | 95 | 89 | | 94 | 152 | 262 | 193 | 136 | 112 |
| 6..... | 121 | 99 | 89 | 94 | 89 | 98 | 92 | 145 | 262 | 186 | 135 | 112 |
| 7..... | 200 | 98 | 92 | 93 | 88 | | 92 | 145 | 260 | 172 | 135 | 112 |
| 8..... | 181 | 105 | 101 | 92 | 88 | | 92 | 145 | 274 | 165 | 134 | 111 |
| 9..... | 164 | 314 | 162 | 91 | 88 | | 91 | 145 | 274 | 159 | 134 | 110 |
| 10..... | 132 | 211 | 276 | 90 | 88 | | 90 | 145 | 274 | 153 | 133 | 110 |
| 11..... | 116 | 164 | 168 | 90 | 88 | 98 | 90 | 152 | 274 | 148 | 133 | 110 |
| 12..... | 110 | 164 | 125 | 90 | 87 | 96 | 89 | 160 | 288 | 148 | 133 | 107 |
| 13..... | 107 | 147 | 114 | 90 | 87 | 96 | 92 | 168 | 333 | 142 | 132 | 108 |
| 14..... | 106 | 132 | 102 | 90 | 87 | 96 | 125 | 186 | 349 | 142 | 133 | 110 |
| 15..... | 122 | 121 | 99 | 90 | 87 | 98 | 108 | 186 | 500 | 142 | 131 | 108 |
| 16..... | 139 | 120 | 96 | 90 | 87 | 98 | 107 | 195 | 398 | 142 | 129 | 110 |
| 17..... | 118 | 113 | 96 | 90 | 86 | 97 | 102 | 205 | 318 | 140 | 128 | 110 |
| 18..... | 108 | 110 | 96 | 91 | 86 | 97 | 101 | 215 | 352 | | 127 | 110 |
| 19..... | 105 | 107 | 95 | 90 | 86 | 97 | 105 | 226 | 365 | | 126 | 111 |
| 20..... | 104 | 106 | 95 | 90 | 87 | 104 | 114 | 263 | 318 | | 123 | 111 |
| 21..... | 102 | 107 | 96 | 90 | 87 | 113 | 108 | 290 | 318 | | 121 | 111 |
| 22..... | 102 | 106 | 95 | 90 | 87 | 108 | 114 | 305 | 302 | 140 | 120 | 113 |
| 23..... | 102 | 105 | 94 | 90 | 87 | 106 | 119 | 320 | 302 | | 118 | 112 |
| 24..... | 101 | 104 | 95 | 91 | 87 | 104 | 119 | 382 | 302 | | 115 | 112 |
| 25..... | 100 | 104 | 96 | 91 | 86 | 101 | 119 | 318 | 302 | | 115 | 112 |
| 26..... | 100 | 107 | 96 | 90 | 86 | 107 | 125 | 250 | 288 | | 115 | 111 |
| 27..... | 100 | 106 | 96 | 90 | 92 | 117 | 131 | 219 | 274 | 137 | 115 | 110 |
| 28..... | 100 | 92 | 96 | 90 | 92 | 125 | 131 | 210 | 274 | | 116 | 110 |
| 29..... | 100 | 92 | 101 | 90 | ----- | 120 | 148 | 219 | 262 | | 116 | 111 |
| 30..... | 101 | 92 | 99 | 90 | ----- | 99 | 131 | 219 | 228 | | 117 | 111 |
| 31..... | 100 | ----- | 97 | 90 | ----- | 98 | ----- | 228 | ----- | | 116 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| October..... | 200 | 100 | 116 | 7,130 |
| November..... | 314 | 92 | 121 | 7,200 |
| December..... | 276 | 89 | 107 | 6,580 |
| January..... | 100 | 90 | 91.6 | 5,630 |
| February..... | ----- | 86 | 87.9 | 4,380 |
| March..... | 125 | ----- | 100 | 6,150 |
| April..... | 148 | 89 | 107 | 6,370 |
| May..... | 332 | 125 | 206 | 12,700 |
| June..... | 500 | 219 | 296 | 17,600 |
| July..... | 228 | 136 | 156 | 9,590 |
| August..... | 136 | 115 | 127 | 7,810 |
| September..... | 116 | 107 | 111 | 6,600 |
| The year..... | 500 | 86 | 136 | 98,200 |

MEADOW CREEK BELOW LONE BUTTE MEADOW, WASH.

LOCATION.—Water-stage recorder 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, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 185 second-feet June 15 (gage height, 1.77 feet); minimum, 56 second-feet Feb. 27 and 28 (gage height, 0.83 foot).

1927-1929: Maximum discharge, 193 second-feet June 3; 1928 (stage probably higher Nov. 25, 1927, when no record was obtained); minimum, that of Feb. 27 and 28, 1929.

REMARKS.—Records fair. No diversions or regulation above station. Most of field data furnished by Northwestern Electric Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-------|------|------|------|-------|
| 1 | 67 | 69 | | 76 | 63 | | 62 | 85 | 129 | 93 | 72 | 66 |
| 2 | 67 | 69 | | 78 | 63 | | 62 | 85 | 114 | 93 | 71 | 66 |
| 3 | 68 | 70 | • 70 | 76 | 63 | | 62 | 88 | 114 | 91 | • 71 | |
| 4 | 76 | 70 | | 76 | 63 | | 62 | 88 | 121 | 89 | • 70 | |
| 5 | 73 | 70 | | 75 | 63 | | 62 | 88 | 121 | 88 | 70 | |
| 6 | 73 | 70 | | 73 | 63 | • 59 | 61 | 89 | 129 | 86 | 70 | • 65 |
| 7 | 91 | 71 | 74 | 75 | 63 | | 61 | 90 | 121 | 84 | 70 | |
| 8 | 78 | 79 | 79 | 75 | 62 | | 61 | 89 | 129 | 82 | 70 | |
| 9 | 76 | 142 | 105 | 75 | 61 | | 61 | | 129 | 82 | 70 | |
| 10 | 71 | 142 | 152 | 75 | 61 | 62 | 61 | | 121 | 81 | 70 | |
| 11 | 69 | 105 | 102 | 75 | 61 | 62 | 61 | | 121 | 80 | 70 | 63 |
| 12 | 69 | 102 | 94 | 74 | 61 | 62 | 61 | | 121 | 79 | 70 | 63 |
| 13 | 69 | 100 | 86 | 74 | 60 | 61 | 62 | | 137 | 78 | 69 | 63 |
| 14 | 70 | 94 | 82 | 74 | 60 | 61 | 73 | | 137 | 78 | 69 | 62 |
| 15 | 73 | 89 | 81 | 74 | 60 | 61 | 80 | | 175 | • 78 | 69 | 62 |
| 16 | 73 | | | 74 | 60 | 61 | 77 | • 144 | 165 | 77 | 69 | 61 |
| 17 | 71 | | | 73 | 59 | 61 | 75 | | 148 | 76 | 69 | 61 |
| 18 | 71 | | | 73 | • 59 | 61 | 73 | | 165 | 76 | 69 | 61 |
| 19 | 71 | • 78 | | 73 | • 59 | 61 | 73 | | 165 | 76 | 69 | 62 |
| 20 | 71 | | | 71 | • 58 | 62 | 75 | | 137 | 76 | 68 | 62 |
| 21 | 71 | | | 70 | • 58 | 68 | 77 | | 129 | 75 | 68 | 63 |
| 22 | 69 | 68 | | 69 | 58 | 62 | 78 | | 121 | 75 | 68 | 62 |
| 23 | 69 | | | 67 | 58 | 61 | 80 | 155 | 121 | 75 | 68 | • 62 |
| 24 | 68 | | | 65 | 58 | 61 | 82 | 165 | 121 | 75 | 67 | 63 |
| 25 | 68 | | | 63 | 57 | 61 | 82 | 155 | 114 | 75 | | 62 |
| 26 | 68 | • 70 | 76 | 63 | 57 | 63 | 82 | 129 | 114 | 74 | | 61 |
| 27 | 68 | | 76 | 63 | 57 | 67 | 82 | 121 | 106 | 74 | • 66 | 61 |
| 28 | 68 | | 76 | 63 | 56 | 70 | 83 | 114 | 106 | 74 | | 61 |
| 29 | 68 | | 79 | 63 | | 69 | 84 | 114 | 100 | 74 | | 61 |
| 30 | 69 | | 78 | 63 | | 63 | 85 | 114 | 100 | 78 | | 61 |
| 31 | 69 | | 76 | 63 | | 62 | | 121 | | 72 | 66 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 91 | 67 | 71.0 | 4,379 |
| November | 142 | 68 | 81.3 | 4,840 |
| December | 152 | | 80.9 | 4,970 |
| January | 78 | 63 | 71.0 | 4,370 |
| February | 63 | 56 | 60.0 | 3,330 |
| March | 70 | | 61.7 | 3,790 |
| April | 85 | 61 | 71.3 | 4,240 |
| May | | 85 | 126 | 7,750 |
| June | 175 | 100 | 128 | 7,620 |
| July | 93 | 72 | 79.5 | 4,890 |
| August | 72 | 66 | 68.6 | 4,220 |
| September | 66 | 61 | 63.0 | 3,750 |
| The year | 175 | 56 | 80.3 | 58,100 |

• Estimated.

MUDDY RIVER NEAR COUGAR, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 24, T. 7 N., R. 6 E., three-fourths mile above mouth and 14 miles east of Cougar.

DRAINAGE AREA.—136 square miles.

RECORDS AVAILABLE.—August to October, 1909; August, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, 2,780 second-feet Dec. 10 (gage height, 4.78 feet); minimum, 110 second-feet Sept. 20 (gage height, 1.32 feet).

1909, 1927-1929: Maximum discharge, 7,240 second-feet Nov. 25, 1927 (gage height, 8.40 feet); minimum, that of Sept. 20, 1929.

REMARKS.—Records good. Discharge estimated June 3-5, 7-10, and 13. No diversions or regulation above station. Most of field data furnished by Northwestern Electric Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 127 | 166 | 412 | 607 | 306 | 240 | 1,040 | 1,380 | 910 | 568 | 191 | 132 |
| 2..... | 152 | 166 | 402 | 790 | 270 | 255 | 934 | 1,560 | 880 | 526 | 188 | 132 |
| 3..... | 160 | 166 | 383 | 782 | 270 | 262 | 850 | 1,610 | 930 | 497 | 188 | 132 |
| 4..... | 324 | 182 | 364 | 725 | 262 | 274 | 775 | 1,520 | | 464 | 185 | 129 |
| 5..... | 286 | 191 | 350 | 662 | 258 | 298 | 704 | 1,480 | 974 | 437 | 182 | 127 |
| 6..... | 270 | 191 | 341 | 607 | 255 | 302 | 648 | 1,340 | | 412 | 179 | 124 |
| 7..... | 437 | 188 | 354 | 562 | 255 | 290 | 627 | 1,250 | 920 | 392 | 176 | 124 |
| 8..... | 392 | 255 | 526 | 526 | 270 | 286 | 581 | 1,160 | | 373 | 176 | 124 |
| 9..... | 324 | 1,160 | 958 | 497 | 290 | 311 | 549 | 1,160 | 1,120 | 359 | 172 | 121 |
| 10..... | 294 | 1,560 | 2,280 | 470 | 282 | 383 | 520 | 1,120 | | 341 | 166 | 121 |
| 11..... | 258 | 1,340 | 1,560 | 458 | 278 | 387 | 509 | 1,200 | 858 | 328 | 163 | 121 |
| 12..... | 232 | 1,380 | 1,520 | 442 | 247 | 364 | 492 | 1,430 | 820 | 311 | 160 | 121 |
| 13..... | 218 | 1,300 | 1,340 | 427 | 232 | 354 | 538 | 1,610 | 905 | 298 | 160 | 121 |
| 14..... | 206 | 1,120 | 1,120 | 412 | 225 | 354 | 1,200 | 1,710 | 990 | 286 | 157 | 118 |
| 15..... | 232 | 950 | 982 | 402 | 225 | 392 | 1,120 | 1,660 | 1,300 | 278 | 157 | 118 |
| 16..... | 232 | 895 | 865 | 378 | 222 | 437 | 1,200 | 1,610 | 1,300 | 270 | 154 | 118 |
| 17..... | 232 | 775 | 775 | 378 | 222 | 442 | 1,120 | 1,560 | 1,300 | 258 | 152 | 116 |
| 18..... | 218 | 690 | 711 | 383 | 218 | 448 | 1,050 | 1,560 | 1,560 | 251 | 149 | 116 |
| 19..... | 206 | 634 | 655 | 354 | 215 | 480 | 1,050 | 1,610 | 1,560 | 244 | 149 | 116 |
| 20..... | 194 | 588 | 607 | 328 | 236 | 620 | 1,300 | 1,760 | 1,380 | 251 | 146 | 113 |
| 21..... | 188 | 549 | 568 | 336 | 240 | 982 | 1,300 | 1,910 | 1,200 | 247 | 146 | 118 |
| 22..... | 185 | 520 | 543 | 328 | 247 | 966 | 1,340 | 1,960 | 1,070 | 240 | 146 | 127 |
| 23..... | 185 | 492 | 514 | 311 | 278 | 902 | 1,380 | 2,010 | 990 | 232 | 146 | 132 |
| 24..... | 182 | 470 | 497 | 328 | 266 | 828 | 1,430 | 2,010 | 942 | 225 | 146 | 129 |
| 25..... | 179 | 464 | 543 | 324 | 282 | 775 | 1,480 | 1,910 | 926 | 222 | 146 | 127 |
| 26..... | 176 | 520 | 562 | 324 | 262 | 1,010 | 1,560 | 1,610 | 858 | 218 | 143 | 127 |
| 27..... | 172 | 509 | 526 | 311 | 251 | 1,380 | 1,660 | 1,430 | 775 | 211 | 140 | 124 |
| 28..... | 169 | 468 | 514 | 302 | 244 | 1,610 | 1,660 | 1,250 | 718 | 208 | 138 | 121 |
| 29..... | 166 | 432 | 627 | 315 | ----- | 1,560 | 1,660 | 1,120 | 669 | 205 | 135 | 118 |
| 30..... | 169 | 417 | 655 | 306 | ----- | 1,380 | 1,520 | 1,010 | 614 | 201 | 135 | 116 |
| 31..... | 169 | ----- | 594 | 302 | ----- | 1,200 | ----- | 950 | ----- | 194 | 132 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 437 | 127 | 224 | 1.65 | 1.90 | 13,800 |
| November..... | 1,560 | 166 | 624 | 4.59 | 5.12 | 37,100 |
| December..... | 2,280 | 341 | 740 | 5.44 | 6.27 | 45,500 |
| January..... | 790 | 302 | 441 | 3.24 | 3.74 | 27,100 |
| February..... | 306 | 215 | 254 | 1.87 | 1.95 | 14,100 |
| March..... | 1,610 | 240 | 638 | 4.69 | 5.41 | 39,200 |
| April..... | 1,660 | 492 | 1,060 | 7.79 | 8.69 | 63,100 |
| May..... | 2,010 | 950 | 1,500 | 11.0 | 12.68 | 92,200 |
| June..... | 1,560 | 614 | 999 | 7.35 | 8.20 | 59,400 |
| July..... | 568 | 194 | 308 | 2.26 | 2.61 | 18,900 |
| August..... | 191 | 132 | 158 | 1.16 | 1.34 | 9,720 |
| September..... | 132 | 113 | 123 | .904 | 1.01 | 7,320 |
| The year..... | 2,280 | 113 | 590 | 4.34 | 58.92 | 427,000 |

PINE CREEK NEAR COUGAR, WASH.

LOCATION.—Staff gage in sec. 23, T. 7 N., R. 6 E., half a mile above mouth and 12 miles east of Cougar. Discharge measurements from footlog about a mile upstream.

RECORDS AVAILABLE.—August to October, 1909; February, 1928, to September, 1929. Records incomplete.

REMARKS.—Records poor. Daily discharge ascertained only for days when gage was read; data not sufficient to warrant computation of monthly mean discharge. No diversions or regulation above station. Most of field data furnished by Northwestern Electric Co.

Daily discharge, in second-feet, 1928-29

[illegible]

SWIFT CREEK NEAR COUGAR, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 28, T. 7 N., R. 5 E., one-eighth 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, 1929.

EXTREMES.—Maximum discharge during year, 537 second-feet Dec. 10 (gage height, 1.97 feet); minimum, 102 second-feet Sept. 30, (gage height, 0.51 foot).
1909, 1924-1929: Maximum discharge, 1,900 second-feet Nov. 24, 1927 (gage height, 3.7 feet); minimum, 80 second-feet Sept. 17, 21, and Oct. 7, 1924.

REMARKS.—Records fair. Discharge interpolated Jan. 20-25, 27, 28, 31, Feb. 1, 2, 4, 5, 7, 8, 10-13, Mar. 11-15, 17-22, 24, 27, and 28. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 118 | 125 | 152 | 218 | 126 | 124 | 186 | 204 | 196 | 177 | 142 | 116 |
| 2 | 122 | 124 | 147 | 303 | 124 | 126 | 177 | 255 | 190 | 175 | 140 | 115 |
| 3 | 126 | 129 | 144 | 260 | 121 | 129 | 171 | 240 | 190 | 175 | 140 | 115 |
| 4 | 186 | 139 | 139 | 228 | 120 | 130 | 165 | 234 | 193 | 175 | 139 | 113 |
| 5 | 158 | 124 | 117 | 210 | 118 | 136 | 160 | 218 | 196 | 173 | 137 | 113 |
| 6 | 160 | 120 | 112 | 193 | 117 | 133 | 150 | 207 | 196 | 171 | 137 | 112 |
| 7 | 260 | 119 | 131 | 186 | 117 | 131 | 152 | 201 | 196 | 167 | 136 | 111 |
| 8 | 266 | 160 | 163 | 175 | 119 | 129 | 148 | 193 | 196 | 165 | 134 | 111 |
| 9 | 237 | 323 | 244 | 171 | 119 | 137 | 144 | 188 | 193 | 165 | 133 | 109 |
| 10 | 198 | 386 | 410 | 165 | 119 | 152 | 139 | 193 | 188 | 167 | 133 | 109 |
| 11 | 180 | 283 | 283 | 161 | 118 | 150 | 140 | 193 | 186 | 165 | 131 | 109 |
| 12 | 171 | 253 | 240 | 158 | 118 | | 140 | 201 | 190 | 163 | 130 | 107 |
| 13 | 163 | 237 | 207 | 154 | 117 | | 154 | 210 | 215 | 161 | 130 | 107 |
| 14 | 152 | 210 | 190 | 148 | 117 | | 257 | 210 | 215 | 160 | 131 | 109 |
| 15 | 171 | 198 | 182 | 147 | 116 | | 207 | 210 | 283 | 158 | 130 | 108 |
| 16 | 173 | 207 | 175 | 147 | 116 | 147 | 210 | 218 | 253 | 158 | 130 | 107 |
| 17 | 175 | 188 | 169 | 148 | 116 | 162 | 190 | 218 | 247 | 156 | 128 | 107 |
| 18 | 160 | 182 | 165 | 150 | 114 | | 188 | 221 | 303 | 154 | 128 | 108 |
| 19 | 154 | 175 | 160 | 142 | 115 | | 186 | 224 | 276 | 150 | 125 | 107 |
| 20 | 150 | 171 | 156 | 141 | 122 | | 263 | 234 | 253 | 154 | 125 | 105 |
| 21 | 148 | 167 | 154 | | 117 | | 260 | 234 | 237 | 148 | 124 | 109 |
| 22 | 147 | 160 | 148 | | 124 | | 244 | 240 | 228 | 147 | 121 | 108 |
| 23 | 147 | 156 | 145 | | 128 | 177 | 228 | 240 | 218 | 147 | 128 | 105 |
| 24 | 144 | 150 | 145 | | 125 | 172 | 210 | 270 | 215 | 148 | 121 | 104 |
| 25 | 140 | 147 | 171 | | 134 | 167 | 207 | 244 | 207 | 147 | 121 | 103 |
| 26 | 136 | 177 | 186 | 140 | 124 | 215 | 218 | 228 | 201 | 147 | 121 | 104 |
| 27 | 131 | 160 | 169 | 136 | 124 | 224 | 215 | 210 | 193 | 144 | 120 | 103 |
| 28 | 130 | 152 | 173 | 133 | 121 | 234 | 212 | 204 | 186 | 145 | 119 | 108 |
| 29 | 130 | 150 | 231 | 129 | 129 | 247 | 224 | 201 | 184 | 144 | 119 | 103 |
| 30 | 131 | 154 | 224 | 131 | | 221 | 210 | 196 | 180 | 145 | 117 | 102 |
| 31 | 126 | 201 | 201 | 129 | | 198 | 196 | 196 | 196 | 144 | 117 | 117 |
| | | | | | | | | | | | | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 266 | 118 | 161 | 6.19 | 7.14 | 9,900 |
| November | 386 | 119 | 181 | 6.96 | 7.76 | 10,800 |
| December | 410 | 112 | 182 | 7.00 | 8.07 | 11,200 |
| January | 303 | 114 | 165 | 6.35 | 7.32 | 10,100 |
| February | 134 | | 120 | 4.62 | 4.81 | 6,660 |
| March | 263 | 114 | 163 | 6.27 | 7.23 | 10,000 |
| April | | 139 | 192 | 7.38 | 8.23 | 11,400 |
| May | 270 | 188 | 217 | 8.35 | 9.63 | 13,300 |
| June | 303 | 180 | 213 | 8.19 | 9.14 | 12,700 |
| July | 177 | 144 | 158 | 6.08 | 7.01 | 9,720 |
| August | 142 | 117 | 129 | 4.96 | 5.72 | 7,930 |
| September | 116 | 102 | 108 | 4.15 | 4.63 | 6,430 |
| The year | 410 | 102 | 166 | 6.33 | 86.69 | 120,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 3,470 second-feet Apr. 14 (gage height, 6.10 feet); minimum, 23 second-feet Oct. 1.

1922-1929: Maximum discharge, 13,600 second-feet Nov. 25, 1927 (gage height, 11.6 feet); minimum, 15 second-feet Oct. 19-24, 1925 (gage height, 0.14 foot).

REMARKS.—Records fair. Discharge estimated Dec. 31, Jan. 1-5, and Feb. 7-15. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-----|-------|------|------|-------|
| 1..... | 24 | 107 | 286 | 1,250 | 218 | 373 | 494 | 458 | 202 | 140 | 48 | 32 |
| 2..... | 43 | 103 | 262 | | 204 | 441 | 441 | 595 | 202 | 132 | 46 | 32 |
| 3..... | 64 | 105 | 244 | | 186 | 494 | 386 | 618 | 192 | 126 | 46 | 31 |
| 4..... | 180 | 131 | 225 | | 175 | 494 | 352 | 533 | 188 | 119 | 44 | 31 |
| 5..... | 318 | 115 | 211 | | 165 | 640 | 317 | 494 | 206 | 119 | 42 | 30 |
| 6..... | 277 | 105 | 197 | 476 | 153 | 640 | 289 | 458 | 211 | 112 | 41 | 30 |
| 7..... | 794 | 100 | 208 | 398 | 120 | 513 | 286 | 424 | 206 | 109 | 40 | 29 |
| 8..... | 780 | 172 | 343 | 340 | | 441 | 273 | 395 | 202 | 100 | 39 | 28 |
| 9..... | 580 | 1,860 | 513 | 300 | | 441 | 262 | 370 | 197 | 98 | 39 | 28 |
| 10..... | 476 | 2,400 | 1,540 | 270 | | 574 | 262 | 346 | 188 | 95 | 38 | 28 |
| 11..... | 343 | 1,340 | 1,010 | 252 | | 574 | 286 | 361 | 184 | 92 | 37 | 28 |
| 12..... | 277 | 905 | 710 | 237 | 120 | 476 | 306 | 424 | 177 | 88 | 37 | 27 |
| 13..... | 234 | 710 | 533 | 230 | | 405 | 458 | 424 | 197 | 83 | 37 | 26 |
| 14..... | 205 | 574 | 424 | 227 | | 358 | 2,290 | 395 | 208 | 78 | 36 | 26 |
| 15..... | 315 | 476 | 358 | 218 | | 392 | 1,540 | 367 | 379 | 75 | 35 | 25 |
| 16..... | 446 | 553 | 311 | 206 | 110 | 424 | 1,040 | 361 | 367 | 74 | 35 | 25 |
| 17..... | 439 | 476 | 276 | 220 | 119 | 386 | 794 | 349 | 424 | 70 | 36 | 24 |
| 18..... | 376 | 408 | 250 | 267 | 109 | 361 | 640 | 349 | 513 | 69 | 35 | 24 |
| 19..... | 309 | 355 | 230 | 218 | 105 | 364 | 574 | 364 | 686 | 68 | 36 | 24 |
| 20..... | 260 | 309 | 208 | 202 | 197 | 544 | 1,080 | 379 | 533 | 66 | 36 | 25 |
| 21..... | 227 | 276 | 199 | 192 | 267 | 1,310 | 980 | 382 | 408 | 64 | 35 | 26 |
| 22..... | 198 | 244 | 188 | 184 | 265 | 794 | 794 | 392 | 343 | 60 | 34 | 30 |
| 23..... | 180 | 218 | 175 | 173 | 424 | 574 | 686 | 362 | 292 | 59 | 41 | 33 |
| 24..... | 163 | 197 | 173 | 173 | 424 | 458 | 595 | 389 | 257 | 58 | 38 | 28 |
| 25..... | 149 | 184 | 424 | 220 | 553 | 424 | 574 | 366 | 232 | 56 | 36 | 27 |
| 26..... | 139 | 309 | 856 | 326 | 476 | 929 | 574 | 352 | 209 | 58 | 36 | 25 |
| 27..... | 130 | 402 | 794 | 273 | 424 | 1,280 | 553 | 300 | 190 | 56 | 35 | 24 |
| 28..... | 122 | 332 | 733 | 242 | 386 | 1,340 | 513 | 267 | 173 | 55 | 34 | 24 |
| 29..... | 119 | 284 | 1,660 | 242 | ----- | 1,010 | 640 | 237 | 161 | 54 | 34 | 24 |
| 30..... | 117 | 270 | 1,990 | 242 | ----- | 733 | 533 | 218 | 149 | 53 | 33 | 24 |
| 31..... | 112 | ----- | 1,500 | 242 | ----- | 595 | ----- | 211 | ----- | 50 | 33 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 794 | 24 | 271 | 4.37 | 5.04 | 16,700 |
| November..... | 2,400 | 100 | 467 | 7.53 | 8.40 | 27,800 |
| December..... | 1,990 | 173 | 549 | 8.85 | 10.20 | 33,800 |
| January..... | ----- | 173 | 414 | 6.68 | 7.70 | 25,500 |
| February..... | 553 | ----- | 216 | 3.48 | 3.62 | 12,000 |
| March..... | 1,340 | 358 | 606 | 9.77 | 11.26 | 37,300 |
| April..... | 2,290 | 262 | 627 | 10.1 | 11.27 | 37,300 |
| May..... | 618 | 211 | 386 | 6.23 | 7.18 | 23,700 |
| June..... | 686 | 149 | 269 | 4.34 | 4.84 | 16,000 |
| July..... | 140 | 50 | 81.8 | 1.32 | 1.52 | 5,000 |
| August..... | 48 | 33 | 37.8 | .610 | .70 | 2,320 |
| September..... | 33 | 24 | 27.3 | .440 | .49 | 1,620 |
| The year..... | 2,400 | 24 | 330 | 5.32 | 72.22 | 239,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 5,490 second-feet Dec. 10 (gage height, 6.80 feet); minimum, 187 second-feet Sept. 17, 29, and 30 (gage height, 0.68 foot).

1911-1913, 1916-1929: Maximum discharge, 13,200 second-feet Nov. 25, 1927 (gage height, 11.0 feet); minimum, 158 second-feet Sept. 17 and 22, 1924 (gage height, 0.50 foot).

REMARKS.—Records good. No diversions for irrigation. Slight fluctuation 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 208 | 276 | 625 | 2,310 | 580 | 880 | 1,370 | 1,140 | 580 | 455 | 276 | 218 |
| 2 | 261 | 276 | 580 | 2,930 | 580 | 940 | 1,210 | 1,370 | 535 | 435 | 276 | 213 |
| 3 | 261 | 276 | 535 | 3,150 | 558 | 1,000 | 1,070 | 1,370 | 535 | 415 | 276 | 208 |
| 4 | 625 | 378 | 495 | 2,310 | 535 | 1,000 | 1,000 | 1,290 | 535 | 396 | 276 | 208 |
| 5 | 515 | 292 | 495 | 1,770 | 515 | 1,140 | 880 | 1,140 | 558 | 396 | 261 | 208 |
| 6 | 415 | 292 | 255 | 1,530 | 495 | 1,070 | 825 | 1,070 | 580 | 378 | 261 | 202 |
| 7 | 1,370 | 292 | 455 | 1,290 | 475 | 1,070 | 880 | 1,000 | 535 | 378 | 261 | 202 |
| 8 | 1,000 | 625 | 625 | 1,070 | 455 | 940 | 825 | 940 | 535 | 378 | 261 | 202 |
| 9 | 880 | 2,040 | 1,000 | 940 | 455 | 940 | 775 | 940 | 515 | 378 | 246 | 202 |
| 10 | 675 | 3,150 | 4,270 | 880 | 455 | 1,210 | 775 | 880 | 495 | 360 | 246 | 200 |
| 11 | 558 | 2,220 | 2,310 | 825 | 435 | 1,140 | 825 | 880 | 495 | 360 | 246 | 200 |
| 12 | 495 | 2,040 | 1,770 | 775 | 435 | 1,070 | 880 | 1,070 | 475 | 342 | 246 | 197 |
| 13 | 415 | 1,610 | 1,290 | 775 | 415 | 940 | 1,070 | 1,070 | 625 | 342 | 246 | 197 |
| 14 | 396 | 1,210 | 1,070 | 775 | 415 | 880 | 3,560 | 940 | 558 | 342 | 246 | 197 |
| 15 | 558 | 1,000 | 880 | 725 | 415 | 1,070 | 3,150 | 940 | 1,140 | 342 | 246 | 195 |
| 16 | 625 | 1,210 | 825 | 675 | 415 | 940 | 2,310 | 880 | 880 | 325 | 232 | 190 |
| 17 | 625 | 1,000 | 725 | 725 | 435 | 940 | 1,860 | 825 | 1,070 | 325 | 232 | 187 |
| 18 | 558 | 880 | 675 | 825 | 415 | 880 | 1,610 | 880 | 1,530 | 325 | 232 | 190 |
| 19 | 495 | 775 | 625 | 725 | 415 | 880 | 1,450 | 880 | 1,370 | 308 | 232 | 192 |
| 20 | 455 | 675 | 580 | 675 | 625 | 1,000 | 2,610 | 880 | 1,000 | 308 | 232 | 195 |
| 21 | 415 | 625 | 580 | 625 | 675 | 1,770 | 2,710 | 880 | 825 | 308 | 232 | 210 |
| 22 | 378 | 580 | 535 | 625 | 675 | 1,530 | 2,130 | 880 | 725 | 308 | 218 | 218 |
| 23 | 360 | 558 | 535 | 558 | 1,000 | 1,210 | 1,860 | 880 | 675 | 308 | 218 | 213 |
| 24 | 342 | 515 | 515 | 625 | 1,000 | 1,070 | 1,690 | 825 | 625 | 308 | 246 | 202 |
| 25 | 342 | 495 | 1,140 | 625 | 1,140 | 1,000 | 1,610 | 825 | 580 | 308 | 232 | 197 |
| 26 | 325 | 775 | 1,690 | 825 | 1,000 | 1,950 | 1,610 | 775 | 535 | 292 | 218 | 197 |
| 27 | 308 | 775 | 1,530 | 725 | 940 | 2,930 | 1,530 | 675 | 515 | 292 | 218 | 195 |
| 28 | 308 | 725 | 1,690 | 675 | 940 | 2,820 | 1,450 | 625 | 495 | 292 | 218 | 190 |
| 29 | 292 | 625 | 2,610 | 625 | ----- | 2,310 | 1,530 | 580 | 475 | 292 | 218 | 187 |
| 30 | 292 | 625 | 3,150 | 580 | ----- | 2,040 | 1,290 | 580 | 455 | 276 | 213 | 187 |
| 31 | 276 | ----- | 2,710 | 580 | ----- | 1,610 | ----- | 580 | ----- | 276 | 218 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 1,370 | 208 | 485 | 2.64 | 3.04 | 29,800 |
| November | 3,150 | 276 | 894 | 4.96 | 5.42 | 53,200 |
| December | 4,270 | 455 | 1,190 | 6.47 | 7.46 | 73,200 |
| January | 3,150 | 558 | 1,069 | 5.76 | 6.64 | 65,200 |
| February | 1,140 | 415 | 663 | 3.28 | 3.42 | 33,500 |
| March | 2,930 | 880 | 1,300 | 7.07 | 8.15 | 79,900 |
| April | 3,560 | 775 | 1,540 | 8.37 | 9.34 | 91,600 |
| May | 1,370 | 580 | 919 | 4.99 | 5.75 | 56,500 |
| June | 1,530 | 455 | 682 | 3.71 | 4.14 | 40,600 |
| July | 455 | 276 | 340 | 1.65 | 2.13 | 20,900 |
| August | 308 | 213 | 244 | 1.33 | 1.53 | 15,000 |
| September | 218 | 187 | 200 | 1.09 | 1.22 | 11,900 |
| The year | 4,270 | 187 | 789 | 4.29 | 58.24 | 571,000 |

COWLITZ RIVER BASIN

COWLITZ RIVER AT MOSSY ROCK, WASH.

LOCATION.—Staff gage in sec. 1, T. 12 N., R. 2 E., 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, fragmentary; March, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 17,300 second-feet May 24 (gage height, 10.80 feet); minimum, 870 second-feet Sept. 30 (gage height, 2.00 feet).
1912-1917, 1926-1929: Maximum discharge, 30,300 second-feet Jan. 7 and 8, 1914 (gage height, 18.0 feet); minimum, 825 second-feet Oct. 10-13, 1915 (gage height, 1.4 feet).

The flood of November, 1906, reached a stage corresponding to about 29.4 feet on present gage (discharge, about 51,000 second-feet).

REMARKS.—Records good. No diversions above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-------|-------|
| 1..... | 1,050 | 1,330 | 2,220 | 3,230 | 1,560 | 2,500 | 5,780 | 5,780 | 8,620 | 5,950 | 2,500 | 1,680 |
| 2..... | 1,140 | 1,330 | 2,080 | 3,230 | 1,560 | 2,500 | 5,440 | 6,290 | 8,250 | 5,610 | 2,500 | 1,380 |
| 3..... | 1,180 | 1,330 | 1,940 | 3,680 | 1,680 | 2,500 | 5,270 | 6,630 | 7,710 | 5,610 | 2,500 | 1,330 |
| 4..... | 1,280 | 1,380 | 1,810 | 3,380 | 1,680 | 2,780 | 4,610 | 7,350 | 7,530 | 5,440 | 2,500 | 1,280 |
| 5..... | 1,448 | 1,380 | 1,680 | 3,380 | 1,500 | 2,930 | 3,980 | 9,000 | 8,430 | 4,930 | 2,220 | 1,330 |
| 6..... | 1,440 | 1,440 | 1,560 | 3,230 | 1,330 | 3,230 | 3,830 | 8,620 | 10,100 | 4,770 | 2,220 | 1,230 |
| 7..... | 1,810 | 1,440 | 1,560 | 3,230 | 1,330 | 3,230 | 3,680 | 7,890 | 11,100 | 4,610 | 2,220 | 1,180 |
| 8..... | 2,780 | 1,380 | 1,680 | 3,080 | 1,280 | 3,230 | 3,380 | 7,530 | 11,100 | 4,290 | 2,220 | 1,140 |
| 9..... | 3,530 | 1,680 | 2,080 | 2,930 | 1,280 | 3,230 | 3,380 | 7,710 | 10,700 | 4,290 | 2,080 | 1,140 |
| 10..... | 3,530 | 4,610 | 4,290 | 2,640 | 1,280 | 3,230 | 3,680 | 8,070 | 9,950 | 4,290 | 1,080 | 1,230 |
| 11..... | 2,780 | 4,130 | 5,950 | 2,500 | 1,280 | 3,380 | 3,680 | 8,810 | 9,380 | 3,830 | 1,940 | 1,330 |
| 12..... | 2,220 | 4,290 | 5,270 | 2,360 | 1,280 | 3,230 | 3,680 | 10,300 | 9,190 | 3,680 | 1,940 | 1,180 |
| 13..... | 1,940 | 4,130 | 4,290 | 2,220 | 1,280 | 3,080 | 3,830 | 12,900 | 9,760 | 3,380 | 1,810 | 1,180 |
| 14..... | 2,220 | 3,830 | 4,130 | 2,220 | 1,330 | 2,930 | 4,290 | 13,500 | 12,500 | 3,830 | 1,810 | 1,230 |
| 15..... | 3,830 | 3,830 | 3,830 | 2,220 | 1,330 | 2,930 | 4,450 | 13,500 | 12,100 | 3,830 | 1,810 | 1,230 |
| 16..... | 4,180 | 3,230 | 3,680 | 2,220 | 1,330 | 2,930 | 4,290 | 13,900 | 13,300 | 3,380 | 1,810 | 1,280 |
| 17..... | 3,680 | 2,930 | 3,080 | 2,220 | 1,380 | 2,930 | 4,290 | 14,300 | 11,100 | 3,530 | 1,940 | 1,140 |
| 18..... | 3,380 | 2,930 | 2,780 | 2,220 | 1,380 | 3,080 | 4,290 | 14,500 | 11,100 | 3,080 | 1,680 | 1,230 |
| 19..... | 2,930 | 2,780 | 2,500 | 2,360 | 1,440 | 3,230 | 4,290 | 14,700 | 12,700 | 3,080 | 1,680 | 1,280 |
| 20..... | 2,500 | 2,780 | 2,500 | 2,360 | 1,500 | 3,680 | 4,610 | 14,900 | 11,100 | 3,080 | 1,680 | 1,140 |
| 21..... | 2,360 | 2,640 | 2,500 | 2,220 | 1,680 | 5,100 | 4,930 | 15,100 | 9,760 | 2,780 | 1,680 | 1,230 |
| 22..... | 2,360 | 2,360 | 2,500 | 2,220 | 1,940 | 6,120 | 4,770 | 15,900 | 9,000 | 2,780 | 1,440 | 1,140 |
| 23..... | 2,080 | 2,360 | 2,500 | 2,080 | 2,220 | 6,460 | 4,770 | 16,300 | 8,810 | 2,640 | 1,500 | 1,140 |
| 24..... | 1,810 | 2,220 | 2,500 | 1,940 | 2,220 | 5,950 | 4,770 | 17,300 | 8,810 | 2,500 | 1,560 | 1,100 |
| 25..... | 1,810 | 2,220 | 2,500 | 1,940 | 2,220 | 5,440 | 4,930 | 15,900 | 9,380 | 2,640 | 1,440 | 1,000 |
| 26..... | 1,680 | 2,220 | 2,640 | 2,220 | 2,360 | 4,770 | 5,270 | 13,300 | 9,380 | 2,500 | 1,380 | 960 |
| 27..... | 1,560 | 2,220 | 2,780 | 1,810 | 2,360 | 5,270 | 5,270 | 10,700 | 7,890 | 2,500 | 1,680 | 915 |
| 28..... | 1,500 | 2,220 | 2,780 | 1,810 | 2,360 | 6,120 | 4,930 | 9,000 | 7,350 | 2,360 | 1,680 | 915 |
| 29..... | 1,500 | 2,220 | 2,930 | 1,680 | ----- | 7,170 | 5,100 | 8,250 | 7,170 | 2,500 | 1,680 | 915 |
| 30..... | 1,440 | 2,220 | 3,080 | 1,680 | ----- | 5,950 | 5,440 | 8,250 | 6,460 | 2,500 | 1,680 | 870 |
| 31..... | 1,380 | ----- | 3,080 | 1,680 | ----- | 5,780 | ----- | 8,430 | ----- | 2,500 | 1,680 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|--------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 4,130 | 1,050 | 2,200 | 1.88 | 2.17 | 135,000 |
| November..... | 4,610 | 1,330 | 2,490 | 2.13 | 2.38 | 148,000 |
| December..... | 5,950 | 1,560 | 2,860 | 2.44 | 2.81 | 176,000 |
| January..... | 3,680 | 1,680 | 2,460 | 2.10 | 2.42 | 151,000 |
| February..... | 2,360 | 1,280 | 1,620 | 1.38 | 1.44 | 90,000 |
| March..... | 7,170 | 2,500 | 4,030 | 3.44 | 8.97 | 288,000 |
| April..... | 5,780 | 3,380 | 4,500 | 3.85 | 4.30 | 268,000 |
| May..... | 17,300 | 5,780 | 11,100 | 9.49 | 10.94 | 682,000 |
| June..... | 13,300 | 6,460 | 9,660 | 8.26 | 9.22 | 575,000 |
| July..... | 5,950 | 2,360 | 3,610 | 3.09 | 3.56 | 222,000 |
| August..... | 2,500 | 1,380 | 1,880 | 1.61 | 1.86 | 116,000 |
| September..... | 1,680 | 870 | 1,180 | 1.01 | 1.13 | 70,200 |
| The year..... | 17,300 | 870 | 3,980 | 3.40 | 46.20 | 2,880,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 21,800 second-feet May 25 (gage height, 7.31 feet); minimum, 1,390 second-feet Sept. 29 and 30 (gage height, 2.21 feet).

1926-1929: Maximum discharge, 74,000 second-feet Nov. 25, 1927 (gage height, 13.95 feet); minimum, that of Sept. 29 and 30, 1929.

REMARKS.—Records good. No diversions above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|--------|--------|-------|--------|--------|--------|--------|-------|-------|-------|
| 1 | 1,690 | 2,140 | 3,290 | 9,450 | 4,100 | 5,800 | 11,200 | 12,200 | 10,800 | 8,550 | 3,020 | 2,010 |
| 2 | 1,990 | 1,990 | 3,110 | 11,200 | 4,340 | 6,150 | 9,900 | 11,700 | 10,400 | 7,350 | 3,020 | 1,930 |
| 3 | 2,290 | 1,990 | 3,110 | 12,700 | 4,100 | 6,550 | 9,000 | 13,700 | 9,450 | 7,750 | 3,020 | 1,780 |
| 4 | 2,610 | 1,990 | 2,940 | 10,400 | 3,880 | 6,550 | 8,150 | 14,200 | 9,450 | 6,960 | 2,820 | 1,710 |
| 5 | 2,770 | 1,990 | 2,770 | 8,550 | 3,680 | 6,950 | 7,750 | 13,700 | 10,400 | 6,960 | 2,630 | 1,640 |
| 6 | 2,610 | 2,140 | 2,770 | 7,750 | 3,480 | 7,350 | 7,350 | 12,700 | 11,700 | 6,550 | 2,630 | 1,640 |
| 7 | 3,290 | 2,770 | 2,770 | 6,960 | 3,290 | 6,950 | 6,950 | 11,700 | 13,200 | 6,150 | 2,630 | 1,580 |
| 8 | 5,450 | 1,990 | 3,110 | 6,150 | 3,110 | 6,550 | 6,950 | 11,200 | 12,700 | 5,800 | 2,630 | 1,510 |
| 9 | 5,450 | 3,880 | 3,880 | 5,450 | 3,290 | 6,150 | 6,950 | 11,700 | 12,700 | 5,450 | 2,630 | 1,510 |
| 10 | 5,450 | 7,750 | 15,200 | 5,150 | 3,290 | 7,350 | 6,550 | 11,700 | 12,200 | 5,450 | 2,440 | 1,510 |
| 11 | 4,340 | 8,550 | 14,700 | 4,860 | 3,290 | 7,750 | 6,150 | 11,700 | 11,700 | 5,150 | 2,440 | 1,580 |
| 12 | 3,480 | 8,550 | 11,200 | 3,110 | 6,950 | 6,150 | 13,200 | 11,200 | 11,200 | 4,650 | 2,440 | 1,580 |
| 13 | 3,110 | 6,950 | 9,000 | 4,590 | 2,940 | 6,550 | 6,150 | 15,700 | 11,700 | 4,650 | 2,260 | 1,580 |
| 14 | 2,940 | 6,150 | 6,550 | 4,340 | 2,940 | 6,150 | 11,700 | 16,200 | 14,200 | 4,650 | 2,260 | 1,640 |
| 15 | 2,940 | 5,450 | 6,150 | 4,340 | 2,770 | 5,800 | 13,700 | 15,700 | 15,700 | 4,650 | 2,260 | 1,640 |
| 16 | 4,340 | 4,860 | 5,450 | 4,100 | 2,940 | 6,150 | 12,200 | 14,700 | 16,800 | 4,650 | 2,180 | 1,640 |
| 17 | 5,800 | 4,590 | 5,150 | 4,100 | 3,290 | 6,550 | 10,800 | 14,700 | 15,200 | 4,370 | 2,180 | 1,580 |
| 18 | 5,150 | 4,100 | 4,860 | 4,860 | 3,290 | 6,150 | 9,900 | 14,200 | 14,700 | 4,110 | 2,180 | 1,580 |
| 19 | 4,340 | 3,880 | 4,590 | 4,590 | 3,290 | 6,150 | 9,000 | 14,700 | 17,400 | 3,870 | 2,180 | 1,510 |
| 20 | 3,680 | 3,480 | 4,340 | 4,100 | 3,880 | 6,550 | 10,400 | 16,200 | 16,800 | 3,870 | 2,090 | 1,510 |
| 21 | 3,480 | 3,480 | 3,880 | 3,880 | 5,450 | 11,700 | 12,200 | 17,400 | 14,200 | 3,650 | 2,010 | 1,580 |
| 22 | 3,290 | 3,290 | 3,880 | 3,880 | 5,150 | 14,200 | 11,700 | 18,600 | 12,700 | 3,650 | 2,010 | 1,710 |
| 23 | 2,940 | 3,290 | 3,880 | 3,680 | 7,350 | 12,200 | 11,200 | 18,600 | 12,200 | 3,430 | 2,090 | 1,710 |
| 24 | 2,770 | 3,110 | 3,680 | 3,480 | 7,350 | 10,400 | 11,200 | 19,200 | 11,700 | 3,220 | 2,260 | 1,710 |
| 25 | 2,610 | 3,110 | 4,340 | 3,880 | 7,350 | 9,000 | 11,700 | 21,100 | 11,700 | 3,430 | 2,010 | 1,580 |
| 26 | 2,450 | 3,290 | 5,450 | 5,450 | 6,950 | 11,200 | 12,200 | 16,800 | 12,200 | 3,220 | 1,930 | 1,510 |
| 27 | 2,450 | 3,880 | 6,950 | 5,450 | 6,150 | 18,000 | 13,200 | 13,200 | 11,200 | 3,220 | 1,930 | 1,450 |
| 28 | 2,290 | 3,480 | 6,550 | 4,590 | 5,800 | 16,800 | 13,200 | 11,700 | 9,900 | 3,020 | 1,930 | 1,450 |
| 29 | 2,140 | 3,480 | 9,450 | 4,340 | ----- | 17,400 | 14,200 | 10,400 | 9,900 | 3,020 | 1,930 | 1,390 |
| 30 | 2,140 | 3,110 | 13,700 | 4,100 | ----- | 15,200 | 13,700 | 10,400 | 9,450 | 3,020 | 1,930 | 1,390 |
| 31 | 2,140 | ----- | 11,700 | 4,100 | ----- | 13,200 | ----- | 10,400 | ----- | 3,020 | 1,930 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|--------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 5,800 | 1,690 | 3,300 | 1.49 | 1.72 | 203,000 |
| November | 8,550 | 1,990 | 3,920 | 1.77 | 1.98 | 233,000 |
| December | 15,200 | 2,770 | 6,080 | 2.75 | 3.17 | 374,000 |
| January | 12,700 | 3,480 | 5,650 | 2.56 | 2.95 | 347,000 |
| February | 7,350 | 2,770 | 4,280 | 1.94 | 2.02 | 238,000 |
| March | 18,000 | 5,800 | 9,050 | 4.10 | 4.73 | 554,000 |
| April | 14,200 | 6,150 | 10,000 | 4.52 | 5.04 | 595,000 |
| May | 21,100 | 10,400 | 14,200 | 6.43 | 7.41 | 873,000 |
| June | 17,400 | 9,450 | 12,500 | 6.66 | 6.32 | 744,000 |
| July | 8,550 | 3,020 | 4,760 | 2.15 | 2.48 | 293,000 |
| August | 3,020 | 1,930 | 2,320 | 1.05 | 1.21 | 143,000 |
| September | 2,010 | 1,390 | 1,600 | .724 | .81 | 95,200 |
| The year | 21,100 | 1,390 | 6,480 | 2.93 | 39.84 | 4,690,000 |

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, 1929, at present site; March, 1916, to September, 1917 (stage only), at site 2 miles upstream.

EXTREMES.—Maximum discharge during year, 1,920 second-feet Apr. 14 (gage height, 4.34 feet); minimum, 4.7 second-feet Sept. 16 (gage height, 1.03 feet).

1927-1929: Extremes, those of 1929.

REMARKS.—Records good except those estimated (Oct. 1, 3-17, 20-27, Nov. 30 to Dec. 11, and Feb. 3-5), which are poor. No diversions or regulation above station. Most of field data furnished by city engineer of Astoria.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1----- | 10 | 24 | | 402 | 184 | 189 | 235 | 102 | 36 | 45 | 12 | 9.2 |
| 2----- | 34 | 24 | | 402 | 255 | 180 | 214 | 104 | 34 | 44 | 12 | 12 |
| 3----- | | 24 | | 395 | 226 | 166 | 180 | 107 | 31 | 42 | 12 | 9.2 |
| 4----- | | 25 | | 283 | 198 | 158 | 155 | 107 | 30 | 38 | 12 | 8.3 |
| 5----- | | 26 | | 233 | 170 | 155 | 142 | 112 | 41 | 35 | 12 | 7.0 |
| 6----- | | 27 | 142 | 195 | 142 | 151 | 126 | 121 | 46 | 34 | 12 | 6.6 |
| 7----- | | 27 | | 166 | 127 | 147 | 133 | 118 | 40 | 32 | 11 | 5.8 |
| 8----- | | 110 | | 146 | 115 | 146 | 144 | 115 | 37 | 28 | 11 | 5.4 |
| 9----- | | 308 | | 130 | 105 | 144 | 145 | 107 | 38 | 27 | 10 | 5.4 |
| 10----- | 112 | 312 | | 115 | 96 | 142 | 145 | 91 | 38 | 26 | 9.7 | 5.4 |
| 11----- | | 312 | | 105 | 88 | 142 | 145 | 85 | 35 | 25 | 9.7 | 5.4 |
| 12----- | | 304 | 276 | 95 | 85 | 139 | 145 | 79 | 31 | 23 | 9.2 | 5.4 |
| 13----- | | 290 | 214 | 88 | 74 | 137 | 145 | 75 | 36 | 21 | 9.2 | 5.4 |
| 14----- | | 235 | 176 | 82 | 75 | 135 | 901 | 72 | 44 | 20 | 9.7 | 5.1 |
| 15----- | | 182 | 147 | 78 | 73 | 134 | 540 | 65 | 102 | 18 | 10 | 5.1 |
| 16----- | | 164 | 128 | 72 | 80 | 132 | 410 | 62 | 96 | 17 | 9.2 | 4.7 |
| 17----- | | 149 | 112 | 75 | 115 | 130 | 290 | 60 | 138 | 16 | 8.8 | 5.1 |
| 18----- | | 132 | 101 | 122 | 106 | 128 | 232 | 58 | 247 | 16 | 9.2 | 5.1 |
| 19----- | 56 | 109 | 91 | 135 | 96 | 127 | 200 | 56 | 312 | 16 | 9.7 | 5.1 |
| 20----- | | 95 | 82 | 122 | 156 | 122 | 229 | 54 | 195 | 30 | 8.8 | 6.6 |
| 21----- | | 87 | 76 | 106 | 238 | 127 | 217 | 52 | 144 | 23 | 8.8 | 8.8 |
| 22----- | | 81 | 74 | 120 | 249 | 128 | 195 | 51 | 115 | 17 | 8.3 | 10 |
| 23----- | | 75 | 70 | 123 | 383 | 126 | 176 | 48 | 99 | 17 | 14 | 10 |
| 24----- | 31 | 70 | 70 | 135 | 365 | 128 | 153 | 47 | 85 | 17 | 14 | 8.8 |
| 25----- | | 68 | 142 | 193 | 290 | 130 | 136 | 46 | 76 | 16 | 10 | 7.9 |
| 26----- | | 144 | 214 | 244 | 249 | 513 | 121 | 44 | 70 | 18 | 9.7 | 8.8 |
| 27----- | | 238 | 294 | 286 | 233 | 639 | 111 | 43 | 63 | 17 | 9.2 | 7.4 |
| 28----- | 22 | 178 | 317 | 280 | 202 | 520 | 105 | 42 | 59 | 16 | 7.9 | 6.6 |
| 29----- | 23 | 172 | 550 | 227 | | 455 | 109 | 40 | 54 | 14 | 7.9 | 5.8 |
| 30----- | 23 | 155 | 772 | 191 | | 371 | 111 | 38 | 49 | 14 | 7.4 | 5.8 |
| 31----- | 24 | | 616 | 168 | | 286 | | 35 | | 14 | 7.4 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October----- | | 10 | 70.7 | 2.36 | 2.72 | 4,350 |
| November----- | | 24 | 138 | 4.66 | 5.13 | 8,210 |
| December----- | 312 | | 196 | 6.53 | 7.53 | 12,100 |
| January----- | 402 | 72 | 178 | 5.93 | 6.84 | 10,900 |
| February----- | 383 | 73 | 170 | 5.67 | 5.90 | 9,440 |
| March----- | 639 | 122 | 204 | 6.86 | 7.84 | 12,560 |
| April----- | 901 | 105 | 210 | 7.09 | 7.81 | 12,560 |
| May----- | 121 | 35 | 72.1 | 2.40 | 2.77 | 4,430 |
| June----- | 312 | 30 | 80.7 | 2.69 | 3.00 | 4,800 |
| July----- | 45 | 14 | 23.7 | .790 | .91 | 1,460 |
| August----- | 14 | 7.4 | 10.1 | .337 | .39 | 621 |
| September----- | 12 | 4.7 | 6.91 | .230 | .26 | 411 |
| The year----- | 901 | 4.7 | 113 | 3.77 | 51.10 | 81,700 |

STREAMS BETWEEN COLUMBIA RIVER AND KLAMATH RIVER

ROGUE RIVER BASIN

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 flume of The California Oregon Power Co., 3 miles above Mill Creek, and 2 miles northwest of Prospect.

DRAINAGE AREA.—315 square miles.

RECORDS AVAILABLE.—July, 1907, to February, 1912, incomplete; October 1923, to September, 1929.

EXTREMES.—Maximum discharge during year, 3,510 second-feet Mar. 21 (gage height, 4.53 feet); minimum, 318 second-feet Sept. 17–20 (gage height, 1.35 feet).

1907–1912, 1923–1929: Maximum discharge, about 9,300 second-feet Nov. 22, 1909 (gage height, about 7.0 feet); minimum, 268 second-feet Sept. 13 and 14, 1926 (gage height, 1.28 feet).

REMARKS.—Records good below and poor above 2,000 second-feet. No diversions or regulation above station. Gage-height record furnished by The California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1923–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|-------|-------|-------|------|------|------|-------|
| 1 | 398 | 460 | 445 | 515 | 450 | 435 | 674 | 1,220 | 868 | 551 | 380 | 386 |
| 2 | 398 | 445 | 430 | 612 | | 465 | 674 | 1,300 | 831 | 540 | 380 | 336 |
| 3 | 430 | 485 | 425 | 562 | | 480 | 680 | 1,400 | 803 | 530 | 375 | 336 |
| 4 | 513 | 475 | 415 | 510 | | 520 | 704 | 1,300 | 845 | 515 | 375 | 336 |
| 5 | 540 | 455 | 410 | 485 | | 628 | 686 | 1,220 | 936 | 510 | 375 | 381 |
| 6 | 460 | 440 | 395 | 470 | 355 | 656 | 650 | 1,080 | 912 | 500 | 370 | 331 |
| 7 | 445 | 430 | 405 | 465 | | 650 | 639 | 1,020 | 898 | 485 | 370 | 332 |
| 8 | 435 | 430 | 405 | 460 | | 644 | 634 | 1,020 | 928 | 475 | 360 | 331 |
| 9 | 430 | 495 | 415 | 445 | | 668 | 612 | 1,060 | 882 | 460 | 360 | 331 |
| 10 | 430 | 546 | 551 | 440 | | 810 | 600 | 1,060 | 860 | 455 | 360 | 326 |
| 11 | 425 | 495 | 510 | 440 | 420 | 742 | 600 | 1,120 | 845 | 445 | 355 | 326 |
| 12 | 420 | 490 | 470 | 485 | | 680 | 578 | 1,260 | 824 | 440 | 355 | 326 |
| 13 | 420 | 480 | 460 | 450 | | 628 | 578 | 1,400 | 817 | 435 | 355 | 326 |
| 14 | 420 | 470 | 420 | 460 | | 595 | 860 | 1,400 | 845 | 430 | 355 | 326 |
| 15 | 440 | 460 | 380 | 465 | | 584 | 1,170 | 1,400 | 960 | 425 | 350 | 322 |
| 16 | 450 | 470 | 405 | 455 | 410 | 578 | 1,080 | 1,450 | 920 | 420 | 350 | 322 |
| 17 | 440 | 475 | 460 | 415 | | 573 | 1,010 | 1,450 | 831 | 415 | 350 | 318 |
| 18 | 435 | 455 | 433 | 410 | | 578 | 944 | 1,450 | 775 | 415 | 350 | 318 |
| 19 | 425 | 450 | 412 | 417 | | 612 | 1,080 | 1,500 | 749 | 410 | 350 | 312 |
| 20 | 420 | 445 | | 400 | | 794 | 1,080 | 1,600 | 716 | 410 | 350 | 318 |
| 21 | 420 | 440 | 400 | 410 | 410 | 3,060 | 1,060 | 1,660 | 710 | 410 | 345 | 322 |
| 22 | 420 | 435 | | | 410 | 1,770 | 1,080 | 1,720 | 698 | 405 | 340 | 322 |
| 23 | 420 | 430 | | | 420 | 1,220 | 1,020 | 1,660 | 686 | 405 | 340 | 326 |
| 24 | 425 | 425 | | | 410 | 976 | 1,020 | 1,550 | 674 | 400 | 340 | 331 |
| 25 | 425 | 425 | | | 415 | 831 | 1,020 | 1,300 | 656 | 395 | 340 | 336 |
| 26 | 425 | 430 | 465 | 415 | 762 | 1,070 | 1,120 | 634 | 395 | 336 | 336 | 336 |
| 27 | 425 | 450 | 546 | | 730 | 1,170 | 1,020 | 612 | 390 | 336 | 336 | 336 |
| 28 | 430 | 440 | 554 | | 775 | 1,260 | 944 | 600 | 390 | 336 | 331 | 331 |
| 29 | 435 | 430 | 562 | | 782 | 1,300 | 905 | 584 | 385 | 331 | 331 | 331 |
| 30 | 480 | 485 | 525 | | 749 | 1,220 | 905 | 568 | 385 | 331 | 331 | 331 |
| 31 | 455 | 510 | | | 674 | | 928 | | 380 | 336 | | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 540 | 398 | 437 | 1.39 | 1.60 | 26,900 |
| November | 546 | 425 | 466 | 1.45 | 1.62 | 27,100 |
| December | 562 | 380 | 450 | 1.43 | 1.65 | 27,700 |
| January | 612 | | 444 | 1.41 | 1.63 | 27,300 |
| February | | | 421 | 1.34 | 1.40 | 23,400 |
| March | 3,060 | 435 | 795 | 2.52 | 2.90 | 48,900 |
| April | 1,300 | 578 | 888 | 2.82 | 3.15 | 52,800 |
| May | 1,720 | 905 | 1,270 | 4.03 | 4.65 | 78,100 |
| June | 960 | 568 | 782 | 2.48 | 2.77 | 46,500 |
| July | 551 | 380 | 439 | 1.39 | 1.60 | 27,000 |
| August | 380 | 331 | 353 | 1.12 | 1.29 | 21,700 |
| September | 336 | 318 | 328 | 1.04 | 1.16 | 19,500 |
| The year | 3,060 | 318 | 590 | 1.87 | 25.42 | 427,000 |

ROGUE RIVER BELOW PROSPECT POWER PLANT NO. 1, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 6, T. 33 S., R. 3 E., below Prospect power plant of The California Oregon Power Co., 1 mile below mouth of Mill Creek, and 2 miles southwest of Prospect.

RECORDS AVAILABLE.—October, 1927, to September, 1929. August, 1913, to September, 1927, above power plant and The California Oregon Power Co.'s flume.

EXTREMES.—Maximum discharge during year, 3,920 second-feet Mar. 21 (gage height, 4.23 feet); minimum, 256 second-feet Oct. 9, 11, and Nov. 26. 1913-1928: Maximum discharge of river including flow through power plant, 10,500 second-feet Feb. 20, 1927; minimum, that of 1929; minimum observed combined unregulated discharge, 455 second-feet Oct. 13, 19, 20, 23, 24, and 25, 1924.

REMARKS.—Records good except those for estimated periods, which are fair. No irrigation diversions above station. Flow regulated by pondage at diversion dam and forebay of power plant. Gage-height record furnished by The California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|---------|-------|-------|------|-------|
| 1..... | 611 | 690 | 718 | 690 | 665 | 615 | 965 | 1,500 | 1,220 | 805 | 590 | 568 |
| 2..... | 612 | 690 | 615 | 865 | 718 | 695 | 930 | 1,040 | 1,180 | 775 | 590 | 545 |
| 3..... | 668 | * 675 | 640 | 775 | 690 | 718 | 965 | 1,090 | 1,180 | 775 | 615 | 500 |
| 4..... | 753 | * 660 | 588 | 745 | * 678 | 745 | 1,000 | 1,040 | 1,180 | 745 | 568 | 522 |
| 5..... | 816 | 640 | 588 | 690 | 665 | 930 | 965 | * 1,540 | 1,340 | 718 | 590 | 500 |
| 6..... | 682 | 640 | 592 | 640 | 665 | 865 | 898 | * 1,440 | 1,300 | 718 | 590 | 545 |
| 7..... | 640 | 640 | 612 | 690 | 545 | 865 | 898 | 1,340 | 1,260 | 745 | 545 | 545 |
| 8..... | 680 | 615 | 614 | 640 | 615 | 865 | 898 | 1,340 | 1,260 | 665 | 568 | 545 |
| 9..... | 605 | 690 | 589 | 640 | 615 | 865 | 805 | 1,420 | 1,260 | 718 | 568 | 545 |
| 10..... | 640 | 805 | * 800 | 640 | 640 | 1,070 | 835 | 1,380 | 1,260 | 718 | 590 | 522 |
| 11..... | 625 | * 750 | 678 | 640 | 665 | 1,070 | 805 | 1,420 | 1,180 | 690 | 545 | 522 |
| 12..... | 652 | * 700 | 662 | 640 | 665 | 965 | 775 | 1,000 | 1,140 | 718 | 590 | 522 |
| 13..... | 657 | 690 | 663 | 640 | 665 | 835 | 805 | 1,090 | 1,180 | 665 | 568 | 522 |
| 14..... | 581 | 690 | 623 | 640 | 640 | 805 | 1,100 | * 1,090 | 1,140 | 665 | 545 | 522 |
| 15..... | | 690 | 616 | 690 | 640 | 775 | 1,500 | 1,090 | 1,340 | 690 | 545 | 522 |
| 16..... | | 640 | 545 | 665 | 640 | 805 | 1,420 | 1,740 | 1,300 | 640 | 545 | 522 |
| 17..... | * 625 | 718 | 665 | 665 | 590 | 775 | 1,340 | 1,740 | 1,180 | 590 | 545 | 522 |
| 18..... | | 590 | 623 | 665 | 615 | 775 | 1,260 | 1,740 | 1,140 | 665 | 545 | 522 |
| 19..... | | 665 | 555 | 665 | 590 | 805 | 1,300 | 1,840 | 1,070 | 615 | 568 | 522 |
| 20..... | | 615 | 615 | * 600 | 640 | 963 | 1,380 | 1,940 | 1,040 | 640 | 522 | 522 |
| 21..... | 590 | 590 | 590 | 665 | 615 | 3,400 | 1,840 | 1,940 | 1,000 | | 522 | 522 |
| 22..... | 615 | 640 | 590 | 690 | 640 | 2,150 | 1,340 | 1,990 | 1,000 | 615 | 500 | 500 |
| 23..... | 590 | 640 | 568 | * 675 | 640 | 1,550 | 1,300 | 1,940 | 1,000 | | 568 | 522 |
| 24..... | 615 | 640 | 665 | * 660 | 615 | 1,300 | 1,260 | 1,890 | 1,040 | | 522 | * 522 |
| 25..... | 640 | 615 | 654 | 640 | 640 | 1,180 | 1,260 | 1,640 | 930 | | 522 | * 522 |
| 26..... | 640 | 545 | 690 | 640 | 615 | 1,070 | 1,300 | 1,460 | 898 | * 602 | 522 | * 522 |
| 27..... | 590 | 640 | 816 | 615 | 615 | 1,040 | 1,420 | 1,390 | 865 | | 545 | 522 |
| 28..... | 562 | 640 | 805 | 640 | 615 | 1,070 | 1,550 | 1,300 | 865 | | 522 | 500 |
| 29..... | 640 | 590 | 775 | 615 | | 1,070 | 1,600 | 1,300 | 835 | | 568 | 522 |
| 30..... | 690 | 615 | 690 | 590 | | 1,040 | 1,500 | 1,260 | 805 | 590 | 522 | 522 |
| 31..... | 640 | | 745 | 665 | | 965 | | 1,300 | | 545 | 522 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 816 | 562 | 638 | 1.65 | 1.90 | 39,200 |
| November..... | 805 | 545 | 655 | 1.69 | 1.89 | 39,000 |
| December..... | 816 | 545 | 651 | 1.68 | 1.94 | 40,000 |
| January..... | 865 | 590 | 665 | 1.72 | 1.98 | 40,900 |
| February..... | 718 | 545 | 637 | 1.65 | 1.72 | 35,400 |
| March..... | 3,400 | 615 | 1,050 | 2.71 | 3.12 | 64,600 |
| April..... | 1,600 | 775 | 1,160 | 3.00 | 3.35 | 69,000 |
| May..... | 1,990 | 1,260 | 1,590 | 4.11 | 4.74 | 97,800 |
| June..... | 1,340 | 805 | 1,110 | 2.87 | 3.20 | 66,000 |
| July..... | 805 | 545 | 662 | 1.71 | 1.97 | 40,700 |
| August..... | 615 | 500 | 554 | 1.43 | 1.65 | 34,100 |
| September..... | 568 | 500 | 524 | 1.35 | 1.51 | 31,200 |
| The year..... | 3,400 | 500 | 826 | 2.13 | 28.97 | 598,000 |

* Estimated.

ROGUE RIVER BELOW SOUTH FORK OF ROGUE RIVER, NEAR PROSPECT, OREG.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 16, T. 33 S., R. 2 E., at Peyton Bridge, 6 miles southwest of Prospect.

DRAINAGE AREA.—643 square miles.

RECORDS AVAILABLE.—April to September, 1929.

EXTREMES.—Maximum discharge during period, 3,740 second-feet May 20 (gage height, 3.55 feet); minimum, 572 second-feet Aug. 24 (gage height, 0.14 foot).

REMARKS.—Records good. Minor irrigation diversions above station. Considerable diurnal fluctuation due to operation of power plant 4 miles upstream. Gage-height record furnished by The California Oregon Power Co..

Daily and monthly discharge, in second-feet, 1928-29

| Day | Apr. | May | June | July | Aug. | Sept. | Day | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|------|-------|---------|-------|-------|-------|------|------|-------|
| 1..... | | 2,280 | 1,800 | 1,240 | 888 | 803 | 16..... | 2,180 | 2,720 | 2,120 | 990 | 822 | 751 |
| 2..... | | 2,450 | 1,760 | 1,200 | 888 | 796 | 17..... | 2,020 | 2,720 | 1,840 | 955 | 829 | 744 |
| 3..... | | 2,620 | 1,680 | 1,160 | 888 | 744 | 18..... | 1,880 | 2,670 | 1,760 | 990 | 822 | 751 |
| 4..... | | 2,560 | 1,760 | 1,160 | 888 | 816 | 19..... | 1,930 | 2,890 | 1,680 | 955 | 822 | 738 |
| 5..... | | 2,340 | 1,930 | 1,130 | 888 | 770 | 20..... | 2,020 | 3,010 | 1,600 | 990 | 829 | 738 |
| 6..... | | 2,120 | 1,930 | 1,130 | 888 | 764 | 21..... | 2,020 | 3,250 | 1,600 | 920 | 829 | 738 |
| 7..... | | 2,020 | 1,880 | 1,130 | 855 | 777 | 22..... | 2,180 | 3,370 | 1,560 | 990 | 829 | 738 |
| 8..... | | 2,020 | 1,880 | 1,020 | 888 | 764 | 23..... | 2,020 | 3,250 | 1,560 | 920 | 829 | 751 |
| 9..... | | 2,020 | 1,840 | 1,100 | 855 | 764 | 24..... | 2,020 | 3,010 | 1,600 | 955 | 796 | 770 |
| 10..... | | 2,020 | 1,840 | 1,100 | 855 | 758 | 25..... | 2,020 | 2,620 | 1,520 | 920 | 790 | 777 |
| 11..... | | 2,070 | 1,760 | 1,020 | 829 | 764 | 26..... | 2,020 | 2,230 | 1,440 | 920 | 810 | 777 |
| 12..... | 1,240 | 2,280 | 1,760 | 1,130 | 855 | 751 | 27..... | 2,180 | 2,020 | 1,400 | 920 | 796 | 790 |
| 13..... | 1,200 | 2,500 | 1,840 | 1,020 | 848 | 744 | 28..... | 2,280 | 1,930 | 1,360 | 888 | 751 | 758 |
| 14..... | 1,660 | 2,670 | 1,800 | 955 | 836 | 738 | 29..... | 2,500 | 1,880 | 1,320 | 955 | 836 | 770 |
| 15..... | 2,400 | 2,620 | 2,120 | 1,020 | 836 | 751 | 30..... | 2,340 | 1,880 | 1,280 | 888 | 777 | 770 |
| | | | | | | | 31..... | | 1,930 | | 855 | 764 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|------------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| April 12-30..... | 2,500 | 1,200 | 2,010 | 3.13 | 2.21 | 75,700 |
| May..... | 3,370 | 1,880 | 2,450 | 3.81 | 4.39 | 151,000 |
| June..... | 2,120 | 1,280 | 1,710 | 2.66 | 2.97 | 102,000 |
| July..... | 1,240 | 855 | 1,020 | 1.59 | 1.83 | 52,700 |
| August..... | 888 | 751 | 836 | 1.30 | 1.50 | 51,400 |
| September..... | 816 | 738 | 762 | 1.19 | 1.33 | 45,300 |
| The period..... | | | | | | 488,000 |

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 The 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, 1929.

EXTREMES.—Maximum discharge during year, 9,730 second-feet Jan. 3 (gage height, 5.81 feet); minimum, 525 second-feet Aug. 24, Sept. 26 and 29 (gage height, 0.0 foot). Discharge may have gone somewhat lower momentarily owing to sudden decrease in power load.

1905-1929: 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. Numerous diversions for irrigation above station. Diurnal fluctuation due to operation of power plant immediately above station. Gage-height record furnished by The California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 1,200 | 1,200 | 1,250 | 1,760 | 2,390 | 1,500 | 2,330 | 3,640 | 2,450 | 1,400 | 998 | 918 |
| 2..... | 1,160 | 1,200 | 1,350 | 2,560 | 2,820 | 1,550 | 2,270 | 3,640 | 2,390 | 1,400 | 1,019 | 974 |
| 3..... | 1,160 | 1,200 | 1,250 | 6,510 | 2,450 | 1,700 | 2,210 | 3,780 | 2,270 | 1,350 | 982 | 984 |
| 4..... | 1,300 | 1,350 | 1,250 | 2,880 | 2,820 | 1,760 | 2,270 | 3,780 | 2,330 | 1,350 | 1,030 | 918 |
| 5..... | 1,600 | 1,250 | 1,200 | 2,150 | 2,690 | 2,040 | 2,270 | 3,780 | 2,460 | 1,300 | 966 | 918 |
| 6..... | 1,400 | 1,250 | 1,200 | 1,870 | 2,270 | 2,090 | 2,150 | 3,500 | 2,820 | 1,300 | 974 | 894 |
| 7..... | 1,300 | 1,250 | 1,160 | 1,700 | 1,820 | 2,040 | 2,040 | 3,150 | 2,690 | 1,300 | 966 | 894 |
| 8..... | 1,200 | 1,200 | 1,160 | 1,600 | 1,650 | 1,920 | 2,330 | 3,290 | 2,330 | 1,160 | 966 | 894 |
| 9..... | 1,200 | 1,200 | 1,160 | 1,550 | 1,600 | 1,920 | 2,890 | 3,020 | 2,570 | 1,200 | 950 | 886 |
| 10..... | 1,200 | 1,400 | 1,500 | 1,500 | 1,580 | 2,270 | 2,210 | 2,950 | 2,510 | 1,200 | 910 | 894 |
| 11..... | 1,160 | 1,450 | 1,920 | 1,450 | 1,550 | 2,390 | 2,150 | 2,950 | 2,450 | 1,160 | 950 | 894 |
| 12..... | 1,160 | 1,350 | 1,500 | 1,420 | 1,520 | 2,090 | 2,210 | 3,080 | 2,390 | 1,160 | 918 | 894 |
| 13..... | 1,160 | 1,350 | 1,400 | 1,400 | 1,500 | 1,980 | 2,090 | 3,290 | 2,330 | 1,200 | 934 | 886 |
| 14..... | 1,200 | 1,300 | 1,350 | 1,400 | 1,450 | 1,920 | 3,010 | 3,430 | 2,330 | 1,160 | 934 | 886 |
| 15..... | 1,200 | 1,350 | 1,300 | 1,400 | 1,450 | 1,820 | 7,160 | 3,360 | 2,460 | 7,120 | 934 | 886 |
| 16..... | 1,200 | 1,300 | 1,230 | 1,400 | 1,400 | 1,820 | 5,400 | 3,430 | 2,880 | 1,160 | 950 | 886 |
| 17..... | 1,250 | 1,350 | 1,160 | 1,350 | 1,350 | 1,870 | 4,600 | 3,500 | 2,450 | 1,160 | 974 | 878 |
| 18..... | 1,200 | 1,350 | 1,250 | 1,550 | 1,350 | 1,790 | 3,780 | 3,360 | 2,270 | 1,120 | 950 | 878 |
| 19..... | 1,200 | 1,250 | 1,160 | 1,650 | 1,350 | 1,870 | 3,640 | 3,500 | 2,150 | 1,120 | 918 | 870 |
| 20..... | 1,160 | 1,250 | 1,160 | 1,500 | 1,350 | 1,870 | 3,640 | 3,640 | 2,040 | 1,070 | 934 | 862 |
| 21..... | 1,160 | 1,200 | 1,160 | 1,300 | 1,350 | 5,910 | 3,640 | 3,780 | 1,980 | 1,120 | 934 | 870 |
| 22..... | 1,160 | 1,200 | 1,160 | 1,450 | 1,350 | 6,080 | 4,600 | 3,930 | 1,870 | 1,050 | 934 | 878 |
| 23..... | 1,160 | 1,250 | 1,120 | 1,500 | 1,400 | 4,600 | 4,250 | 3,930 | 1,820 | 1,050 | 918 | 886 |
| 24..... | 1,160 | 1,200 | 1,200 | 1,400 | 1,450 | 3,640 | 3,930 | 3,780 | 1,820 | 1,070 | 822 | 902 |
| 25..... | 1,160 | 1,200 | 2,150 | 1,550 | 1,500 | 3,150 | 3,780 | 3,430 | 1,760 | 1,040 | 942 | 926 |
| 26..... | 1,160 | 1,200 | 1,920 | 1,870 | 1,550 | 2,820 | 3,640 | 3,020 | 1,700 | 1,040 | 1,050 | 942 |
| 27..... | 1,160 | 1,200 | 2,150 | 2,040 | 1,500 | 2,630 | 3,640 | 2,760 | 1,600 | 1,050 | 894 | 950 |
| 28..... | 1,120 | 1,250 | 2,570 | 1,870 | 1,500 | 2,690 | 3,640 | 2,570 | 1,550 | 1,050 | 974 | 966 |
| 29..... | 1,120 | 1,200 | 2,510 | 1,760 | ----- | 2,820 | 4,080 | 2,450 | 1,500 | 1,010 | 934 | 918 |
| 30..... | 1,200 | 1,250 | 2,390 | 1,700 | ----- | 2,690 | 3,930 | 2,390 | 1,500 | 1,010 | 942 | 958 |
| 31..... | 1,200 | ----- | 1,920 | 1,820 | ----- | 2,510 | ----- | 2,450 | ----- | 998 | 910 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|-------------------------|
| October..... | 1,600 | 1,120 | 1,210 | 74,400 |
| November..... | 1,450 | 1,200 | 1,260 | 75,000 |
| December..... | 2,570 | 1,120 | 1,490 | 91,600 |
| January..... | 6,510 | 1,300 | 1,830 | 113,000 |
| February..... | 2,820 | 1,350 | 1,710 | 95,000 |
| March..... | 6,680 | 1,500 | 2,530 | 156,000 |
| April..... | 7,160 | 2,040 | 3,310 | 197,000 |
| May..... | 3,930 | 2,390 | 3,300 | 203,000 |
| June..... | 2,880 | 1,500 | 2,210 | 132,000 |
| July..... | 1,400 | 998 | 1,160 | 71,300 |
| August..... | 1,050 | 822 | 945 | 58,300 |
| September..... | 974 | 862 | 904 | 53,800 |
| The year..... | 7,160 | 822 | 1,820 | 1,320,000 |

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.

RECORDS AVAILABLE.—August to October, 1910; May, 1925, to September, 1929.

EXTREMES.—Maximum recorded discharge during year, 158 second-feet May 23 (gage height, 3.19 feet); minimum, 34 second-feet throughout September.

1910, 1925–1929: Maximum discharge, 200 second-feet Feb. 20, 1927; minimum, 32 second-feet Sept. 27, 1926.

REMARKS.—Records fair. Gage read once a week. No diversions or regulation above station. Gage-height record furnished by The California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | | | 40 | | | | | | | | | |
| 2 | | | | | 46 | | | 112 | | | | |
| 3 | | 45 | | | | 45 | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | 34 |
| 6 | 41 | | 39 | 43 | | | | | 102 | | | |
| 7 | | | | | | | 55 | | | | | |
| 8 | | | 39 | | | | | | | | 38 | |
| 9 | | | | | 47 | | | 102 | | | | |
| 10 | | 48 | | | | 55 | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | 42 | | | | | | | | 34 |
| 13 | 41 | | | | | | | | 92 | | | |
| 14 | | | | | | | 97 | | | | | |
| 15 | | | 39 | | | | | | | | 38 | |
| 16 | | | | | 42 | | | 134 | | | | |
| 17 | | 44 | | | | 48 | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | 88 | | | 45 | | 34 |
| 20 | 42 | | | 41 | | | | | 84 | | | |
| 21 | | | | | | | 84 | | | | | |
| 22 | | | | | | | | | | | 36 | |
| 23 | | | 41 | | | | | 158 | | | | |
| 24 | | 38 | | | | 74 | | | | | | |
| 25 | | | | | | | | | | | | 34 |
| 26 | | | | 40 | | | | | | | | 34 |
| 27 | 43 | | | | | | | | 65 | | | |
| 28 | | | | | | | 84 | | | | | |
| 29 | | | | | | | | | | | 35 | |
| 30 | | | 44 | | | | | 112 | | | | |
| 31 | | | | | | 58 | | | | | | |

| Month | Mean | Run-off in acre- feet | Month | Mean | Run-off in acre- feet |
|----------|------|-----------------------------|-----------|------|-----------------------------|
| October | 41.8 | 2,570 | May | 124 | 7,620 |
| November | 41.3 | 2,490 | June | 85.8 | 5,110 |
| December | 40.3 | 2,480 | July | 48.2 | 2,960 |
| January | 41.5 | 2,550 | August | 36.8 | 2,260 |
| February | 44.2 | 2,450 | September | 34.0 | 2,020 |
| March | 63.3 | 3,890 | | | |
| April | 75.2 | 4,470 | The year | 57.6 | 40,800 |

NOTE.—Monthly mean discharge taken as mean of days when gage was read, except November, March, April, and July, for which mean discharge was estimated by comparison with discharge of Rogue River above Prospect.

MIDDLE FORK OF ROGUE RIVER NEAR PROSPECT, OREG.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 1, T. 33 S., R. 3 E., at intake of proposed diversion into Rogue River 5 miles southeast of Prospect.

RECORDS AVAILABLE.—May, 1925, to September, 1929.

EXTREMES.—Maximum discharge during year, 672 second-feet Mar. 21 (gage height, 2.64 feet); minimum, 99 second-feet Sept. 20 (gage height, 1.22 feet). 1925-1929: Maximum discharge, 890 second-feet Feb. 20, 1927; minimum, 83 second-feet Sept. 6-9, 12, and 13, 1926.

REMARKS.—Records good. Discharge estimated Dec. 27, 28, and Mar. 29 to Apr. 3. No diversions or regulation above station. Gage-height record furnished by The California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|------|-------|------|------|-------|---------|---------|------|-------------------------|------|------|-------|
| 1..... | 113 | 124 | 122 | 120 | 113 | 105 | 160 | 249 | 223 | 165 | 115 | 105 |
| 2..... | 115 | 117 | 115 | 152 | 111 | 109 | 160 | 280 | 206 | 160 | 115 | 105 |
| 3..... | 120 | 124 | 111 | 131 | 109 | 111 | 160 | 296 | 206 | 154 | 115 | 105 |
| 4..... | 152 | 124 | 111 | 120 | 109 | 115 | 160 | 280 | 234 | 154 | 115 | 105 |
| 5..... | 136 | 120 | 109 | 117 | 109 | 122 | 157 | 245 | 245 | 152 | 117 | 105 |
| 6..... | 124 | 115 | 107 | 117 | 107 | 122 | 152 | 220 | 245 | 146 | 117 | 105 |
| 7..... | 120 | 113 | 107 | 117 | 107 | 124 | 149 | 209 | 253 | 143 | 117 | 105 |
| 8..... | 117 | 113 | 105 | 115 | 107 | 124 | 146 | 213 | 249 | 138 | 117 | 105 |
| 9..... | 117 | 117 | 105 | 113 | 107 | 126 | 138 | 213 | 238 | 136 | 115 | 105 |
| 10..... | 115 | 131 | 122 | 111 | 109 | 131 | 136 | 216 | 238 | 133 | 115 | 107 |
| 11..... | 113 | 117 | 113 | 109 | 109 | 129 | 133 | 230 | 234 | 133 | 113 | 107 |
| 12..... | 113 | 115 | 111 | 109 | 107 | 124 | 129 | 249 | 238 | 136 | 113 | 107 |
| 13..... | 113 | 115 | 107 | 111 | 105 | 122 | 133 | 276 | 249 | 133 | 111 | 107 |
| 14..... | 113 | 113 | 105 | 111 | 103 | 120 | 171 | 280 | 268 | 133 | 111 | 105 |
| 15..... | 117 | 111 | 105 | 111 | 103 | 120 | 196 | 288 | 364 | 131 | 111 | 103 |
| 16..... | 115 | 115 | 105 | 111 | 103 | 120 | 196 | 300 | 296 | 129 | 111 | 103 |
| 17..... | 113 | 113 | 105 | 109 | 103 | 120 | 196 | 300 | 241 | 126 | 111 | 103 |
| 18..... | 111 | 115 | 105 | 111 | 103 | 120 | 203 | 316 | 216 | 124 | 111 | 101 |
| 19..... | 111 | 113 | 105 | 109 | 105 | 122 | 209 | 342 | 206 | 124 | 111 | 101 |
| 20..... | 113 | 113 | 103 | 109 | 105 | 152 | 216 | 372 | 203 | 124 | 111 | 99 |
| 21..... | 113 | 111 | 103 | 109 | 105 | 545 | 223 | 395 | 206 | 124 | 111 | 101 |
| 22..... | 113 | 109 | 103 | 109 | 105 | 372 | 223 | 413 | 209 | 122 | 111 | 101 |
| 23..... | 113 | 109 | 105 | 107 | 105 | 292 | 216 | 422 | 213 | 120 | 107 | 101 |
| 24..... | 111 | 109 | 109 | 107 | 105 | 238 | 216 | 386 | 216 | 120 | 107 | 101 |
| 25..... | 111 | 109 | 117 | 107 | 105 | 206 | 220 | 312 | 209 | 120 | 105 | 101 |
| 26..... | 111 | 111 | 117 | 107 | 105 | 187 | 230 | 257 | 203 | 120 | 105 | 101 |
| 27..... | 111 | 113 | 120 | 107 | 105 | 180 | 245 | 230 | 196 | 120 | 105 | 103 |
| 28..... | 111 | 109 | 124 | 107 | 105 | 187 | 257 | 220 | 193 | 120 | 105 | 103 |
| 29..... | 113 | 107 | 126 | 109 | ----- | 180 | 276 | 227 | 187 | 117 | 105 | 105 |
| 30..... | 117 | 109 | 122 | 109 | ----- | 171 | 253 | 234 | 174 | 117 | 105 | 105 |
| 31..... | 115 | ----- | 120 | 111 | ----- | 165 | ----- | 241 | ----- | 115 | 105 | ----- |
| Month | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | | |
| October..... | | | | | | 152 | 111 | 116 | 7,130 | | | |
| November..... | | | | | | 124 | 107 | 114 | 6,780 | | | |
| December..... | | | | | | 126 | 103 | 111 | 6,320 | | | |
| January..... | | | | | | 152 | 107 | 113 | 6,950 | | | |
| February..... | | | | | | 113 | 103 | 106 | 5,890 | | | |
| March..... | | | | | | 545 | 105 | 166 | 10,200 | | | |
| April..... | | | | | | 276 | 129 | 189 | 11,200 | | | |
| May..... | | | | | | 422 | 209 | 281 | 17,300 | | | |
| June..... | | | | | | 364 | 174 | 229 | 13,000 | | | |
| July..... | | | | | | 165 | 115 | 132 | 8,120 | | | |
| August..... | | | | | | 117 | 105 | 111 | 6,520 | | | |
| September..... | | | | | | 107 | 99 | 104 | 6,190 | | | |
| The year..... | | | | | | 545 | 99 | 148 | 107,000 | | | |

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.

RECORDS AVAILABLE.—May, 1925, to September, 1929. Prior to October, 1928, in NE. $\frac{1}{4}$ sec. 34, T. 32 S., R. 3 E.

EXTREMES.—Maximum discharge recorded during year, 300 second-feet Apr. 14 (gage height, 1.96 feet); minimum, 54 second-feet in August and September. 1925-1929: Maximum discharge, 1,200 second-feet Mar. 11, 1928; minimum, 42 second-feet Aug. 16, 1926.

REMARKS.—Records fair. One irrigation diversion above station. Gage read only once a week. Gage-height record furnished by The California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1. | | | 63 | | | | | | | | 56 | |
| 2. | | | | | 64 | | | 153 | | | | |
| 3. | | 63 | | | | 64 | | | | | | |
| 4. | | | | | | | | | | 81 | | |
| 5. | | | | | | | | | | | | 54 |
| 6. | 63 | | 60 | 64 | | | | | 142 | | | |
| 7. | | | | | | | 78 | | | | | |
| 8. | | | 60 | | | | | | | | 55 | |
| 9. | | | | | 64 | | | 120 | | | | |
| 10. | | 70 | | | | 78 | | | | | | |
| 11. | | | | | | | | | | 71 | | |
| 12. | | | | 60 | | | | | | | | 54 |
| 13. | 63 | | | | | | | | 130 | | | |
| 14. | | | | | | | 300 | | | | | |
| 15. | | | 60 | | | | | | | | 55 | |
| 16. | | | | | | | | 153 | | | | |
| 17. | | 63 | | | 61 | 70 | | | | | | |
| 18. | | | | | | | 120 | | | 67 | | |
| 19. | | | | | | | | | | | | 54 |
| 20. | 61 | | | 63 | | | | | 130 | | | |
| 21. | | | | | | | 130 | | | | | |
| 22. | | | | | | | | | | | 55 | |
| 23. | | | 59 | | | | | 228 | | | | |
| 24. | | 61 | | | 61 | 120 | | | | | | |
| 25. | | | | | | | | | | 63 | | 55 |
| 26. | | | | 60 | | | | | | | | 58 |
| 27. | 58 | | | | | | | | 103 | | | |
| 28. | | | | | | | 120 | | | | | |
| 29. | | | | | | | | | | | 54 | |
| 30. | | | 66 | | | | | 142 | | | | |
| 31. | | | | | | 88 | | | | | | |

| Month | Mean | Run-off in acre-feet | Month | Mean | Run-off in acre-feet |
|---------------|------|----------------------|----------------|------|----------------------|
| October..... | 61.2 | 3,760 | May..... | 159 | 9,780 |
| November..... | 60.6 | 3,610 | June..... | 126 | 7,500 |
| December..... | 61.3 | 3,770 | July..... | 70.5 | 4,330 |
| January..... | 61.8 | 3,800 | August..... | 55.0 | 3,380 |
| February..... | 62.5 | 3,470 | September..... | 55.0 | 3,370 |
| March..... | 94.9 | 5,840 | | | |
| April..... | 140 | 8,330 | The year..... | 84.0 | 60,800 |

NOTE.—Monthly mean discharge taken as mean of days when gage was read, except November, March, and April, for which mean discharge was estimated by comparison with discharge of 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.

RECORDS AVAILABLE.—April, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, 618 second-feet May 22 (gage height, 2.66 feet); minimum, 58 second-feet Feb. 26–28 (gage height, 0.60 foot).

1924–1929: Maximum discharge, 1,500 second-feet Dec. 1 1924 (gage height, 3.97 feet); minimum, 41 second-feet Sept. 13–15, 1926 (gage height, 0.27 foot).

REMARKS.—Records good. Discharge estimated Dec. 9–14, and Feb. 4–7. No diversions or regulation above station. Gage-height record furnished by The California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----------|---------|------|------|------|------|---------|------|------|------|----------------------|------|-------|
| 1 | 70 | 81 | 75 | 77 | 74 | 59 | 132 | 306 | 248 | 160 | 97 | 74 |
| 2 | 71 | 77 | 73 | 94 | 73 | 60 | 132 | 334 | 255 | 155 | 95 | 72 |
| 3 | 77 | 77 | 70 | 85 | 69 | 61 | 137 | 365 | 228 | 152 | 95 | 71 |
| 4 | 102 | 79 | 69 | 81 | 68 | 64 | 139 | 358 | 238 | 145 | 94 | 70 |
| 5 | 104 | 77 | 69 | 79 | 68 | 67 | 134 | 313 | 258 | 142 | 92 | 70 |
| 6 | 82 | 77 | 69 | 77 | 67 | 68 | 127 | 278 | 261 | 137 | 91 | 69 |
| 7 | 77 | 75 | 69 | 76 | 67 | 69 | 126 | 263 | 261 | 135 | 90 | 67 |
| 8 | 75 | 74 | 68 | 74 | 66 | 69 | 124 | 263 | 253 | 132 | 90 | 67 |
| 9 | 74 | 75 | 73 | 73 | 66 | 74 | 119 | 272 | 243 | 129 | 87 | 66 |
| 10 | 74 | 86 | 71 | 65 | 65 | 79 | 116 | 275 | 243 | 126 | 85 | 66 |
| 11 | 74 | 79 | 71 | 70 | 65 | 75 | 115 | 290 | 238 | 124 | 85 | 65 |
| 12 | 74 | 76 | 69 | 69 | 65 | 73 | 112 | 316 | 238 | 121 | 84 | 65 |
| 13 | 74 | 76 | 68 | 68 | 65 | 71 | 112 | 344 | 238 | 118 | 84 | 64 |
| 14 | 73 | 75 | 68 | 68 | 65 | 71 | 143 | 365 | 235 | 116 | 84 | 64 |
| 15 | 75 | 75 | 65 | 67 | 64 | 73 | 176 | 377 | 293 | 115 | 84 | 65 |
| 16 | 75 | 80 | 67 | 67 | 64 | 73 | 181 | 401 | 272 | 113 | 81 | 65 |
| 17 | 74 | 80 | 66 | 67 | 62 | 74 | 176 | 389 | 233 | 113 | 83 | 65 |
| 18 | 73 | 76 | 65 | 68 | 62 | 77 | 179 | 413 | 213 | 108 | 83 | 66 |
| 19 | 70 | 74 | 66 | 67 | 61 | 80 | 188 | 441 | 215 | 107 | 83 | 66 |
| 20 | 70 | 73 | 66 | 65 | 61 | 93 | 192 | 486 | 211 | 106 | 83 | 66 |
| 21 | 70 | 71 | 65 | 67 | 60 | 397 | 199 | 517 | 211 | 104 | 83 | 66 |
| 22 | 69 | 71 | 66 | 68 | 60 | 296 | 211 | 555 | 207 | 104 | 83 | 66 |
| 23 | 70 | 70 | 66 | 67 | 60 | 222 | 211 | 550 | 205 | 102 | 81 | 67 |
| 24 | 71 | 69 | 70 | 67 | 60 | 182 | 215 | 494 | 203 | 101 | 80 | 69 |
| 25 | 71 | 69 | 71 | 67 | 60 | 176 | 217 | 397 | 201 | 101 | 79 | 69 |
| 26 | 71 | 69 | 74 | 68 | 58 | 162 | 231 | 327 | 192 | 98 | 79 | 67 |
| 27 | 71 | 69 | 80 | 69 | 58 | 150 | 248 | 287 | 186 | 98 | 78 | 65 |
| 28 | 71 | 69 | 82 | 69 | 58 | 155 | 272 | 269 | 183 | 97 | 76 | 64 |
| 29 | 73 | 68 | 80 | 69 | 58 | 152 | 340 | 263 | 174 | 97 | 76 | 63 |
| 30 | 77 | 69 | 76 | 69 | 58 | 142 | 306 | 266 | 169 | 98 | 75 | 63 |
| 31 | 76 | 75 | 73 | 69 | 58 | 137 | 278 | 278 | 98 | 74 | 74 | 63 |
| Month | Maximum | | | | | Minimum | | Mean | | Run-off in acre-feet | | |
| October | 104 | | | | | 69 | | 75.1 | | 4,620 | | |
| November | 86 | | | | | 68 | | 74.5 | | 4,430 | | |
| December | 89 | | | | | 65 | | 70.9 | | 4,360 | | |
| January | 94 | | | | | 65 | | 71.5 | | 4,400 | | |
| February | 74 | | | | | 58 | | 64.0 | | 3,550 | | |
| March | 397 | | | | | 59 | | 116 | | 7,130 | | |
| April | 340 | | | | | 112 | | 177 | | 10,500 | | |
| May | 555 | | | | | 263 | | 357 | | 22,000 | | |
| June | 293 | | | | | 169 | | 226 | | 13,400 | | |
| July | 160 | | | | | 97 | | 118 | | 7,260 | | |
| August | 97 | | | | | 74 | | 84.3 | | 5,180 | | |
| September | 74 | | | | | 63 | | 66.7 | | 3,970 | | |
| The year | 555 | | | | | 58 | | 125 | | 90,800 | | |

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, 1929. Comparable records at station at Butte Falls, August, 1922, to March, 1925.

EXTREMES.—Maximum discharge during year, 520 second-feet Apr. 15 (gauge height, 1.55 feet); minimum, 61 second-feet Sept. 6 (gauge height, 0.48 foot). 1910-11, 1915, 1917-1929: Maximum discharge, 2,470 second-feet Feb. 20, 1927; minimum, 60 second-feet Aug. 16, 1926.

REMARKS.—Records good. Diversions for irrigation above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 78 | 83 | 83 | 104 | 272 | 101 | 178 | 330 | | 94 | 84 | 69 |
| 2..... | 78 | 82 | 82 | 223 | 272 | 106 | 166 | 324 | | 91 | 84 | 68 |
| 3..... | 83 | 80 | 80 | 242 | 272 | 111 | 166 | 319 | | 91 | 82 | 66 |
| 4..... | 102 | 80 | 78 | 166 | 313 | 114 | 188 | 351 | | 91 | 80 | 62 |
| 5..... | 112 | 80 | 78 | 142 | 287 | 126 | 178 | 351 | | 88 | 80 | 62 |
| 6..... | 104 | 87 | 78 | 123 | 257 | 132 | 166 | 308 | | 88 | 78 | 61 |
| 7..... | 100 | 80 | 78 | 117 | 233 | 132 | 170 | 287 | | 86 | 76 | 63 |
| 8..... | 97 | 80 | 78 | 109 | 267 | 132 | 178 | 272 | | 86 | 76 | 62 |
| 9..... | 92 | 82 | 78 | 106 | 257 | 135 | 166 | 262 | 145 | 86 | 76 | 65 |
| 10..... | 85 | 87 | 92 | 103 | 192 | 162 | 162 | 247 | | 88 | 78 | 66 |
| 11..... | 85 | 83 | 88 | 98 | 174 | 154 | 170 | 242 | | 88 | 76 | 68 |
| 12..... | 83 | 82 | 85 | 96 | 154 | 142 | 166 | 252 | | 88 | 76 | 71 |
| 13..... | 83 | 83 | 85 | 96 | 142 | 129 | 170 | 252 | | 86 | 76 | 74 |
| 14..... | 82 | 83 | 83 | 94 | 129 | 123 | 319 | 247 | | 86 | 76 | 74 |
| 15..... | 85 | 83 | 82 | 94 | 117 | 120 | 499 | 242 | | 84 | 78 | 73 |
| 16..... | 85 | 85 | 80 | 94 | 109 | 117 | 466 | 242 | | 84 | 78 | 71 |
| 17..... | 83 | 83 | 78 | 94 | 103 | 117 | 420 | 233 | 126 | 86 | 76 | 73 |
| 18..... | 82 | 82 | 76 | 98 | 94 | 117 | 301 | 228 | 123 | 86 | 74 | 71 |
| 19..... | 82 | 82 | 78 | 98 | 91 | 120 | 368 | 228 | 117 | 88 | 74 | 71 |
| 20..... | 80 | 80 | 76 | 86 | 94 | 132 | 357 | 233 | 114 | 86 | 74 | 71 |
| 21..... | 80 | 80 | 76 | 94 | 94 | 346 | 379 | 228 | 109 | 88 | 74 | 73 |
| 22..... | 82 | 80 | 76 | 96 | 94 | 397 | 428 | 228 | 111 | 86 | 76 | 71 |
| 23..... | 80 | 78 | 76 | 94 | 98 | 308 | 408 | 223 | 109 | 86 | 76 | 71 |
| 24..... | 80 | 78 | 83 | 96 | 98 | 302 | 391 | 214 | 103 | 86 | 76 | 73 |
| 25..... | 78 | 78 | 107 | 132 | 103 | 267 | 362 | 196 | 103 | 86 | 76 | 73 |
| 26..... | 78 | 80 | 97 | 196 | 98 | 196 | 346 | 183 | 101 | 86 | 76 | 71 |
| 27..... | 78 | 80 | 131 | 282 | 101 | 178 | 346 | 174 | 101 | 86 | 74 | 69 |
| 28..... | 78 | 80 | 126 | 282 | 101 | 200 | 362 | | 98 | 88 | 74 | 69 |
| 29..... | 80 | 78 | 131 | 262 | | 213 | 391 | | 96 | 88 | 74 | 68 |
| 30..... | 82 | 80 | 114 | 247 | | 200 | 351 | 168 | 94 | 86 | 73 | 68 |
| 31..... | 83 | | 104 | 262 | | 188 | | | | 86 | 71 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| October..... | 112 | 78 | 85.2 | 5,240 |
| November..... | 87 | 78 | 81.3 | 4,840 |
| December..... | 131 | 76 | 88.3 | 5,430 |
| January..... | 282 | 94 | 143 | 8,790 |
| February..... | 313 | 91 | 165 | 9,160 |
| March..... | 397 | 101 | 172 | 10,680 |
| April..... | 499 | 162 | 294 | 17,500 |
| May..... | 351 | | 244 | 15,000 |
| June..... | | 94 | 128 | 7,820 |
| July..... | 94 | 84 | 87.2 | 5,360 |
| August..... | 84 | 71 | 76.5 | 4,700 |
| September..... | 74 | 61 | 68.9 | 4,100 |
| The year..... | 499 | 61 | 136 | 98,300 |

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|----------------|------|------|------|------|------|---------|---------|------|------|----------------------|------|-------|-----|
| 1..... | 9.3 | 8.3 | 6.8 | 7.8 | | 15 | 9.1 | 27 | 50 | 14 | 10 | 10 | |
| 2..... | 9.5 | 7.7 | 6.7 | 12 | | | 9.7 | 30 | 48 | | | 9.9 | |
| 3..... | 10 | 8.1 | 6.5 | 40 | | | 9.7 | 32 | 44 | | | 9.7 | |
| 4..... | 11 | 7.9 | 6.4 | 25 | | | 11 | 33 | 42 | | | 9.7 | |
| 5..... | 10 | 7.5 | 6.3 | 19 | | | 14 | 34 | 40 | | | 9.5 | |
| 6..... | 9.9 | 7.9 | 6.2 | 20 | | 27 | 12 | 33 | 40 | 14 | 9.9 | 9.5 | |
| 7..... | 10 | 7.4 | 6.2 | | | | 12 | 33 | 38 | | | | 9.5 |
| 8..... | 9.9 | 7.4 | 6.1 | | | | 14 | 35 | 36 | | | | 9.1 |
| 9..... | 9.7 | 7.2 | 6.0 | 19 | | | 14 | 37 | 34 | | | | 9.1 |
| 10..... | 9.9 | 7.4 | 7.4 | | | | 12 | 11 | 38 | | | 33 | |
| 11..... | 9.9 | 7.2 | 17 | | 10 | 8.3 | 11 | 41 | 29 | | 10 | 9.5 | |
| 12..... | 9.5 | 7.2 | 18 | | | 18 | 7.9 | 11 | 44 | | | 27 | 9.5 |
| 13..... | 9.5 | 7.4 | 6.7 | | | 19 | 7.8 | 11 | 48 | | | 25 | 9.5 |
| 14..... | 9.3 | 7.4 | 6.0 | | | 20 | 7.8 | 12 | 56 | | | 24 | 9.5 |
| 15..... | 11 | 7.4 | | | | 21 | 7.8 | 12 | 61 | | | 24 | 9.9 |
| 16..... | 9.9 | 7.7 | | 21 | | 10 | 7.6 | 12 | 69 | 22 | 12 | 10 | |
| 17..... | 9.9 | 7.2 | | 18 | | | 7.6 | 12 | 72 | 22 | | 10 | |
| 18..... | 9.7 | 7.4 | | | | | 7.8 | 12 | 74 | 20 | | 10 | |
| 19..... | 9.7 | 6.8 | | | | | 7.8 | 12 | 83 | 19 | | 10 | |
| 20..... | 9.5 | 6.8 | 10 | | | | 8.5 | 12 | 89 | 18 | | 10 | |
| 21..... | 9.1 | 6.8 | | 10 | | 23 | 12 | 95 | 17 | | 10 | 9.7 | |
| 22..... | 8.9 | 6.8 | | | | 25 | 12 | 102 | 17 | | 10 | 9.5 | |
| 23..... | 8.9 | 6.8 | | | | 11 | 13 | 105 | 17 | | 9.9 | 9.5 | |
| 24..... | 8.7 | 8.1 | | | | 9.5 | 14 | 102 | 16 | | 10 | 9.5 | |
| 25..... | 8.5 | 6.8 | | | | 9.1 | 15 | 89 | 16 | | 10 | 9.1 | |
| 26..... | 8.3 | 6.8 | 21 | | | 9.3 | 17 | 80 | 15 | 10 | 11 | 9.1 | |
| 27..... | 7.9 | 6.8 | 26 | | | 10 | 18 | 69 | 15 | | 10 | 9.1 | |
| 28..... | 7.9 | 6.7 | 21 | | | 11 | 20 | 62 | 15 | | 10 | 9.1 | |
| 29..... | 8.1 | 6.7 | 12 | | | 12 | 26 | 58 | 15 | | 10 | 9.1 | |
| 30..... | 8.3 | 6.8 | 7.9 | | | 9.5 | 27 | 56 | 15 | | 19 | 9.1 | |
| 31..... | 7.9 | | 7.9 | | 10 | | 56 | | | 10 | | | |
| Month | | | | | | Maximum | Minimum | Mean | | Run-off in acre-feet | | | |
| October..... | | | | | | 11 | 7.9 | 9.34 | | 574 | | | |
| November..... | | | | | | 8.3 | 6.7 | 7.28 | | 433 | | | |
| December..... | | | | | | 26 | | 10.3 | | 633 | | | |
| January..... | | | | | | 40 | | 15.3 | | 941 | | | |
| February..... | | | | | | | | 10.0 | | 555 | | | |
| March..... | | | | | | 27 | 7.6 | 12.2 | | 750 | | | |
| April..... | | | | | | 27 | 9.1 | 13.6 | | 809 | | | |
| May..... | | | | | | 105 | 27 | 59.5 | | 3,660 | | | |
| June..... | | | | | | 50 | 15 | 26.4 | | 1,570 | | | |
| July..... | | | | | | | | 12.1 | | 744 | | | |
| August..... | | | | | | | | 10.0 | | 615 | | | |
| September..... | | | | | | 10 | 9.1 | 9.52 | | 566 | | | |
| The year..... | | | | | | 105 | | 16.4 | | 11,800 | | | |

121

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 29, T. 36 S., R. 2 E., one-fourth mile above intake of Rogue River Valley Canal and $1\frac{1}{2}$ miles southeast of Lakecreek.

EXTREMES.—Maximum discharge during year, 558 second-feet Jan. 2 (gage height, 2.97 feet); minimum, 9 second-feet Aug. 27 (gage height, 1.18 feet).

1910-1913, 1921-1929: Maximum discharge, 3,000 second-feet Dec. 30, 1924 (gage height, 5.25 feet); minimum, 5 second-feet Dec. 8, 1911; both maximum and minimum very uncertain.

REMARKS.—Records good. Discharge estimated Dec. 14, Jan. 11, 18, and 27. Divisions for irrigation above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 18 | 22 | 21 | 31 | 122 | 32 | 151 | 380 | 173 | 33 | 14 | 12 |
| 2 | 18 | 22 | 20 | 151 | 101 | 36 | 151 | 365 | 163 | 30 | 16 | 13 |
| 3 | 26 | 22 | 21 | 219 | 83 | 40 | 148 | 370 | 142 | 30 | 16 | 13 |
| 4 | 30 | 23 | 19 | 94 | 131 | 44 | 161 | 375 | 130 | 28 | 15 | 11 |
| 5 | 32 | 22 | 17 | 65 | 114 | 58 | 142 | 385 | 139 | 28 | 15 | 11 |
| 6 | 22 | 28 | 18 | 51 | 76 | 63 | 133 | 336 | 130 | 28 | 15 | 13 |
| 7 | 17 | 26 | 17 | 43 | 58 | 63 | 122 | 310 | 130 | 26 | 16 | 14 |
| 8 | 16 | 24 | 16 | 39 | 51 | 65 | 167 | 300 | 130 | 26 | 14 | 14 |
| 9 | 15 | 23 | 19 | 34 | 43 | 78 | 154 | 292 | 122 | 25 | 14 | 14 |
| 10 | 15 | 23 | 31 | 32 | 37 | 106 | 133 | 287 | 125 | 26 | 16 | 14 |
| 11 | 17 | 23 | 26 | 30 | 36 | 99 | 142 | 282 | 112 | 25 | 15 | 14 |
| 12 | 17 | 22 | 24 | 27 | 33 | 85 | 131 | 274 | 100 | 22 | 15 | 14 |
| 13 | 17 | 25 | 23 | 27 | 31 | 83 | 125 | 278 | 89 | 21 | 15 | 13 |
| 14 | 17 | 24 | 21 | 26 | 29 | 78 | 224 | 282 | 87 | 22 | 15 | 14 |
| 15 | 17 | 25 | 19 | 26 | 28 | 83 | 370 | 282 | 89 | 22 | 15 | 12 |
| 16 | 19 | 29 | 16 | 26 | 27 | 78 | 305 | 287 | 89 | 22 | 15 | 13 |
| 17 | 18 | 33 | 17 | 25 | 26 | 80 | 264 | 292 | 83 | 20 | 13 | 13 |
| 18 | 19 | 25 | 16 | 34 | 26 | 89 | 244 | 282 | 77 | 21 | 14 | 13 |
| 19 | 17 | 23 | 15 | 44 | 25 | 97 | 232 | 287 | 70 | 24 | 14 | 13 |
| 20 | 17 | 21 | 15 | 37 | 26 | 106 | 240 | 296 | 65 | 22 | 12 | 14 |
| 21 | 17 | 20 | 15 | 33 | 25 | 389 | 274 | 300 | 62 | 22 | 13 | 15 |
| 22 | 16 | 20 | 16 | 34 | 26 | 362 | 380 | 305 | 57 | 22 | 13 | 15 |
| 23 | 15 | 19 | 23 | 32 | 28 | 276 | 346 | 300 | 56 | 21 | 13 | 15 |
| 24 | 15 | 19 | 17 | 32 | 29 | 219 | 328 | 292 | 51 | 19 | 13 | 16 |
| 25 | 15 | 20 | 62 | 46 | 33 | 187 | 318 | 260 | 48 | 20 | 12 | 15 |
| 26 | 15 | 19 | 38 | 65 | 34 | 177 | 318 | 228 | 45 | 18 | 12 | 16 |
| 27 | 16 | 20 | 75 | 58 | 33 | 184 | 328 | 205 | 42 | 16 | 10 | 14 |
| 28 | 17 | 20 | 62 | 52 | 32 | 223 | 360 | 183 | 41 | 15 | 10 | 18 |
| 29 | 18 | 19 | 51 | 58 | 32 | 223 | 460 | 163 | 37 | 17 | 10 | 17 |
| 30 | 22 | 20 | 44 | 49 | 32 | 190 | 410 | 157 | 36 | 16 | 11 | 16 |
| 31 | 24 | 35 | 87 | 32 | 37 | 164 | 410 | 173 | 36 | 15 | 11 | 16 |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 32 | 15 | 18.5 | 1,140 |
| November | 33 | 19 | 22.7 | 1,360 |
| December | 75 | 15 | 26.7 | 1,640 |
| January | 219 | 25 | 51.8 | 3,190 |
| February | 131 | 25 | 48.0 | 2,670 |
| March | 389 | 32 | 131 | 8,060 |
| April | 460 | 122 | 242 | 14,400 |
| May | 385 | 157 | 264 | 17,500 |
| June | 173 | 36 | 90.7 | 5,400 |
| July | 33 | 15 | 22.6 | 1,390 |
| August | 16 | 10 | 13.6 | 836 |
| September | 18 | 11 | 14.0 | 833 |
| The year | 460 | 10 | 80.6 | 58,400 |

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, 1929.

EXTREMES.—Maximum elevation during year, 4,825.63 feet June 20 and 21 (contents, 7,376 acre-feet); minimum, 4,802.36 feet Sept. 8 (contents, 238 acre-feet).

1915-1929: Maximum elevation, 4,826.00 feet June 2-5, 1928 (contents, 7,527 acre-feet); minimum contents, practically zero.

REMARKS.—Water is diverted during summer from Fourmile Lake in Klamath River Basin through Cascade Canal into Fish Lake. Records furnished by State engineer of Oregon.

Monthly stage and contents of Fish Lake Reservoir near Lakecreek, Oreg., 1928-29

| Date | Gage height | Contents | Gain or loss during month | Date | Gage height | Contents | Gain or loss during month |
|--------------|-------------|------------------|---------------------------|---------------|-------------|------------------|---------------------------|
| | <i>Feet</i> | <i>Acre-feet</i> | <i>Acre-feet</i> | | <i>Feet</i> | <i>Acre-feet</i> | <i>Acre-feet</i> |
| Oct. 31..... | 4,816.72 | 4,080 | +972 | May 31..... | 4,824.99 | 7,120 | +1,114 |
| Nov. 30..... | 4,818.55 | 4,710 | +630 | June 30..... | 4,824.25 | 6,826 | -294 |
| Dec. 31..... | 4,819.84 | 5,164 | +454 | July 31..... | 4,810.96 | 2,261 | -4,565 |
| Jan. 31..... | 4,820.95 | 5,568 | +404 | Aug. 31..... | 4,802.45 | 250 | -2,011 |
| Feb. 28..... | 4,821.10 | 5,624 | +56 | Sept. 30..... | 4,804.61 | 612 | +362 |
| Mar. 31..... | 4,821.57 | 5,798 | +174 | | | | |
| Apr. 30..... | 4,822.12 | 6,006 | +208 | The year..... | | | -2,496 |

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, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 138 second-feet July 19 (gage height, 3.57 feet); minimum, 9 second-feet Oct. 4.

1914-1929: Maximum discharge, 153 second-feet Aug. 25, 1927; creek bed practically dry at times.

REMARKS.—Records fair, October to April; good, May to September. Flow regulated by storage in Fish Lake Reservoir. Cascade Canal diverts water from Fourmile Lake in Klamath River Basin into Fish Lake Basin; no diversions from creek above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----------|------|------|------|------|------|------|---------|---------|------|----------------------|------|-------|
| 1 | 19 | 12 | 12 | 13 | 15 | 15 | •15 | 18 | •24 | 89 | 110 | 59 |
| 2 | 14 | 12 | 12 | 14 | 15 | 15 | •15 | 18 | 24 | 91 | 107 | 60 |
| 3 | 15 | 12 | 12 | 14 | 15 | 15 | 15 | 18 | 25 | 103 | 105 | •60 |
| 4 | 12 | | | 14 | 15 | 15 | 16 | 19 | 24 | 110 | 102 | 60 |
| 5 | 9 | | | 14 | 15 | 15 | 15 | 19 | 24 | 114 | 94 | 62 |
| 6 | 10 | •12 | •12 | 14 | 15 | 15 | 14 | 18 | 24 | 122 | 89 | 64 |
| 7 | 14 | | | 15 | 14 | 15 | 17 | 24 | 128 | 87 | 64 | |
| 8 | 14 | | | 15 | 14 | 16 | 17 | 25 | 124 | 101 | 64 | |
| 9 | •10 | | | 14 | 15 | 15 | 16 | 18 | 25 | 119 | 106 | 53 |
| 10 | | 12 | 12 | 14 | 15 | 15 | 16 | 19 | 24 | 128 | 104 | 50 |
| •11 | | | | 14 | 15 | 15 | 17 | 19 | 24 | 134 | 102 | 52 |
| 12 | 10 | 12 | 13 | 14 | 15 | 15 | 17 | 20 | 24 | 129 | 99 | 46 |
| 13 | 10 | 12 | 13 | 14 | 15 | 15 | 17 | 20 | 24 | 130 | 95 | 46 |
| 14 | 10 | 12 | 13 | 14 | 15 | 15 | 17 | 19 | 24 | 129 | 97 | 48 |
| 15 | 10 | 12 | 13 | 14 | 15 | 15 | 17 | 20 | 24 | 129 | 102 | 48 |
| 16 | 10 | 12 | 13 | 14 | 15 | 15 | 17 | 21 | 25 | 124 | 101 | 50 |
| 17 | 11 | 12 | 14 | 14 | 15 | •15 | 17 | 21 | 24 | 125 | 101 | 46 |
| 18 | 11 | 12 | 14 | 15 | 15 | •15 | 18 | 22 | 25 | 128 | 98 | 40 |
| 19 | 11 | 12 | 14 | 15 | 15 | •15 | 18 | 23 | 25 | 137 | 96 | 42 |
| 20 | 11 | 12 | 14 | 15 | 15 | •15 | 18 | 23 | 26 | 135 | 96 | 44 |
| 21 | 11 | 12 | 14 | 15 | 15 | 15 | 17 | 23 | 29 | 132 | 94 | 45 |
| 22 | 11 | 12 | 14 | 15 | 15 | 15 | 16 | 24 | 30 | 130 | 89 | 46 |
| 23 | 11 | •12 | 14 | 15 | 15 | 15 | 16 | 24 | 38 | 129 | 92 | 47 |
| 24 | 14 | | 15 | 15 | 15 | 16 | 23 | 45 | 125 | •85 | 48 | |
| 25 | 14 | | 15 | 15 | 14 | 16 | 23 | 45 | 126 | •79 | 42 | |
| 26 | | | 14 | 15 | 15 | 14 | 17 | 23 | 50 | 129 | 73 | 38 |
| 27 | •12 | | 14 | 15 | 15 | 14 | 17 | | 66 | 130 | 68 | •81 |
| 28 | | 12 | •14 | 15 | 15 | 14 | 17 | | 79 | 130 | 66 | 24 |
| 29 | | 12 | •14 | 15 | | 15 | 17 | •24 | 88 | 122 | 63 | 24 |
| 30 | | 12 | •13 | 15 | | 15 | 18 | | 89 | 116 | 61 | 25 |
| 31 | | | | 13 | 15 | | 15 | | | | •113 | 59 |
| Month | | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | |
| October | 19 | | | | | | 19 | 9 | 11.3 | 695 | | |
| November | 12 | | | | | | 12 | 12 | 12.0 | 714 | | |
| December | 14 | | | | | | 12 | 12 | 13.1 | 806 | | |
| January | 15 | | | | | | 13 | 13 | 14.4 | 885 | | |
| February | 15 | | | | | | 15 | 15 | 15.0 | 843 | | |
| March | 15 | | | | | | 14 | 14 | 14.8 | 910 | | |
| April | 18 | | | | | | 14 | 14 | 16.4 | 976 | | |
| May | 24 | | | | | | 17 | 17 | 20.9 | 1,200 | | |
| June | 59 | | | | | | 24 | 24 | 34.9 | 2,080 | | |
| July | 137 | | | | | | 89 | 89 | 123 | 7,500 | | |
| August | 110 | | | | | | 59 | 59 | 91.0 | 5,600 | | |
| September | 64 | | | | | | 24 | 24 | 47.6 | 2,830 | | |
| The year | 137 | | | | | | 9 | 9 | 34.8 | 25,200 | | |

• 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 above Lakecreek.

RECORDS AVAILABLE.—April, 1916, to September, 1919, incomplete; April, 1921, to September, 1929.

EXTREMES.—Maximum discharge during year, 288 second-feet Apr. 14 (gage height, 2.30 feet); minimum, 19 second-feet Sept. 30 (gage height, 0.83 foot).

1916-1919, 1921-1929: Maximum discharge, 1,560 second-feet Dec. 30, 1924 (gage height, 5.42 feet); minimum, 7.3 second-feet Oct. 14, 1926.

REMARKS.—Records good except those for estimated periods (Dec. 25 to Jan. 15, Jan. 18, and June 20), which are fair. Flow regulated by storage in Fish Lake Reservoir. Diversions for irrigation above gage. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 36 | 35 | 37 | | 76 | 41 | 71 | 101 | 59 | 96 | 110 | 64 |
| 2..... | 30 | 37 | 36 | | 60 | 44 | 66 | 101 | 58 | 103 | 107 | 62 |
| 3..... | 32 | 36 | 36 | | 57 | 46 | 66 | 100 | 48 | 110 | 114 | 62 |
| 4..... | 51 | 36 | 35 | | 111 | 48 | 71 | 94 | 48 | 119 | 109 | 59 |
| 5..... | 44 | 37 | 34 | | 72 | 51 | 82 | 91 | 60 | 118 | 103 | 62 |
| 6..... | 31 | 41 | 34 | | 56 | 52 | 76 | 85 | 64 | 128 | 94 | 60 |
| 7..... | 29 | 36 | 34 | | 60 | 52 | 80 | 76 | 52 | 132 | 89 | 59 |
| 8..... | 29 | 35 | 35 | 47 | 60 | 52 | 135 | 72 | 56 | 125 | 92 | 60 |
| 9..... | 29 | 36 | 38 | | 42 | 57 | 99 | 68 | 54 | 123 | 100 | 56 |
| 10..... | 29 | 39 | 63 | | 41 | 62 | 80 | 68 | 54 | 125 | 96 | 54 |
| 11..... | 29 | 37 | 44 | | 42 | 60 | 93 | 65 | 53 | 128 | 98 | 58 |
| 12..... | 29 | 36 | 38 | | 39 | 56 | 82 | 60 | 42 | 128 | 98 | 50 |
| 13..... | 31 | 37 | 38 | | 39 | 56 | 83 | 60 | 40 | 127 | 96 | 40 |
| 14..... | 30 | 38 | 38 | | 38 | 53 | 177 | 60 | 38 | 127 | 101 | 43 |
| 15..... | 31 | 37 | 38 | | 38 | 51 | 160 | 62 | 47 | 125 | 109 | 47 |
| 16..... | 31 | 41 | 37 | 39 | 38 | 51 | 138 | 67 | 43 | 119 | 94 | 46 |
| 17..... | 30 | 36 | 37 | 39 | 38 | 50 | 119 | 64 | 44 | 119 | 89 | 44 |
| 18..... | 30 | 35 | 36 | 39 | 38 | 51 | 112 | 60 | 39 | 119 | 92 | 39 |
| 19..... | 29 | 34 | 36 | 48 | 37 | 52 | 107 | 62 | 34 | 134 | 91 | 40 |
| 20..... | 29 | 34 | 36 | 45 | 37 | 58 | 101 | 56 | 36 | 136 | 87 | 40 |
| 21..... | 29 | 34 | 39 | 37 | 37 | 166 | 128 | 58 | 38 | 132 | 91 | 38 |
| 22..... | 29 | 34 | 36 | 44 | 38 | 154 | 195 | 54 | 38 | 128 | 87 | 40 |
| 23..... | 29 | 34 | 36 | 38 | 40 | 115 | 142 | 54 | 58 | 127 | 89 | 43 |
| 24..... | 30 | 34 | 39 | 40 | 41 | 93 | 127 | 52 | 62 | 127 | 89 | 46 |
| 25..... | 30 | 34 | | 58 | 44 | 82 | 119 | 50 | 58 | 127 | 85 | 42 |
| 26..... | 30 | 34 | | 70 | 42 | 77 | 112 | 52 | 62 | 125 | 78 | 34 |
| 27..... | 31 | 38 | | 70 | 41 | 77 | 107 | 48 | 78 | 123 | 73 | 32 |
| 28..... | 31 | 35 | 50 | 48 | 41 | 94 | 114 | 52 | 91 | 123 | 76 | 30 |
| 29..... | 34 | 35 | | 57 | | 96 | 118 | 48 | 100 | 123 | 62 | 38 |
| 30..... | 35 | 38 | | 48 | | 85 | 109 | 48 | 100 | 118 | 58 | 29 |
| 31..... | 34 | | | 76 | | 76 | | 64 | | 116 | 62 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|-------------------------|
| October..... | 44 | 29 | 31.6 | 1,940 |
| November..... | 41 | 34 | 36.1 | 2,150 |
| December..... | 63 | 34 | 39.0 | 2,400 |
| January..... | 76 | 37 | 48.4 | 2,980 |
| February..... | 111 | 37 | 48.0 | 2,670 |
| March..... | 166 | 41 | 69.6 | 4,280 |
| April..... | 195 | 66 | 109.6 | 6,490 |
| May..... | 101 | 48 | 66.2 | 4,070 |
| June..... | 100 | 34 | 55.1 | 3,280 |
| July..... | 136 | 96 | 123 | 7,560 |
| August..... | 114 | 58 | 90.9 | 5,590 |
| September..... | 64 | 29 | 47.2 | 2,810 |
| The year..... | 195 | 29 | 63.8 | 46,200 |

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 available from April to September, 1929; records for some of the canals published separately prior to 1929.

Records furnished by State engineer of Oregon.

Monthly diversions, in acre-feet, from Little Butte Creek near Lakecreek, Oreg., 1929

| Month | Hanley South Canal | Hanley North Canal | Rogue River Valley Canal below Junction of intakes | Eagle Point Canal |
|-----------------|--------------------|--------------------|----------------------------------------------------|-------------------|
| April..... | | | 1,920 | |
| May..... | | | 6,640 | |
| June..... | 595 | 934 | 6,490 | 787 |
| July..... | 571 | 756 | 8,920 | 1,100 |
| August..... | 567 | 861 | 6,120 | 928 |
| September..... | 535 | 762 | 3,100 | 861 |
| The period..... | 2,270 | 3,310 | 33,200 | 3,680 |

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, 1929.

EXTREMES.—Maximum elevation during year, 2,173.4 feet May 2 (contents, 8,318 acre-feet); minimum (estimated), 440 acre-feet Sept. 30.

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 691. Records furnished by State engineer of Oregon.

Monthly stage and contents of Emigrant Gap Reservoir, 1928-29

| Date | Gage height | Contents | Gain or loss during month | Date | Gage height | Contents | Gain or loss during month |
|--------------|-------------|-----------|---------------------------|---------------|-------------|-----------|---------------------------|
| | Feet | Acre-feet | Acre-feet | | Feet | Acre-feet | Acre-feet |
| Oct. 31..... | | 540 | +41 | May 31..... | 2,168.2 | 7,158 | -1,066 |
| Nov. 30..... | | *684 | +144 | June 30..... | 2,165.4 | 6,586 | -572 |
| Dec. 31..... | 2,120.3 | 1,231 | +547 | July..... | 2,129.7 | 1,890 | -4,396 |
| Jan. 31..... | | *2,525 | +1,094 | Aug. 31..... | 2,107.7 | 628 | -1,261 |
| Feb. 28..... | | *8,260 | +935 | Sept. 30..... | | *440 | -159 |
| Mar. 31..... | 2,166.5 | 6,506 | +3,546 | | | | |
| Apr. 30..... | 2,178.0 | 8,224 | +1,418 | The year..... | | | -59 |

* Interpolated.

EMIGRANT CREEK NEAR ASHLAND, OREG.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ 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 September, 1929, incomplete.

EXTREMES.—Maximum discharge during year, 1,060 second-feet Apr. 15 (gage height, 4.10 feet); creek practically dry Oct. 1 to Apr. 14 and Sept. 16–30.

1920–1929: Maximum discharge, 5,260 second-feet Feb. 20, 1927; no flow at times.

REMARKS.—Records good. 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 by storage in Emigrant Gap Reservoir. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet 1928–29

| Day | Apr. | May | June | July | Aug. | Sept. | Day | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-----|------|------|------|-------|---------|------|-----|------|------|------|-------|
| 1..... | 0 | 28 | 1.0 | 40 | 31 | 16 | 16..... | 124 | 3.8 | 1.1 | 42 | 29 | 0 |
| 2..... | 0 | 44 | .9 | 42 | 33 | 16 | 17..... | 81 | 3.6 | 1.2 | 42 | 23 | 0 |
| 3..... | 0 | 45 | 1.0 | 40 | 34 | 14 | 18..... | 39 | 16 | 1.2 | 42 | 22 | 0 |
| 4..... | 0 | 41 | 1.4 | 39 | 32 | 11 | 19..... | 49 | 16 | 1.0 | 39 | 18 | 0 |
| 5..... | 0 | 42 | 1.6 | 42 | 30 | 11 | 20..... | 45 | 17 | .8 | 34 | 16 | 0 |
| 6..... | 0 | 40 | 1.7 | 41 | 30 | 11 | 21..... | 48 | 23 | .7 | 31 | 16 | 0 |
| 7..... | 0 | 31 | 1.7 | 38 | 29 | 11 | 22..... | 80 | 32 | .6 | 30 | 15 | 0 |
| 8..... | 0 | 19 | 1.8 | 39 | 29 | 11 | 23..... | 89 | 31 | 1.0 | 30 | 15 | 0 |
| 9..... | 0 | 17 | 1.8 | 40 | 28 | 11 | 24..... | 98 | 25 | .6 | 30 | 16 | 0 |
| 10..... | 0 | 19 | 1.3 | 36 | 29 | 11 | 25..... | 81 | 14 | 2.6 | 30 | 16 | 0 |
| 11..... | 0 | 17 | 1.0 | 40 | 29 | 10 | 26..... | 38 | 7.9 | 15 | 29 | 16 | 0 |
| 12..... | 0 | 16 | .7 | 38 | 31 | 9 | 27..... | 29 | 2.2 | 25 | 29 | 16 | 0 |
| 13..... | 0 | 16 | .5 | 40 | 30 | 9.0 | 28..... | 48 | .7 | 33 | 29 | 16 | 0 |
| 14..... | 0 | 16 | .7 | 41 | 29 | 7.9 | 29..... | 65 | .6 | 36 | 29 | 16 | 0 |
| 15..... | 115 | 8.4 | .9 | 40 | 31 | 2.5 | 30..... | 23 | .9 | 40 | 29 | 16 | 0 |
| | | | | | | | 31..... | | 1.0 | | 31 | 16 | 0 |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|-------------------------|
| April..... | 124 | 0 | 35.1 | 2,090 |
| May..... | 45 | .6 | 19.2 | 1,180 |
| June..... | 40 | .5 | 5.93 | 1,353 |
| July..... | 42 | 29 | 36.2 | 2,230 |
| August..... | 34 | 15 | 23.8 | 1,460 |
| September..... | 16 | 0 | 5.38 | 320 |
| The year..... | | | | 7,630 |

NOTE.—No flow October to March.

BEAR CREEK AT MEDFORD, OREG.

LOCATION.—Water-stage recorder in NW. ¼ sec. 30, T. 37 S., R. 1 W., just above Main Street Bridge in Medford.

RECORDS AVAILABLE.—March, 1915, to September, 1929; incomplete.

EXTREMES.—Maximum discharge during year, about 1,100 second-feet Apr. 15 (gage height, not recorded); minimum, 6 second-feet Aug. 10 (gage height, 0.25 foot).

1915-1929: Maximum discharge, 10,200 second-feet Feb. 20, 1927 (gage height, 10.15 feet); practically dry at times.

REMARKS.—Records good except those estimated, which are fair. Diversions for irrigation above station. Flow partly regulated by storage in Emigrant Gap Reservoir. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|---------|------|------|------|------|---------|------|-----|------|------|----------------------|-------|
| 1..... | 19 | 26 | 21 | 51 | 65 | 37 | 73 | 102 | 47 | 18 | 12 | 12 |
| 2..... | 20 | 25 | 20 | 56 | 67 | 39 | 67 | 113 | 53 | 16 | 11 | 13 |
| 3..... | 22 | 25 | 19 | 155 | 64 | 43 | 64 | 113 | 56 | 13 | 12 | 13 |
| 4..... | 27 | 30 | 19 | 96 | 99 | 48 | 66 | 113 | 64 | 12 | 12 | 14 |
| 5..... | 37 | 27 | 19 | 76 | 101 | 56 | 65 | 126 | | 13 | 12 | 13 |
| 6..... | 36 | 32 | 18 | 65 | 75 | 63 | 60 | 133 | | 14 | 12 | 12 |
| 7..... | *32 | 33 | 18 | 55 | 53 | 62 | 55 | 119 | | 14 | 12 | 14 |
| 8..... | 27 | 31 | 18 | 52 | 49 | 57 | 60 | | | 16 | 9 | 13 |
| 9..... | 26 | 27 | 18 | 49 | 50 | 58 | 62 | | | 13 | 8 | 11 |
| 10..... | 27 | 24 | 40 | 47 | 48 | 88 | 64 | *75 | *110 | 14 | 8 | 12 |
| 11..... | 28 | 25 | 46 | 45 | 46 | 79 | 61 | | | 15 | 10 | 11 |
| 12..... | 28 | 25 | 32 | 43 | 44 | 67 | 62 | 57 | | 16 | 11 | 10 |
| 13..... | 27 | 28 | 29 | 43 | 45 | 64 | 55 | 58 | | 16 | 11 | 9 |
| 14..... | 26 | 27 | 26 | 42 | 43 | 63 | 61 | 53 | | 16 | 11 | 10 |
| 15..... | 28 | 28 | 25 | 42 | 44 | 62 | | 43 | 94 | 16 | 11 | 10 |
| 16..... | 29 | 28 | 24 | 41 | 42 | 60 | | 31 | | 15 | 12 | 10 |
| 17..... | 30 | 32 | 22 | 39 | 42 | 57 | | 26 | | 16 | 10 | 11 |
| 18..... | 29 | 30 | 22 | 42 | 40 | 58 | *170 | 22 | *75 | 14 | 11 | 11 |
| 19..... | 29 | 28 | 22 | 47 | 36 | 61 | | 18 | | 14 | 13 | 12 |
| 20..... | 28 | 28 | 21 | 40 | 36 | 62 | | 22 | | 14 | 14 | 14 |
| 21..... | *25 | 26 | 20 | 36 | 36 | 194 | | 20 | 46 | 13 | 14 | 14 |
| 22..... | 22 | 26 | 20 | 40 | 37 | 182 | 153 | 17 | 44 | 13 | 12 | 14 |
| 23..... | 22 | 25 | 20 | 44 | 38 | 140 | 190 | 33 | 40 | 13 | 13 | 14 |
| 24..... | 22 | 24 | 22 | 40 | 39 | 113 | 180 | 54 | 22 | 13 | 13 | 14 |
| 25..... | 23 | 22 | 127 | 42 | 39 | 96 | 175 | 49 | 12 | 13 | 13 | 16 |
| 26..... | 24 | 20 | 63 | 44 | 39 | 103 | 151 | 49 | 12 | 12 | 13 | 20 |
| 27..... | 23 | 20 | 61 | 47 | 37 | 105 | 106 | 55 | 12 | 12 | 13 | 17 |
| 28..... | 23 | 20 | 79 | 50 | 38 | 112 | 116 | 50 | 12 | 12 | 12 | 16 |
| 29..... | 25 | 20 | 71 | 49 | | 110 | 166 | 47 | 13 | 14 | 10 | 16 |
| 30..... | 34 | 20 | 65 | 48 | | 87 | 138 | 47 | 14 | 12 | 12 | 16 |
| 31..... | 29 | | 54 | 49 | | 79 | | 50 | | 13 | 11 | |
| Month | Maximum | | | | | Minimum | | | Mean | | Run-off in acre-feet | |
| October..... | 37 | | | | | 19 | | | 26.7 | | 1,640 | |
| November..... | 33 | | | | | 20 | | | 26.1 | | 1,560 | |
| December..... | 127 | | | | | 18 | | | 34.9 | | 2,150 | |
| January..... | 155 | | | | | 36 | | | 52.1 | | 3,200 | |
| February..... | 101 | | | | | 36 | | | 49.7 | | 2,760 | |
| March..... | 194 | | | | | 37 | | | 80.8 | | 4,970 | |
| April..... | | | | | | 55 | | | 115 | | 6,840 | |
| May..... | 133 | | | | | 17 | | | 61.9 | | 3,810 | |
| June..... | | | | | | 12 | | | 67.2 | | 4,000 | |
| July..... | 18 | | | | | 12 | | | 14.0 | | 861 | |
| August..... | 14 | | | | | 8 | | | 11.5 | | 707 | |
| September..... | 20 | | | | | 9 | | | 13.1 | | 780 | |
| The year..... | | | | | | 8 | | | 45.9 | | 33,300 | |

* Estimated.

DIVERSIONS IN BEAR CREEK BASIN, OREG.

Ashland lateral of Talent Irrigation District diverts water from Sampson Creek in SW. $\frac{1}{4}$ 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 water from Emigrant Gap Reservoir in SE. $\frac{1}{4}$ 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 water from Bear Creek in SW. $\frac{1}{4}$ sec. 33, T. 38 S., R. 1 E., for irrigation of lands near Talent. Phoenix Canal diverts water from Bear Creek in NW. $\frac{1}{4}$ 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 water 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 to September, 1929; published separately for each canal prior to 1929.

Records furnished by State engineer of Oregon.

Monthly diversions, in acre-feet, in Bear Creek Basin, Oreg., 1929

| Month | Ashland lateral | East lateral | Talent lateral | Phoenix Canal | Bear Creek Canal |
|-----------------|-----------------|--------------|----------------|---------------|------------------|
| April..... | | 30 | | 780 | |
| May..... | 478 | 1,350 | 1,490 | 885 | |
| June..... | 505 | 1,120 | 1,800 | 294 | 278 |
| July..... | 1,190 | 3,380 | 2,630 | 621 | 676 |
| August..... | 953 | 2,620 | 1,760 | 354 | 572 |
| September..... | 477 | 583 | 541 | 364 | 565 |
| The period..... | 3,600 | 9,080 | 7,720 | 3,520 | 2,090 |

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

WEST FORK OF ASHLAND CREEK NEAR ASHLAND, OREG.

LOCATION.—Water-stage recorder in sec. 32, T. 39 S., R. 1 E., three-fourths mile above confluence with East Fork and 4 miles south of Ashland.

DRAINAGE AREA.—0.4 square miles.

RECORDS AVAILABLE.—September, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, 28 second-feet Mar. 21 (gage height, 1.28 feet); minimum, 1.9 second-feet Sept. 15 (gage height, 0.46 foot).

1924-1929: Maximum discharge, 281 second-feet Feb. 20, 1927 (gage height, 3.15 feet); minimum, 1.4 second-feet Sept. 12, 1924, and Aug. 1, 1926.

REMARKS.—Records good. Discharge estimated Jan. 20-22, and Feb. 7-15. No diversions or regulation above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 2.7 | 3.5 | 3.3 | 4.8 | 3.5 | 3.4 | 10 | 14 | 18 | 11 | 3.3 | 2.6 |
| 2..... | 3.4 | 3.7 | 3.3 | 5.3 | 3.5 | 3.5 | 9.8 | 15 | 18 | 11 | 3.1 | 2.6 |
| 3..... | 3.5 | 6.7 | 3.3 | 5.8 | 3.8 | 3.8 | 9.5 | 16 | 18 | 10 | 3.1 | 2.6 |
| 4..... | 4.4 | 4.1 | 3.3 | 5.0 | 4.3 | 4.8 | 9.5 | 14 | 18 | 9.5 | 3.1 | 2.6 |
| 5..... | 4.1 | 3.8 | 3.1 | 4.8 | 4.3 | 5.8 | 8.9 | 14 | 20 | 9.2 | 3.0 | 2.5 |
| 6..... | 3.0 | 5.1 | 3.0 | 4.4 | 3.8 | 5.5 | 8.3 | 13 | 19 | 8.9 | 3.0 | 2.5 |
| 7..... | 2.8 | 3.8 | 3.0 | 4.4 | | 5.5 | 8.0 | 13 | 17 | 8.3 | 3.0 | 2.3 |
| 8..... | 2.7 | 3.5 | 3.0 | 4.3 | | 5.6 | 8.0 | 14 | 16 | 7.8 | 3.0 | 2.2 |
| 9..... | 2.7 | 3.8 | 3.0 | 4.0 | | 9.8 | 7.6 | 14 | 17 | 7.3 | 2.8 | 2.3 |
| 10..... | 2.7 | 4.8 | 5.3 | 4.0 | | 13 | 7.1 | 13 | 19 | 7.1 | 2.8 | 2.3 |
| 11..... | 2.7 | 4.0 | 4.0 | 3.8 | 4.2 | 10 | 6.7 | 15 | 18 | 6.9 | 3.0 | 2.2 |
| 12..... | 2.7 | 4.1 | 3.7 | 3.8 | | 8.3 | 6.5 | 15 | 17 | 6.5 | 2.8 | 2.3 |
| 13..... | 2.7 | 4.1 | 3.5 | 4.1 | | 7.3 | 6.5 | 16 | 17 | 6.2 | 2.8 | 2.3 |
| 14..... | 2.7 | 3.8 | 3.5 | 4.1 | | 6.7 | 7.8 | 16 | 18 | 5.8 | 2.7 | 2.1 |
| 15..... | 3.1 | 3.8 | 3.0 | 4.1 | | 6.2 | 9.8 | 17 | 20 | 5.6 | 2.7 | 2.1 |
| 16..... | 3.1 | 5.8 | 4.3 | 4.0 | 4.6 | 5.8 | 9.8 | 17 | 18 | 5.6 | 2.7 | 2.1 |
| 17..... | 3.0 | 4.4 | 3.3 | 3.7 | 4.0 | 5.8 | 9.5 | 17 | 18 | 5.3 | 2.6 | 2.1 |
| 18..... | 2.8 | 3.8 | 3.7 | 3.8 | 3.8 | 6.2 | 9.5 | 18 | 17 | 5.3 | 2.6 | 2.1 |
| 19..... | 2.7 | 3.7 | 3.1 | 3.7 | 3.7 | 6.2 | 9.5 | 19 | 16 | 5.3 | 2.5 | 2.2 |
| 20..... | 2.7 | 3.5 | 3.1 | 3.7 | 3.5 | 8.6 | 9.2 | 20 | 16 | 4.8 | 2.5 | 2.2 |
| 21..... | 2.7 | 3.7 | 3.0 | 3.6 | 3.4 | 22 | 9.8 | 22 | 15 | 4.4 | 2.5 | 2.3 |
| 22..... | 2.7 | 3.7 | 3.0 | 3.5 | 3.3 | 16 | 11 | 24 | 15 | 4.4 | 2.5 | 2.5 |
| 23..... | 2.7 | 3.4 | 3.1 | 3.4 | 3.1 | 13 | 11 | 24 | 14 | 4.1 | 2.6 | 2.5 |
| 24..... | 2.6 | 3.3 | 3.7 | 3.4 | 3.1 | 12 | 11 | 24 | 14 | 4.0 | 2.6 | 2.5 |
| 25..... | 2.6 | 3.3 | 3.8 | 3.8 | 3.1 | 10 | 12 | 22 | 14 | 4.0 | 2.6 | 2.5 |
| 26..... | 2.5 | 3.8 | 4.8 | 3.3 | 3.1 | 9.8 | 12 | 20 | 13 | 3.5 | 2.5 | 2.6 |
| 27..... | 2.5 | 3.3 | 6.9 | 3.3 | 3.1 | 10 | 14 | 20 | 13 | 3.7 | 2.5 | 2.5 |
| 28..... | 2.5 | 3.3 | 5.8 | 3.1 | 3.1 | 12 | 15 | 19 | 13 | 3.4 | 2.5 | 2.5 |
| 29..... | 3.5 | 3.3 | 5.5 | 3.1 | | 12 | 14 | 18 | 12 | 3.4 | 2.5 | 2.5 |
| 30..... | 3.7 | 3.3 | 5.1 | 3.1 | | 11 | 14 | 18 | 12 | 3.4 | 2.5 | 2.5 |
| 31..... | 3.3 | | 4.8 | 3.4 | | 10 | | 18 | | 3.3 | 2.5 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|-------------------------|
| October..... | 4.4 | 2.5 | 2.95 | 181 |
| November..... | 6.7 | 3.3 | 3.92 | 233 |
| December..... | 6.9 | 3.0 | 3.82 | 235 |
| January..... | 5.8 | 3.1 | 3.94 | 242 |
| February..... | 4.6 | 3.1 | 3.78 | 210 |
| March..... | 22 | 3.4 | 8.70 | 535 |
| April..... | 15 | 7.1 | 9.84 | 586 |
| May..... | 24 | 13 | 17.4 | 1,070 |
| June..... | 20 | 12 | 16.3 | 970 |
| July..... | 11 | 3.3 | 6.10 | 375 |
| August..... | 3.3 | 2.5 | 2.74 | 169 |
| September..... | 2.6 | 2.1 | 2.37 | 141 |
| The year..... | 24 | 2.1 | 6.83 | 4,950 |

EAST FORK OF ASHLAND CREEK NEAR ASHLAND, OREG.

LOCATION.—Water-stage recorder in sec. 28, T. 39 S., R. 1 E., one-fourth mile above confluence with West Fork, 100 yards above diversion for power plant, and $3\frac{1}{2}$ miles south of Ashland.

DRAINAGE AREA.—7.8 square miles.

RECORDS AVAILABLE.—September, 1924, to September, 1929.

EXTREMES.—Maximum discharge during year, 31 second-feet May 23 (gauge height, 1.29 feet); minimum, 2.1 second-feet Dec. 21, 22, Sept. 13, and 14. 1924-1929: Maximum discharge, 292 second-feet Feb. 20, 1927 (gauge height, 3.5 feet); minimum, 1.3 second-feet Aug. 25, 1926.

REMARKS.—Records good. No regulation or diversions above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 2.3 | 3.6 | 2.9 | 3.5 | 2.9 | 2.8 | 6.5 | 16 | 19 | 14 | 3.3 | 2.4 |
| 2 | 3.0 | 3.5 | 2.8 | 3.8 | 2.9 | 2.8 | 6.5 | 17 | 19 | 14 | 3.0 | 2.4 |
| 3 | 3.2 | 5.3 | 2.8 | 4.5 | 3.2 | 3.0 | 6.2 | 17 | 19 | 13 | 2.8 | 2.4 |
| 4 | 4.5 | 3.8 | 2.6 | 3.8 | 3.8 | 3.5 | 6.5 | 16 | 19 | 12 | 2.8 | 2.4 |
| 5 | 3.6 | 3.4 | 2.6 | 3.5 | 3.6 | 4.2 | 5.9 | 16 | 20 | 11 | 2.7 | 2.4 |
| 6 | 2.4 | 4.8 | 2.4 | 3.4 | 3.6 | 4.2 | 6.2 | 15 | 22 | 11 | 2.7 | 2.4 |
| 7 | 2.3 | 3.4 | 2.3 | 3.2 | | 4.0 | 5.6 | 14 | 19 | 11 | 2.7 | 2.4 |
| 8 | 2.3 | 3.2 | 2.3 | 3.2 | | 4.0 | 5.3 | 15 | 19 | 10 | 2.7 | 2.4 |
| 9 | 2.2 | 3.6 | 2.3 | 2.9 | | 8.9 | 4.8 | 14 | 19 | 10 | 2.8 | 2.4 |
| 10 | 2.3 | 5.5 | 3.6 | 2.9 | | 12 | 4.3 | 14 | 20 | 9.9 | 2.7 | 2.3 |
| 11 | 2.4 | 3.5 | 3.0 | 2.8 | 3.2 | 7.3 | 4.3 | 14 | 19 | 9.4 | 2.6 | 2.2 |
| 12 | 2.6 | 3.8 | 2.9 | 2.6 | | 6.2 | 4.3 | 16 | 19 | 8.9 | 2.7 | 2.2 |
| 13 | 2.6 | 3.5 | 2.6 | 2.8 | | 5.3 | 4.3 | 16 | 19 | 7.8 | 2.7 | 2.3 |
| 14 | 2.6 | 3.4 | 2.4 | 2.8 | | 4.8 | 7.8 | 17 | 19 | 7.3 | 2.7 | 2.3 |
| 15 | 2.8 | 3.0 | 2.4 | 2.8 | 2.8 | 4.5 | 10 | 19 | 23 | 7.0 | 2.7 | 2.3 |
| 16 | 2.9 | 4.1 | 2.4 | 2.8 | 2.8 | 4.5 | 10 | 19 | 20 | 6.5 | 2.8 | 2.3 |
| 17 | 2.6 | 3.5 | 2.3 | 2.8 | 2.8 | 4.3 | 9.4 | 19 | 20 | 5.9 | 2.7 | 2.3 |
| 18 | 2.6 | 3.2 | 2.2 | 2.8 | 2.8 | 4.5 | 9.9 | 20 | 19 | 5.3 | 2.7 | 2.3 |
| 19 | 2.6 | 3.0 | 2.2 | 2.8 | 2.8 | 4.5 | 9.9 | 22 | 19 | 5.1 | 2.7 | 2.3 |
| 20 | 2.6 | 3.0 | 2.2 | 2.8 | 2.8 | 5.9 | 9.4 | 24 | 19 | 4.8 | 2.6 | 2.3 |
| 21 | 2.4 | 3.4 | 2.1 | 2.8 | 2.8 | 18 | 11 | 26 | 18 | 4.5 | 2.5 | 2.4 |
| 22 | 2.4 | 3.4 | 2.1 | 2.8 | 2.8 | 12 | 11 | 27 | 18 | 4.5 | 2.6 | 2.4 |
| 23 | 2.4 | 3.0 | 2.2 | 2.8 | 2.8 | 9.9 | 12 | 29 | 18 | 4.5 | 2.6 | 2.4 |
| 24 | 2.3 | 2.9 | 2.4 | 2.6 | 2.8 | 8.3 | 12 | 29 | 17 | 4.5 | 2.7 | 2.4 |
| 25 | 2.3 | 2.9 | 2.9 | 2.6 | 2.8 | 7.3 | 12 | 28 | 17 | 4.3 | 2.6 | 2.4 |
| 26 | 2.3 | 3.0 | 3.5 | 2.6 | 2.8 | 7.0 | 14 | 28 | 17 | 4.3 | 2.7 | 2.5 |
| 27 | 2.3 | 2.9 | 6.2 | 2.6 | 2.8 | 7.0 | 15 | 26 | 17 | 4.2 | 2.5 | 2.4 |
| 28 | 2.3 | 2.8 | 4.8 | 2.4 | 2.8 | 8.3 | 16 | 24 | 16 | 4.2 | 2.4 | 2.4 |
| 29 | 3.4 | 2.6 | 4.5 | 2.4 | | 7.3 | 16 | 22 | 15 | 4.0 | 2.5 | 2.4 |
| 30 | 3.8 | 2.8 | 3.8 | 2.4 | | 7.0 | 15 | 21 | 15 | 4.0 | 2.4 | 2.4 |
| 31 | 3.4 | | 3.6 | 2.8 | | 6.5 | | 19 | | 3.8 | 2.4 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 4.5 | 2.2 | 2.70 | 166 |
| November | 8.3 | 2.6 | 3.56 | 212 |
| December | 6.2 | 2.1 | 2.88 | 177 |
| January | 4.5 | 2.4 | 2.95 | 181 |
| February | 3.8 | 2.8 | 3.03 | 168 |
| March | 18 | 2.8 | 6.45 | 397 |
| April | 16 | 4.3 | 9.04 | 538 |
| May | 29 | 14 | 20.0 | 1,230 |
| June | 23 | 15 | 18.6 | 1,110 |
| July | 14 | 3.8 | 7.44 | 457 |
| August | 3.3 | 2.4 | 2.68 | 165 |
| September | 2.5 | 2.2 | 2.36 | 140 |
| The year | 29 | 2.1 | 6.82 | 4,940 |

APPLIGATE 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, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 850 second-feet May 21 (gage height, 2.48 feet); minimum, 7 second-feet Sept. 2 (gage height, 0.26 foot).

1911-1914, 1925-1929: Maximum discharge (estimated), 20,000 second-feet Feb. 20, 1927 (gage height, 16.0 feet); minimum, that of Sept. 2, 1929.

REMARKS.—Records good. Discharge estimated July 18-22, Sept. 13-15, 17, and 22-30. Diversions for irrigation above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1 | 22 | 64 | 98 | 272 | 177 | 122 | 283 | 542 | 275 | 99 | 29 | 8 |
| 2 | 23 | 67 | 94 | 312 | 235 | 126 | 279 | 642 | 257 | 93 | 27 | 7 |
| 3 | 25 | 134 | 92 | 464 | 218 | 136 | 287 | 681 | 239 | 95 | 30 | 8 |
| 4 | 58 | 113 | 88 | 356 | 218 | 152 | 279 | 590 | 316 | 93 | 30 | 9 |
| 5 | 134 | 96 | 86 | 295 | 205 | 218 | 268 | 500 | 342 | 95 | 28 | 11 |
| 6 | 82 | 98 | 84 | 249 | 196 | 257 | 249 | 442 | 426 | 90 | 30 | 12 |
| 7 | 57 | 92 | 84 | 225 | 180 | 246 | 235 | 426 | 342 | 78 | 32 | 11 |
| 8 | 50 | 82 | 84 | 205 | 177 | 235 | 232 | 437 | 312 | 70 | 35 | 18 |
| 9 | 48 | 111 | 84 | 189 | 177 | 287 | 205 | 482 | 304 | 66 | 36 | 17 |
| 10 | 45 | 180 | 300 | 192 | 174 | 572 | 196 | 488 | 283 | 66 | 39 | 18 |
| 11 | 46 | 157 | 238 | 169 | 163 | 405 | 189 | 494 | 264 | 66 | 32 | 17 |
| 12 | 48 | 157 | 180 | 166 | 155 | 329 | 180 | 584 | 253 | 68 | 33 | 18 |
| 13 | 50 | 148 | 152 | 169 | 144 | 291 | 177 | 610 | 249 | 70 | 36 | 18 |
| 14 | 52 | 162 | 132 | 169 | 139 | 249 | 312 | 616 | 235 | 62 | 36 | 18 |
| 15 | 50 | 137 | 121 | 169 | 134 | 239 | 790 | 642 | 329 | 62 | 43 | 17 |
| 16 | 53 | 126 | 111 | 163 | 134 | 239 | 700 | 648 | 304 | 62 | 39 | 17 |
| 17 | 53 | 139 | 104 | 157 | 132 | 232 | 584 | 622 | 272 | 57 | 32 | 16 |
| 18 | 50 | 123 | 98 | 163 | 129 | 235 | 500 | 603 | 242 | 55 | 35 | 16 |
| 19 | 50 | 115 | 98 | 160 | 126 | 235 | 500 | 642 | 235 | 52 | 25 | 15 |
| 20 | 50 | 108 | 98 | 142 | 124 | 242 | 494 | 720 | 202 | 49 | 25 | 17 |
| 21 | 50 | 108 | 98 | 136 | 124 | 590 | 476 | 734 | 186 | 46 | 23 | 17 |
| 22 | 50 | 115 | 98 | 142 | 124 | 597 | 448 | 741 | 171 | 43 | 22 | 18 |
| 23 | 50 | 117 | 98 | 134 | 126 | 448 | 405 | 694 | 163 | 40 | 22 | |
| 24 | 50 | 113 | 108 | 129 | 124 | 375 | 410 | 566 | 160 | 36 | 22 | |
| 25 | 50 | 106 | 395 | 132 | 124 | 334 | 426 | 476 | 152 | 40 | 19 | |
| 26 | 52 | 104 | 283 | 126 | 119 | 316 | 470 | 405 | 142 | 37 | 16 | |
| 27 | 52 | 104 | 470 | 126 | 119 | 300 | 530 | 356 | 142 | 30 | 15 | 18 |
| 28 | 52 | 100 | 488 | 124 | 122 | 347 | 584 | 324 | 132 | 30 | 13 | |
| 29 | 58 | 96 | 616 | 126 | ----- | 365 | 584 | 312 | 119 | 33 | 11 | |
| 30 | 69 | 96 | 426 | 119 | ----- | 324 | 512 | 308 | 108 | 30 | 10 | |
| 31 | 64 | ----- | 312 | 129 | ----- | 300 | ----- | 287 | ----- | 32 | 8 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 134 | 22 | 53.0 | 3,260 |
| November | 180 | 64 | 116 | 6,900 |
| December | 616 | 84 | 188 | 11,600 |
| January | 464 | 119 | 187 | 11,500 |
| February | 235 | 119 | 154 | 8,550 |
| March | 597 | 122 | 301 | 18,500 |
| April | 790 | 177 | 389 | 23,100 |
| May | 741 | 287 | 536 | 33,000 |
| June | 426 | 108 | 288 | 14,200 |
| July | 99 | 30 | 59.5 | 3,660 |
| August | 43 | 8 | 26.9 | 1,650 |
| September | ----- | 7 | 15.4 | 916 |
| The year | 790 | 7 | 189 | 137,000 |

ILLINOIS RIVER AT KERBY, OREG.

LOCATION.—Staff gage in SW. ¼ sec. 4, T. 39 S., R. 8 W., at Kerby.

RECORDS AVAILABLE.—March, 1926, to September, 1929.

EXTREMES.—Maximum discharge during year, 9,880 second-feet Apr. 15 (gage height, 7.00 feet); minimum, 24 second-feet Aug. 14, 15, Sept. 9, and 10.

1926-1929: Maximum discharge (estimated), 50,000 second-feet Feb. 20, 1927 (gage height, 19.6 feet); minimum, 18 second-feet Aug. 12 and 13, 1926.

REMARKS.—Records good. Diversions for irrigation above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----------|------|-------|-------|-------|-------|---------|---------|-------|----------------------|------|------|-------|
| 1 | 38 | 351 | 315 | 3,330 | 5,260 | 430 | 630 | 1,060 | 315 | 112 | 38 | 32 |
| 2 | 38 | 196 | 315 | 4,320 | 3,700 | 470 | 590 | 1,010 | 315 | 106 | 37 | 32 |
| 3 | 38 | 840 | 298 | 8,610 | 4,110 | 470 | 590 | 1,010 | 315 | 87 | 37 | 30 |
| 4 | 54 | 326 | 280 | 3,500 | 1,770 | 510 | 550 | 1,010 | 350 | 87 | 40 | 28 |
| 5 | 145 | 302 | 280 | 1,520 | 1,680 | 630 | 550 | 910 | 430 | 76 | 37 | 29 |
| 6 | 108 | 235 | 265 | 1,450 | 1,210 | 590 | 510 | 810 | 470 | 71 | 37 | 32 |
| 7 | 82 | 215 | 250 | 1,270 | 1,110 | 550 | 510 | 720 | 430 | 76 | 37 | 30 |
| 8 | 64 | 840 | 237 | 1,060 | 960 | 550 | 675 | 720 | 430 | 66 | 40 | 26 |
| 9 | 56 | 990 | 224 | 960 | 860 | 590 | 630 | 675 | 390 | 66 | 37 | 24 |
| 10 | 51 | 402 | 4,540 | 960 | 765 | 1,770 | 630 | 675 | 350 | 62 | 38 | 24 |
| 11 | 42 | 402 | 1,600 | 765 | 720 | 1,600 | 910 | 630 | 315 | 62 | 34 | 26 |
| 12 | 48 | 2,100 | 1,010 | 720 | 675 | 1,210 | 960 | 675 | 280 | 57 | 29 | 25 |
| 13 | 46 | 2,100 | 1,160 | 675 | 630 | 1,110 | 1,010 | 765 | 280 | 62 | 26 | 30 |
| 14 | 38 | 3,100 | 910 | 630 | 630 | 960 | 7,730 | 675 | 280 | 57 | 24 | 30 |
| 15 | 46 | 1,600 | 765 | 590 | 590 | 860 | 9,880 | 630 | 470 | 53 | 24 | 30 |
| 16 | 44 | 1,010 | 630 | 550 | 550 | 765 | 8,920 | 630 | 675 | 49 | 34 | 28 |
| 17 | 42 | 1,010 | 590 | 550 | 510 | 765 | 3,900 | 590 | 720 | 47 | 32 | 28 |
| 18 | 44 | 720 | 510 | 510 | 470 | 720 | 2,560 | 590 | 550 | 47 | 32 | 28 |
| 19 | 42 | 675 | 470 | 765 | 510 | 720 | 2,100 | 550 | 550 | 49 | 34 | 28 |
| 20 | 44 | 590 | 450 | 590 | 510 | 630 | 3,900 | 550 | 430 | 49 | 32 | 28 |
| 21 | 42 | 510 | 390 | 590 | 510 | 1,110 | 2,400 | 590 | 390 | 47 | 30 | 28 |
| 22 | 44 | 470 | 350 | 550 | 510 | 1,060 | 2,250 | 590 | 350 | 47 | 28 | 25 |
| 23 | 42 | 430 | 315 | 590 | 470 | 910 | 1,870 | 590 | 280 | 47 | 30 | 28 |
| 24 | 40 | 390 | 430 | 590 | 470 | 810 | 1,600 | 550 | 250 | 47 | 30 | 28 |
| 25 | 38 | 332 | 7,730 | 630 | 470 | 720 | 1,450 | 550 | 224 | 47 | 30 | 28 |
| 26 | 38 | 350 | 3,300 | 765 | 430 | 675 | 1,330 | 510 | 201 | 47 | 30 | 28 |
| 27 | 40 | 332 | 5,260 | 1,010 | 410 | 675 | 1,270 | 470 | 181 | 47 | 30 | 30 |
| 28 | 40 | 315 | 4,540 | 910 | 390 | 675 | 1,210 | 350 | 181 | 40 | 30 | 30 |
| 29 | 62 | 280 | 8,020 | 1,160 | ----- | 765 | 1,160 | 390 | 172 | 40 | 30 | 30 |
| 30 | 84 | 298 | 4,110 | 590 | ----- | 720 | 1,060 | 350 | 127 | 40 | 30 | 30 |
| 31 | 178 | ----- | 3,100 | 1,210 | ----- | 675 | ----- | 350 | ----- | 38 | 30 | ----- |
| Month | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | | |
| October | | | | | | 178 | 38 | 56.7 | 3,490 | | | |
| November | | | | | | 3,100 | 196 | 724 | 43,100 | | | |
| December | | | | | | 8,020 | 224 | 1,700 | 105,000 | | | |
| January | | | | | | 8,610 | 510 | 1,350 | 83,000 | | | |
| February | | | | | | 5,260 | 390 | 1,100 | 61,100 | | | |
| March | | | | | | 1,770 | 430 | 797 | 49,000 | | | |
| April | | | | | | 9,880 | 510 | 2,110 | 126,000 | | | |
| May | | | | | | 1,060 | 350 | 650 | 40,000 | | | |
| June | | | | | | 720 | 127 | 357 | 21,200 | | | |
| July | | | | | | 112 | 38 | 59.0 | 3,630 | | | |
| August | | | | | | 40 | 24 | 32.5 | 2,000 | | | |
| September | | | | | | 32 | 24 | 28.6 | 1,700 | | | |
| The year | | | | | | 9,880 | 24 | 744 | 539,000 | | | |

COQUILLE RIVER BASIN

SOUTH FORK OF COQUILLE RIVER AT POWERS, OREG.

LOCATION.—Chain 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, 1929. Prior to 1928 at station half a mile upstream.

EXTREMES.—Maximum discharge during year, 11,600 second-feet Apr. 14 (gage height, 11.49 feet); minimum, 16 second-feet Sept. 27-30 (gage height, 0.66 foot).

1916-1926, 1928-1929: Maximum discharge, 25,300 second-feet Oct. 31, 1924 (gage height, 17.5 feet at former gage); minimum, 17 second-feet Sept. 12-18, 1924, Aug. 5-18, 22-25, and Sept. 10, 1926.

REMARKS.—Records fair. Mean discharge estimated, Dec. 4-8 and Sept. 1-13. No diversions or regulation above gage.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|-------|-------|-------|-------|-----|------|------|------|-------|
| 1. | | | 172 | 2,230 | 5,030 | 400 | 600 | 465 | 107 | 126 | 50 | |
| 2. | | | 172 | 1,960 | 3,810 | 442 | 532 | 442 | 107 | 116 | 48 | |
| 3. | | | 148 | 5,170 | 4,070 | 442 | 510 | 330 | 116 | 107 | 48 | |
| 4. | | | | 2,330 | 3,080 | 442 | 488 | 360 | 107 | 98 | 48 | |
| 5. | | | | 1,440 | 1,720 | 465 | 465 | 340 | 116 | 92 | 45 | |
| 6. | | | 130 | 1,140 | 1,330 | 510 | 488 | 305 | 148 | 82 | 40 | |
| 7. | | | | 965 | 1,200 | 488 | 488 | 288 | 172 | 73 | 40 | 24 |
| 8. | | | | 750 | 965 | 420 | 910 | 270 | 240 | 67 | 38 | |
| 9. | | | 360 | 650 | 700 | 380 | 855 | 240 | 211 | 67 | 36 | |
| 10. | | | 2,640 | 488 | 600 | 1,020 | 700 | 226 | 198 | 64 | 36 | |
| 11. | | | 1,720 | 465 | 360 | 1,020 | 910 | 211 | 198 | 59 | 33 | |
| 12. | | | 1,260 | 400 | 465 | 1,020 | 910 | 211 | 172 | 56 | 33 | |
| 13. | | | 965 | 360 | 465 | 910 | 1,020 | 198 | 172 | 56 | 31 | |
| 14. | | | 800 | 305 | 400 | 910 | 8,460 | 198 | 172 | 59 | 31 | 21 |
| 15. | 28 | | 555 | 288 | 360 | 750 | 4,890 | 198 | 488 | 56 | 31 | 19 |
| 16. | | | 442 | 270 | 360 | 750 | 3,200 | 172 | 600 | 56 | 31 | 19 |
| 17. | | | 400 | 226 | 305 | 650 | 1,890 | 160 | 650 | 53 | 29 | 21 |
| 18. | | | 360 | 400 | 305 | 600 | 1,380 | 160 | 465 | 53 | 29 | 21 |
| 19. | | | 288 | 750 | 288 | 510 | 1,200 | 148 | 488 | 53 | 27 | 21 |
| 20. | | | 270 | 600 | 255 | 532 | 1,200 | 148 | 360 | 50 | 27 | 19 |
| 21. | | | 255 | 465 | 240 | 855 | 1,720 | 148 | 270 | 50 | 25 | 19 |
| 22. | | | 226 | 488 | 198 | 1,140 | 1,440 | 148 | 240 | 53 | 27 | 19 |
| 23. | | | 226 | 700 | 360 | 855 | 1,260 | 148 | 198 | 53 | 27 | 17 |
| 24. | | | 226 | 555 | 465 | 855 | 1,140 | 137 | 172 | 56 | 27 | 17 |
| 25. | | | 2,330 | 488 | 510 | 855 | 965 | 137 | 160 | 59 | 27 | 17 |
| 26. | | 172 | 1,580 | 1,260 | 488 | 700 | 910 | 137 | 148 | 61 | 27 | 17 |
| 27. | | 172 | 7,440 | 1,960 | 465 | 750 | 800 | 137 | 137 | 64 | 25 | 16 |
| 28. | | 172 | 3,810 | 1,320 | 420 | 965 | 600 | 137 | 137 | 56 | 25 | 16 |
| 29. | | 172 | 6,620 | 1,440 | | 965 | 555 | 107 | 137 | 53 | 25 | 16 |
| 30. | | 172 | 3,810 | 1,320 | | 855 | 510 | 107 | 137 | 50 | 27 | 16 |
| 31. | | | 2,050 | 3,940 | | 800 | | 98 | | 50 | 27 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| December | 7,440 | ----- | 1,280 | 7.57 | 8.73 | 78,700 |
| January | 5,170 | 226 | 1,130 | 6.69 | 7.71 | 69,500 |
| February | 5,030 | 198 | 1,050 | 6.21 | 6.47 | 58,300 |
| March | 1,140 | 380 | 718 | 4.25 | 4.90 | 44,100 |
| April | 8,460 | 465 | 1,370 | 8.11 | 9.05 | 81,500 |
| May | 465 | 98 | 212 | 1.25 | 1.44 | 13,000 |
| June | 650 | 107 | 234 | 1.38 | 1.54 | 13,900 |
| July | 126 | 50 | 66.1 | .391 | .45 | 4,060 |
| August | 50 | 25 | 32.9 | .195 | .22 | 2,020 |
| September | ----- | 16 | 20.8 | .123 | .14 | 1,240 |
| The period | | | | | ----- | 366,000 |

NOTE.—Gage not read on days for which no discharge is given.

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, 1929.

EXTREMES.—Maximum discharge during year, 4,430 second-feet Apr. 14 (gage height, 8.2 feet); minimum, 1 second-foot Aug. 8, 23, and 24.

REMARKS.—Records fair, December to April; poor for other periods. No diversions above station. Flow regulated completely during low-water periods, and to some extent at all times, by logging ponds above gage.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|-------|-------|-------|-------|-----|-------|-------|------|-------|
| 1 | | | 12 | 655 | 2,410 | 174 | 452 | 179 | 18 | 15 | 8 | 5 |
| 2 | | | 12 | 485 | 2,070 | 360 | 224 | 157 | 14 | 14 | 7 | 7 |
| 3 | | | 18 | 3,010 | 1,590 | 199 | 240 | 47 | 31 | 33 | 8 | 7 |
| 4 | | | 43 | 1,590 | 1,510 | 168 | 63 | 143 | 120 | 20 | 10 | 7 |
| 5 | | | 8 | 1,040 | 1,190 | 163 | 202 | 228 | 62 | 21 | 13 | 8 |
| 6 | | | 8 | 725 | 970 | 163 | 452 | 192 | 174 | 14 | 6 | 8 |
| 7 | | | 8 | 550 | 420 | 152 | 795 | 199 | 90 | 14 | 21 | 7 |
| 8 | | | 8 | 147 | 620 | 56 | 1,040 | 168 | 163 | 29 | 1 | 9 |
| 9 | | | 12 | 104 | 248 | 87 | 1,270 | 147 | 138 | 23 | 8 | 7 |
| 10 | | | 147 | 282 | 420 | 420 | 1,110 | 213 | 129 | 23 | 7 | 9 |
| 11 | | | 725 | 125 | 260 | 390 | 1,990 | 129 | 36 | 36 | 8 | 9 |
| 12 | | | 125 | 174 | 50 | 60 | 1,270 | 17 | 27 | 40 | 7 | 10 |
| 13 | | | 73 | 52 | 49 | 305 | 1,040 | 101 | 49 | 2,150 | 8 | 9 |
| 14 | | | 73 | 52 | 147 | 550 | 1,190 | 90 | 81 | 6 | 7 | 8 |
| 15 | | | 43 | 21 | 71 | 360 | 2,830 | 97 | 2,230 | 5 | 8 | 7 |
| 16 | 6 | | 26 | 14 | 20 | 485 | 1,910 | 73 | 104 | 7 | 9 | 9 |
| 17 | | | 43 | 66 | 125 | 305 | 1,510 | 20 | 120 | 8 | 8 | 6 |
| 18 | | | 26 | 47 | 163 | 260 | 1,190 | 20 | 34 | 10 | 11 | 7 |
| 19 | | | 34 | 1,190 | 104 | 236 | 970 | 81 | 40 | 20 | 12 | 21 |
| 20 | | | 43 | 550 | 157 | 56 | 1,110 | 56 | 68 | 18 | 7 | 6 |
| 21 | | | 26 | 550 | 8 | 1,350 | 1,110 | 84 | 81 | 17 | 8 | 5 |
| 22 | | | 26 | 585 | 26 | 1,430 | 1,040 | 18 | 33 | 23 | 10 | 4 |
| 23 | | | 43 | 1,110 | 116 | 1,350 | 2,150 | 26 | 27 | 29 | 23 | 5 |
| 24 | | | 43 | 900 | 244 | 1,040 | 518 | 51 | 68 | 26 | 1 | 4 |
| 25 | | | 87 | 1,910 | 332 | 830 | 585 | 49 | 34 | 29 | 1 | 3 |
| 26 | | | 282 | 2,070 | 236 | 760 | 332 | 143 | 51 | 38 | 2 | 3 |
| 27 | | 8 | 1,830 | 3,660 | 199 | 550 | 1,670 | 64 | 42 | 24 | 3 | 4 |
| 28 | | 12 | 1,510 | 2,070 | 206 | 360 | 240 | 8 | 5 | 4 | 4 | 5 |
| 29 | | 5 | 1,670 | 1,510 | ----- | 620 | 216 | 18 | 10 | 6 | 4 | 4 |
| 30 | | 34 | 1,510 | 1,590 | ----- | 760 | 150 | 24 | 17 | 7 | 6 | 4 |
| 31 | | | 970 | 1,430 | ----- | 452 | ----- | 34 | ----- | 7 | 7 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| December | 1,830 | 8 | 306 | 1.68 | 1.94 | 18,800 |
| January | 3,010 | 14 | 879 | 4.83 | 5.57 | 54,000 |
| February | 2,410 | 8 | 499 | 2.74 | 2.85 | 27,700 |
| March | 1,430 | 56 | 466 | 2.56 | 2.95 | 28,700 |
| April | 2,830 | 63 | 962 | 5.29 | 5.90 | 57,200 |
| May | 228 | 8 | 92.8 | .510 | .59 | 5,710 |
| June | 2,230 | 5 | 137 | .753 | .84 | 8,150 |
| July | 2,150 | 4 | 87.6 | .481 | .55 | 5,390 |
| August | 23 | 1 | 7.8 | .043 | .05 | 480 |
| September | 21 | 3 | 6.9 | .038 | .04 | 411 |
| The period | 3,010 | 1 | 343 | 1.88 | 21.28 | 207,000 |

NOTE.—No record on days for which no discharge is given.

NORTH FORK OF COQUILLE RIVER NEAR MYRTLE POINT, OREG.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 10, T. 29 S., R. 12 W., at county bridge 2 miles east of Myrtle Point. Zero of gage is 4.3 feet above mean sea level.

DRAINAGE AREA.—284 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1929.

EXTREMES.—Maximum discharge during year, 4,880 second-feet Jan. 3 (gage height, 26.85 feet); minimum, 27 second-feet Sept. 20, 21, 23, and 28 (gage height, 0.88 foot).

REMARKS.—Records fair. No diversions above gage. Flow regulated by operation of logging ponds above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|-----|------|------|-------|-------|-------|-------|-------|-------|------|------|------|-------|----|
| 1. | | | 140 | 1,860 | 3,890 | 535 | 1,310 | 565 | 192 | 180 | 71 | 35 | |
| 2. | | | 254 | 2,760 | 3,550 | 460 | 1,180 | 520 | 280 | 180 | 76 | 34 | |
| 3. | | | 168 | 4,880 | 2,840 | 432 | 1,070 | 490 | 348 | 168 | 76 | 32 | |
| 4. | | | 130 | 3,650 | 2,540 | 390 | 935 | 490 | 293 | 157 | 71 | 34 | |
| 5. | | | 124 | 2,520 | 1,980 | 490 | 969 | 580 | 334 | 157 | 57 | 34 | |
| 6. | | | 118 | 1,820 | 1,730 | 376 | 935 | 690 | 390 | 146 | 50 | 32 | |
| 7. | | | 108 | 1,380 | 1,310 | 362 | 1,310 | 475 | 418 | 146 | 41 | 35 | |
| 8. | | | 108 | 1,240 | 1,180 | 334 | 2,110 | 432 | 404 | 146 | 45 | 37 | |
| 9. | | | 118 | 884 | 1,060 | 348 | 2,220 | 404 | 362 | 140 | 52 | 38 | |
| 10. | | | 1,220 | 786 | 867 | 595 | 1,990 | 390 | 334 | 135 | 61 | 37 | |
| 11. | | | 1,450 | 706 | 722 | 565 | 2,050 | 362 | 204 | 130 | 59 | 37 | |
| 12. | | | 754 | 595 | 770 | 460 | 2,070 | 362 | 228 | 124 | 52 | 37 | |
| 13. | | | 690 | 535 | 642 | 595 | 1,790 | 348 | 216 | 124 | 54 | 35 | |
| 14. | | | 610 | 475 | 580 | 595 | 3,000 | 320 | 228 | 118 | 51 | 31 | |
| 15. | 31 | | 362 | 446 | 535 | 550 | 4,860 | 293 | 254 | 118 | 52 | 32 | |
| 16. | | | 362 | 404 | 565 | 535 | 3,270 | 390 | 642 | 113 | 50 | 31 | |
| 17. | | | 228 | 404 | 505 | 535 | 2,580 | 280 | 505 | 108 | 52 | 29 | |
| 18. | | | 228 | 595 | 418 | 460 | 1,840 | 280 | 460 | 96 | 52 | 29 | |
| 19. | | | 216 | 1,450 | 390 | 475 | 1,450 | 254 | 446 | 96 | 52 | 28 | |
| 20. | | | 204 | 1,160 | 390 | 432 | 1,600 | 228 | 418 | 91 | 50 | 27 | |
| 21. | | | 204 | 918 | 418 | 2,660 | 1,650 | 228 | 204 | 91 | 48 | 27 | |
| 22. | | | 192 | 952 | 376 | 2,840 | 1,600 | 228 | 306 | 91 | 43 | 29 | |
| 23. | | | 157 | 1,520 | 446 | 2,520 | 1,400 | 216 | 280 | 86 | 43 | 27 | |
| 24. | | | 108 | 130 | 1,250 | 580 | 2,180 | 1,130 | 228 | 216 | 81 | 45 | 28 |
| 25. | | | 130 | 884 | 3,060 | 722 | 1,880 | 1,060 | 216 | 228 | 86 | 45 | 31 |
| 26. | | 96 | 935 | 3,040 | 642 | 1,510 | 901 | 216 | 280 | 81 | 41 | 32 | |
| 27. | | 96 | 4,830 | 3,980 | 595 | 1,360 | 867 | 241 | 204 | 81 | 40 | 34 | |
| 28. | | 204 | 3,870 | 3,340 | 626 | 1,290 | 738 | 204 | 216 | 81 | 38 | 27 | |
| 29. | | 167 | 3,320 | 3,040 | | 1,360 | 674 | 192 | 192 | 76 | 35 | 29 | |
| 30. | | 140 | 2,800 | 2,640 | | 1,430 | 610 | 390 | 168 | 71 | 35 | 28 | |
| 31. | | | 2,110 | 3,210 | | 1,430 | | | | 71 | 35 | | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| December | 4,830 | 108 | 872 | 3.07 | 3.54 | 53,600 |
| January | 4,880 | 404 | 1,790 | 6.30 | 7.26 | 110,000 |
| February | 3,890 | 376 | 1,100 | 3.87 | 4.03 | 61,100 |
| March | 2,840 | 334 | 967 | 3.40 | 3.92 | 59,500 |
| April | 4,860 | 610 | 1,640 | 5.77 | 6.44 | 97,600 |
| May | 690 | 192 | 346 | 1.22 | 1.41 | 21,300 |
| June | 642 | 168 | 308 | 1.08 | 1.20 | 18,300 |
| July | 180 | 71 | 115 | .405 | .47 | 7,070 |
| August | 76 | 35 | 50.7 | .179 | .21 | 3,120 |
| September | 38 | 27 | 31.9 | .112 | .12 | 1,900 |
| The period | | | | | ----- | 433,000 |

NOTE.—Gage not read on days for which no discharge is shown.

UMPQUA RIVER BASIN

UMPQUA RIVER NEAR ELKTON, OREG.

LOCATION.—Staff gage in sec. 8, T. 23 S., R. 7 W., at ferry crossing, 4 miles south of Elkton.

DRAINAGE AREA.—3,680 square miles.

RECORDS AVAILABLE.—October, 1905, to September, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 45,400 second-feet Apr. 15 (gage height, 15.2 feet); minimum, 790 second-feet Sept. 9-30.

1905-1929: 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 Basin, but low-water flow probably not affected more than 5 per cent. No regulation.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|--------|--------|--------|--------|--------|-------|-------|-------|------|-------|
| 1----- | 915 | 1,100 | 1,230 | 7,730 | 16,400 | 4,280 | 7,280 | 6,850 | 3,100 | 1,860 | 960 | 830 |
| 2----- | 960 | 1,100 | 1,330 | 6,850 | 24,300 | 4,280 | 6,440 | 6,440 | 3,100 | 1,750 | 960 | 830 |
| 3----- | 960 | 1,100 | 1,530 | 19,900 | 22,700 | 4,940 | 5,670 | 6,440 | 3,100 | | 960 | 830 |
| 4----- | 1,000 | 1,100 | 1,530 | 18,500 | 16,400 | 5,670 | 5,480 | 6,440 | 3,380 | | 960 | 830 |
| 5----- | 1,050 | 1,100 | 1,430 | 10,800 | 13,800 | 6,440 | 5,300 | 6,440 | 3,660 | | 960 | 830 |
| 6----- | 1,330 | 1,100 | 1,330 | 7,280 | 11,400 | 7,960 | 4,940 | 6,440 | 5,300 | 1,590 | 960 | 830 |
| 7----- | 1,330 | 1,140 | 1,230 | 5,670 | 9,200 | 6,850 | 4,770 | 6,670 | 5,670 | | 960 | 830 |
| 8----- | 1,230 | 1,140 | 1,230 | 4,600 | 7,280 | 5,880 | 5,120 | 6,300 | 5,670 | | 960 | 810 |
| 9----- | 1,140 | 1,140 | 1,140 | 3,960 | 6,050 | 5,300 | 6,050 | 4,940 | 5,670 | 1,430 | 960 | 790 |
| 10----- | 1,100 | 1,230 | 1,330 | 3,380 | 5,120 | 6,850 | 6,860 | 4,600 | 5,300 | 1,430 | 870 | 790 |
| 11----- | 1,050 | 1,430 | 1,750 | 3,380 | 4,600 | 9,200 | 6,850 | 4,600 | 4,940 | 1,330 | 870 | 790 |
| 12----- | 1,000 | 1,960 | 4,940 | 3,100 | 4,280 | 7,730 | 8,200 | 4,770 | 4,600 | 1,350 | 870 | 790 |
| 13----- | 1,050 | 1,960 | 3,960 | 2,850 | 3,660 | 6,240 | 11,100 | 4,940 | 4,280 | 1,350 | 870 | 790 |
| 14----- | 1,050 | 2,460 | 3,100 | 2,850 | 3,660 | 5,670 | 24,300 | 4,940 | 3,960 | 1,350 | 870 | 790 |
| 15----- | 1,050 | 2,100 | 2,590 | 2,590 | 3,380 | 5,300 | 43,600 | 4,940 | 3,660 | 1,330 | 870 | 790 |
| 16----- | 1,050 | 2,100 | 2,100 | 2,460 | 3,240 | 4,940 | 36,300 | 4,940 | 3,960 | 1,230 | 870 | 790 |
| 17----- | 1,050 | 2,100 | 1,750 | 2,340 | 3,100 | 4,770 | 29,100 | 4,940 | 3,660 | 1,230 | 870 | 790 |
| 18----- | 1,050 | 2,220 | 1,530 | 2,460 | 2,970 | 4,600 | 22,700 | 4,770 | 3,810 | 1,230 | 870 | 790 |
| 19----- | 1,100 | 1,860 | 1,430 | 3,810 | 2,850 | 4,600 | 16,400 | 4,940 | 3,660 | 1,230 | 870 | 790 |
| 20----- | 1,050 | 1,640 | 1,430 | 4,440 | 2,850 | 4,940 | 13,200 | 4,770 | 3,380 | 1,230 | 870 | 790 |
| 21----- | 1,050 | 1,530 | 1,330 | 3,960 | 2,720 | 10,300 | 14,400 | 4,940 | 3,100 | 1,140 | 870 | 790 |
| 22----- | 1,000 | 1,330 | 1,330 | 3,810 | 2,590 | 27,500 | 15,000 | 4,940 | 2,720 | 1,140 | 870 | 790 |
| 23----- | 1,000 | 1,230 | 1,230 | 3,660 | 2,720 | 19,200 | 15,700 | 4,940 | 2,720 | 1,140 | 870 | 790 |
| 24----- | 1,000 | 1,230 | 1,230 | 4,770 | 3,380 | 13,800 | 14,100 | 4,940 | 2,720 | 1,140 | 870 | 790 |
| 25----- | 1,000 | 1,230 | 1,430 | 6,240 | 4,280 | 10,800 | 13,200 | 4,600 | 2,590 | 1,140 | 870 | 790 |
| 26----- | 960 | 1,230 | 3,810 | 7,280 | 4,940 | 8,940 | 12,000 | 4,280 | 2,460 | 1,140 | 870 | 790 |
| 27----- | 1,000 | 1,230 | 7,280 | 10,300 | 5,300 | 8,200 | 10,500 | 3,960 | 2,340 | 1,140 | 870 | 790 |
| 28----- | 960 | 1,140 | 8,690 | 8,690 | 4,600 | 7,730 | 9,200 | 3,660 | 2,340 | 1,050 | 870 | 790 |
| 29----- | 1,000 | 1,230 | 8,690 | 10,300 | ----- | 9,460 | 8,200 | 3,380 | 2,100 | 1,050 | 830 | 790 |
| 30----- | 1,000 | 1,230 | 13,200 | 8,940 | ----- | 9,730 | 7,730 | 3,100 | 1,860 | 960 | 830 | 790 |
| 31----- | 1,000 | ----- | 9,730 | 7,960 | ----- | 7,960 | ----- | 3,100 | ----- | 960 | 830 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|--------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October----- | 1,330 | 915 | 1,050 | 0.285 | 0.33 | 64,600 |
| November----- | 2,460 | 1,100 | 1,460 | .397 | .44 | 86,900 |
| December----- | 13,200 | 1,140 | 3,090 | .840 | .97 | 190,000 |
| January----- | 19,900 | 2,340 | 6,300 | 1.71 | 1.97 | 387,000 |
| February----- | 24,300 | 2,590 | 7,070 | 1.92 | 2.00 | 393,000 |
| March----- | 27,500 | 4,280 | 8,070 | 2.19 | 2.52 | 496,000 |
| April----- | 43,600 | 4,770 | 13,000 | 3.53 | 3.94 | 774,000 |
| May----- | 6,850 | 3,100 | 4,970 | 1.35 | 1.56 | 306,000 |
| June----- | 5,670 | 1,860 | 3,630 | .986 | 1.10 | 216,000 |
| July----- | 1,860 | 960 | 1,320 | .359 | .41 | 81,200 |
| August----- | 960 | 830 | 892 | .242 | .28 | 54,500 |
| September----- | 830 | 790 | 800 | .217 | .24 | 47,600 |
| The year----- | 43,600 | 790 | 4,270 | 1.16 | 15.76 | 3,100,000 |

COW CREEK NEAR AZALEA, OREG.

LOCATION.—Staff gage in sec. 33, T. 31 S., R. 4 W., 3 miles northwest of Azalea.

RECORDS AVAILABLE.—April, 1926, to September, 1929; incomplete.

EXTREMES.—Maximum discharge during year, 564 second-feet Apr. 14 (gage height, 3.84 feet); minimum, 4 second-feet Sept. 9–19.

1926–1929: Maximum discharge, 764 second-feet Mar. 27, 1928 (gage height, 4.81 feet); minimum, that of Sept. 9–19, 1929.

REMARKS.—Records fair except those for discharge less than 7 second-feet or greater than 300 second-feet and for estimated period (April 1–5), which are poor. Minor diversions for irrigation above station. Records furnished by State engineer of Oregon.

Daily and monthly discharge, in second-feet, 1929

| Day | Apr. | May | June | July | Aug. | Sept. | Day | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-----|------|------|------|-------|---------|------|-----|------|------|------|-------|
| 1..... | 100 | 107 | 33 | 14 | 7 | 5 | 16..... | 399 | 43 | 39 | 10 | 5 | 4 |
| 2..... | | 99 | 35 | 14 | 7 | 5 | 17..... | 300 | 40 | 37 | 10 | 6 | 4 |
| 3..... | | 91 | 34 | 14 | 7 | 5 | 18..... | 300 | 39 | 35 | 10 | 6 | 4 |
| 4..... | | 91 | 54 | 14 | 7 | 5 | 19..... | 220 | 38 | 32 | 10 | 5 | 4 |
| 5..... | | 89 | 89 | 14 | 7 | 5 | 20..... | 220 | 36 | 31 | 10 | 5 | 5 |
| 6..... | 66 | 80 | 99 | 14 | 7 | 5 | 21..... | 235 | 34 | 29 | 9 | 5 | 5 |
| 7..... | 66 | 70 | 89 | 13 | 7 | 5 | 22..... | 316 | 33 | 27 | 9 | 5 | 5 |
| 8..... | 70 | 66 | 62 | 12 | 7 | 5 | 23..... | 267 | 32 | 26 | 9 | 5 | 5 |
| 9..... | 70 | 62 | 54 | 12 | 6 | 4 | 24..... | 220 | 31 | 24 | 9 | 6 | 6 |
| 10..... | 70 | 58 | 51 | 12 | 6 | 4 | 25..... | 189 | 31 | 23 | 9 | 6 | 6 |
| 11..... | 73 | 55 | 48 | 11 | 6 | 4 | 26..... | 157 | 33 | 21 | 8 | 5 | 6 |
| 12..... | 75 | 52 | 40 | 11 | 5 | 4 | 27..... | 145 | 34 | 20 | 8 | 5 | 5 |
| 13..... | 80 | 52 | 38 | 11 | 5 | 4 | 28..... | 132 | 32 | 20 | 8 | 5 | 5 |
| 14..... | 564 | 49 | 36 | 11 | 5 | 4 | 29..... | 129 | 29 | 19 | 7 | 5 | 5 |
| 15..... | 531 | 46 | 52 | 10 | 5 | 4 | 30..... | 123 | 29 | 16 | 7 | 5 | 5 |
| | | | | | | | 31..... | | 34 | | 7 | 5 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------------|---------|---------|-------|----------------------|
| April..... | 564 | ----- | 184 | 10,900 |
| May..... | 107 | 29 | 52.1 | 3,200 |
| June..... | 99 | 16 | 40.4 | 2,400 |
| July..... | 14 | 7 | 10.5 | 646 |
| August..... | 7 | 5 | 5.7 | 350 |
| September..... | 6 | 4 | 4.7 | 280 |
| The period..... | ----- | ----- | ----- | 17,800 |

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

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, 1929.

EXTREMES.—Maximum discharge during year, 580 second-feet May 23 (gage height, 1.40 feet); minimum, 266 second-feet Sept. 18 (gage height, 0.79 foot).
1927-1929: Maximum discharge, 662 second-feet May 12, 1928 (gage height, 1.68 feet); minimum, that of Sept. 18, 1929.

REMARKS.—Records good, except those for June, which are fair. Discharge estimated Apr. 21-23, June 2-17, 19-30, and July 8-10. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1 | 334 | 338 | 331 | 338 | 354 | 315 | 340 | 378 | 452 | 373 | 309 | 279 |
| 2 | 334 | 338 | 323 | 342 | 350 | 315 | 340 | 393 | | 368 | 309 | 279 |
| 3 | 342 | 338 | 319 | 342 | 350 | 315 | 344 | 398 | | 368 | 309 | 279 |
| 4 | 358 | 338 | 319 | 331 | 346 | 315 | 344 | 403 | | 363 | 304 | 279 |
| 5 | 358 | 334 | 323 | 338 | 342 | 319 | 340 | 398 | | 358 | 304 | 279 |
| 6 | 346 | 334 | 323 | 331 | 315 | 315 | 336 | 388 | 460 | 354 | 304 | 274 |
| 7 | 342 | 334 | 323 | 331 | 293 | 315 | 340 | 383 | | 354 | 300 | 274 |
| 8 | 338 | 334 | 323 | 331 | 312 | 315 | 340 | 388 | | 351 | 300 | 274 |
| 9 | 334 | 338 | 327 | 334 | 315 | 319 | 336 | 388 | | 347 | 300 | 274 |
| 10 | 334 | 346 | 334 | 334 | 327 | 323 | 331 | 393 | | 344 | 296 | 274 |
| 11 | 334 | 342 | 327 | 331 | 319 | 315 | 336 | 403 | 463 | 340 | 296 | 274 |
| 12 | 334 | 342 | 282 | 331 | 319 | 312 | 331 | 419 | | 336 | 296 | 274 |
| 13 | 334 | 342 | 286 | 327 | 319 | 312 | 331 | 436 | | 331 | 296 | 274 |
| 14 | 334 | 342 | 315 | 327 | 315 | 312 | 349 | 436 | | 331 | 296 | 270 |
| 15 | 342 | 338 | 304 | 327 | 315 | 312 | 354 | 452 | | 331 | 296 | 270 |
| 16 | 342 | 342 | 312 | 323 | 315 | 312 | 354 | 474 | 463 | 331 | 296 | 270 |
| 17 | 342 | 338 | 308 | 327 | 315 | 312 | 349 | 480 | | 331 | 292 | 270 |
| 18 | 338 | 338 | 304 | 331 | 315 | 315 | 349 | 492 | | 331 | 292 | 270 |
| 19 | 338 | 338 | 308 | 319 | 319 | 315 | 354 | 532 | | 331 | 287 | 270 |
| 20 | 338 | 334 | 308 | 293 | 319 | 338 | 358 | 532 | | 326 | 287 | 270 |
| 21 | 338 | 334 | 308 | 327 | 319 | 452 | 358 | 550 | 410 | 326 | 287 | 270 |
| 22 | 338 | 334 | 304 | 338 | 319 | 358 | 358 | 562 | | 326 | 287 | 274 |
| 23 | 338 | 334 | 304 | 319 | 319 | 363 | 358 | 574 | | 322 | 287 | 274 |
| 24 | 338 | 334 | 312 | 331 | 319 | 358 | 358 | 568 | | 322 | 287 | 270 |
| 25 | 334 | 334 | 323 | 338 | 319 | 349 | 354 | 544 | | 318 | 287 | 274 |
| 26 | 334 | 334 | 327 | 338 | 319 | 349 | 363 | 514 | 403 | 318 | 283 | 274 |
| 27 | 334 | 334 | 331 | 342 | 315 | 349 | 368 | 492 | | 313 | 283 | 274 |
| 28 | 338 | 334 | 331 | 342 | 315 | 354 | 373 | 474 | | 313 | 283 | 274 |
| 29 | 338 | 331 | 331 | 342 | ----- | 349 | 378 | 468 | | 313 | 279 | 270 |
| 30 | 342 | 334 | 334 | 327 | ----- | 344 | 373 | 468 | | 313 | 279 | 270 |
| 31 | 338 | ----- | 331 | 362 | ----- | 336 | ----- | 463 | ----- | 309 | 283 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-foot |
| October | 358 | 334 | 339 | 1. 94 | 2. 24 | 20, 800 |
| November | 346 | 331 | 337 | 1. 93 | 2. 15 | 20, 100 |
| December | 334 | 282 | 317 | 1. 81 | 2. 09 | 19, 500 |
| January | 362 | 293 | 332 | 1. 90 | 2. 19 | 20, 400 |
| February | 354 | 293 | 322 | 1. 84 | 1. 92 | 17, 900 |
| March | 452 | 312 | 333 | 1. 90 | 2. 19 | 20, 500 |
| April | 378 | 331 | 350 | 2. 00 | 2. 23 | 20, 800 |
| May | 574 | 378 | 459 | 2. 62 | 3. 02 | 28, 200 |
| June | ----- | ----- | 440 | 2. 51 | 2. 80 | 26, 200 |
| July | 373 | 309 | 335 | 1. 91 | 2. 20 | 20, 600 |
| August | 309 | 279 | 293 | 1. 67 | 1. 92 | 18, 000 |
| September | 279 | 270 | 273 | 1. 56 | 1. 74 | 16, 200 |
| The year | 574 | 270 | 344 | 1. 97 | 26. 69 | 249, 200 |

NORTH UMPQUA RIVER AT TOKETEE FALLS, OREG.

LOCATION.—Water-stage recorder in T. 26 S., R. 3 E., (unsurveyed), one-eighth 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, 1929.

EXTREMES.—Maximum discharge during year, 1,970 second-feet Mar. 21 (gage height, 2.87 feet); minimum, 570 second-feet Jan. 20 and Sept. 12–23.

1908–9, 1915–1917, 1924–1929: Maximum discharge, 4,000 second-feet Feb. 20, 1927 (gage height, 4.65 feet); minimum, 525 second-feet Oct. 21, 1924, and Nov. 4, 1926.

REMARKS.—Records good. Discharge estimated Feb. 7 to Mar. 15 and Sept. 19–24. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|-------|-------|-------|-------|------|------|-------|
| 1..... | 682 | 676 | 676 | 706 | 688 | | 820 | 1,080 | 1,040 | 790 | 664 | 586 |
| 2..... | 700 | 670 | 646 | 760 | 688 | | 790 | 1,150 | 1,010 | 790 | 658 | 586 |
| 3..... | 712 | 682 | 640 | 730 | 682 | | 790 | 1,190 | 1,010 | 790 | 652 | 586 |
| 4..... | 760 | 682 | 646 | 688 | 682 | | 790 | 1,150 | 1,040 | 760 | 646 | 586 |
| 5..... | 736 | 670 | 646 | 682 | 676 | | 790 | 1,120 | 1,040 | 760 | 646 | 580 |
| 6..... | 700 | 670 | 646 | 670 | 646 | | 760 | 1,080 | 1,040 | 754 | 640 | 575 |
| 7..... | 694 | 658 | 646 | 664 | | | 760 | 1,040 | 1,040 | 742 | 634 | 575 |
| 8..... | 688 | 676 | 640 | 658 | | 670 | 760 | 1,040 | 1,080 | 736 | 634 | 575 |
| 9..... | 688 | 688 | 652 | 652 | | | 742 | 1,040 | 1,080 | 724 | 628 | 575 |
| 10..... | 694 | 730 | 700 | 652 | | | 736 | 1,040 | 1,080 | 718 | 628 | 575 |
| 11..... | 688 | 694 | 670 | 652 | | | 736 | 1,080 | 1,080 | 712 | 622 | 575 |
| 12..... | 688 | 694 | 622 | 652 | | | 724 | 1,150 | 1,040 | 712 | 616 | 570 |
| 13..... | 688 | 688 | 604 | 652 | | | 724 | 1,270 | 1,080 | 712 | 616 | 570 |
| 14..... | 688 | 682 | 640 | 652 | | | 850 | 1,270 | 1,080 | 712 | 616 | 570 |
| 15..... | 700 | 682 | 622 | 652 | | | 945 | 1,270 | 1,150 | 706 | 610 | 570 |
| 16..... | 700 | 706 | 634 | 640 | | 676 | 945 | 1,310 | 1,120 | 700 | 610 | 570 |
| 17..... | 688 | 682 | 634 | 646 | | 676 | 912 | 1,310 | 1,080 | 700 | 610 | 570 |
| 18..... | 682 | 676 | 622 | 658 | 670 | 682 | 912 | 1,350 | 1,040 | 694 | 610 | 570 |
| 19..... | 682 | 670 | 628 | 628 | | 694 | 945 | 1,390 | 1,010 | 694 | 604 | 570 |
| 20..... | 682 | 664 | 622 | 580 | | 951 | 1,040 | 1,470 | 978 | 688 | 604 | 570 |
| 21..... | 676 | 664 | 622 | 622 | | 1,780 | 1,010 | 1,520 | 945 | 688 | 604 | 570 |
| 22..... | 676 | 658 | 622 | 658 | | 1,270 | 1,040 | 1,560 | 945 | 688 | 604 | 570 |
| 23..... | 670 | 658 | 616 | 622 | | 1,040 | 1,010 | 1,520 | 945 | 682 | 604 | 570 |
| 24..... | 670 | 658 | 640 | 646 | | 945 | 1,010 | 1,520 | 912 | 676 | 604 | 580 |
| 25..... | 664 | 652 | 670 | 646 | | 880 | 1,010 | 1,390 | 912 | 676 | 604 | 592 |
| 26..... | 658 | 658 | 670 | 652 | | 850 | 1,010 | 1,270 | 880 | 676 | 604 | 598 |
| 27..... | 658 | 664 | 706 | 652 | | 850 | 1,080 | 1,190 | 880 | 670 | 598 | 592 |
| 28..... | 658 | 658 | 688 | 646 | | 880 | 1,120 | 1,120 | 850 | 670 | 598 | 586 |
| 29..... | 670 | 652 | 706 | 652 | | 880 | 1,120 | 1,080 | 820 | 664 | 592 | 580 |
| 30..... | 688 | 664 | 694 | 622 | | 850 | 1,080 | 1,080 | 820 | 664 | 592 | 575 |
| 31..... | 670 | | 688 | 676 | | 820 | | 1,080 | | 664 | 586 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 760 | 658 | 687 | 2.04 | 2.35 | 42,200 |
| November..... | 730 | 652 | 674 | 2.00 | 2.23 | 40,100 |
| December..... | 706 | 604 | 650 | 1.93 | 2.22 | 40,000 |
| January..... | 760 | 580 | 657 | 1.95 | 2.25 | 40,400 |
| February..... | 688 | | 672 | 1.99 | 2.07 | 37,300 |
| March..... | 1,780 | | 799 | 2.37 | 2.73 | 49,100 |
| April..... | 1,120 | 724 | 899 | 2.67 | 2.98 | 53,500 |
| May..... | 1,560 | 1,040 | 1,230 | 3.65 | 4.21 | 75,600 |
| June..... | 1,150 | 820 | 1,000 | 2.97 | 3.31 | 59,500 |
| July..... | 790 | 664 | 710 | 2.11 | 2.43 | 43,700 |
| August..... | 664 | 586 | 617 | 1.83 | 2.11 | 37,900 |
| September..... | 598 | 570 | 577 | 1.71 | 1.91 | 34,300 |
| The year..... | 1,780 | 570 | 765 | 2.27 | 30.80 | 554,000 |

NORTH UMPQUA RIVER ABOVE ROCK CREEK, NEAR GLIDE, OREG.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ 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, 1929.

EXTREMES.—Maximum discharge during year, 16,000 second-feet Mar. 21 (gage height, 10.45 feet); minimum, 657 second-feet Sept. 20–22 (gage height, 2.23 feet).

1924–1929: Maximum discharge, 61,000 second-feet Feb. 20, 1927 (gage height, 20.18 feet); minimum, 645 second-feet Aug. 16, 1926.

REMARKS.—Records good except those estimated (Jan. 7–19), which are fair. No diversions or regulation above station.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|------|-------|
| 1 | 756 | 800 | 975 | 2,030 | 3,470 | 1,660 | 2,460 | 2,810 | 1,790 | 1,230 | 810 | 716 |
| 2 | 756 | 800 | 1,010 | 4,000 | 4,820 | 2,130 | 2,240 | 3,000 | 1,840 | 1,200 | 810 | 716 |
| 3 | 810 | 800 | 930 | 4,740 | 3,620 | 2,510 | 2,130 | 3,330 | 1,740 | 1,160 | 810 | 708 |
| 4 | 915 | 835 | 870 | 2,690 | 3,000 | 2,870 | 2,080 | 3,000 | 1,930 | 1,120 | 780 | 703 |
| 5 | 1,110 | 835 | 840 | 1,930 | 2,570 | 3,760 | 1,980 | 2,940 | 2,570 | 1,090 | 775 | 698 |
| 6 | 915 | 805 | 840 | 1,620 | 2,180 | 3,130 | 1,790 | 2,690 | 2,510 | 1,090 | 775 | 698 |
| 7 | 835 | 790 | 810 | 1,740 | 2,570 | 1,740 | 2,400 | 2,340 | 1,060 | 1,060 | 765 | 690 |
| 8 | 810 | 795 | 810 | 1,580 | 2,240 | 1,880 | 2,290 | 2,570 | 1,020 | 1,020 | 760 | 681 |
| 9 | 800 | 915 | 810 | 1,420 | 2,340 | 1,840 | 2,290 | 2,510 | 1,020 | 1,020 | 740 | 677 |
| 10 | 800 | 1,220 | 1,440 | 1,340 | 3,920 | 1,740 | 2,290 | 2,290 | 990 | 735 | 673 | |
| 11 | 810 | 1,140 | 1,620 | 1,300 | 3,130 | 1,840 | 2,290 | 2,180 | 990 | 726 | 673 | |
| 12 | 800 | 1,220 | 1,200 | 1,260 | 2,400 | 1,980 | 2,630 | 2,030 | 960 | 726 | 673 | |
| 13 | 785 | 1,220 | 1,060 | 1,260 | 2,080 | 2,030 | 3,000 | 2,030 | 960 | 721 | 669 | |
| 14 | 790 | 1,040 | 960 | 1,230 | 1,880 | 2,590 | 3,000 | 2,030 | 930 | 716 | 665 | |
| 15 | 810 | 1,010 | 930 | 1,160 | 1,840 | 8,060 | 2,810 | 2,400 | 930 | 716 | 665 | |
| 16 | 860 | 1,010 | 900 | 1,200 | 1,840 | 5,920 | 2,870 | 2,690 | 930 | 721 | 665 | |
| 17 | 835 | 1,220 | 870 | 1,160 | 1,790 | 4,820 | 2,870 | 2,400 | 900 | 721 | 665 | |
| 18 | 810 | 1,010 | 840 | 1,160 | 1,880 | 3,920 | 2,940 | 2,180 | 900 | 716 | 661 | |
| 19 | 800 | 945 | 840 | 1,120 | 1,980 | 4,160 | 3,000 | 1,980 | 900 | 712 | 661 | |
| 20 | 790 | 888 | 810 | 1,020 | 1,120 | 2,520 | 5,540 | 3,200 | 1,840 | 900 | 712 | 657 |
| 21 | 780 | 860 | 810 | 1,020 | 1,120 | 12,900 | 5,360 | 3,200 | 1,740 | 870 | 712 | 657 |
| 22 | 775 | 860 | 810 | 1,120 | 1,230 | 7,160 | 5,360 | 3,260 | 1,660 | 870 | 712 | 657 |
| 23 | 765 | 860 | 790 | 1,160 | 1,500 | 4,820 | 4,650 | 3,200 | 1,620 | 840 | 716 | 665 |
| 24 | 765 | 835 | 810 | 1,060 | 1,620 | 3,620 | 4,000 | 3,000 | 1,580 | 840 | 716 | 673 |
| 25 | 760 | 835 | 1,790 | 1,620 | 1,930 | 3,000 | 3,540 | 2,690 | 1,540 | 840 | 716 | 673 |
| 26 | 760 | 835 | 1,700 | 2,180 | 1,930 | 2,690 | 3,330 | 2,340 | 1,460 | 840 | 712 | 681 |
| 27 | 760 | 888 | 2,130 | 2,400 | 1,700 | 2,810 | 3,400 | 2,080 | 1,380 | 840 | 716 | 677 |
| 28 | 760 | 888 | 2,340 | 1,880 | 1,580 | 3,470 | 3,330 | 1,880 | 1,340 | 840 | 716 | 673 |
| 29 | 765 | 860 | 2,400 | 1,620 | 1,620 | 3,920 | 3,540 | 1,790 | 1,300 | 810 | 716 | 673 |
| 30 | 810 | 860 | 2,690 | 1,420 | 1,420 | 3,200 | 3,130 | 1,790 | 1,260 | 810 | 716 | 673 |
| 31 | 810 | 2,510 | 1,620 | 1,620 | 2,690 | 2,690 | 1,790 | 1,790 | 810 | 716 | 716 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 1,110 | 756 | 810 | 0.914 | 1.05 | 49,800 |
| November | 1,220 | 790 | 929 | 1.05 | 1.17 | 55,300 |
| December | 2,690 | 780 | 1,230 | 1.39 | 1.60 | 75,600 |
| January | 4,740 | 1,660 | 1,660 | 1.87 | 2.16 | 102,000 |
| February | 4,820 | 1,120 | 1,790 | 2.02 | 2.10 | 99,400 |
| March | 12,900 | 1,660 | 3,190 | 3.60 | 4.15 | 196,000 |
| April | 8,060 | 1,740 | 3,510 | 3.96 | 4.42 | 206,000 |
| May | 3,330 | 1,790 | 2,670 | 3.01 | 3.47 | 164,000 |
| June | 2,690 | 1,260 | 1,960 | 2.21 | 2.47 | 117,000 |
| July | 1,230 | 810 | 951 | 1.07 | 1.23 | 58,500 |
| August | 810 | 712 | 736 | .831 | .96 | 45,300 |
| September | 716 | 657 | 677 | .764 | .85 | 40,300 |
| The year | 12,900 | 657 | 1,670 | 1.88 | 25.63 | 1,210,000 |

NORTH UMPQUA RIVER NEAR GLIDE, OREG.

LOCATION.—Staff gage in SW. ¼ sec. 13, T. 26 S., R. 4 W., at Hughes Ferry 1 mile west of Glide. Gage datum is 0.60 foot lower than datum used from 1915 to 1922.

DRAINAGE AREA.—1,210 square miles.

RECORDS AVAILABLE.—September, 1915, to May, 1920; October, 1921, to October, 1922; October, 1927, to September, 1929.

EXTREMES.—Maximum discharge during year, 24,300 second-feet Apr. 14 (gage height, 9.98 feet); minimum, 683 second-feet Sept. 9-11 and 15-19 (gage height, 0.98 foot).

1915-1920, 1921-22, 1927-1929: Maximum discharge, 50,000 second-feet Nov. 21, 1921 (gage height, 15.0 feet, present datum); minimum, that of Sept. 9-11 and 15-19, 1929.

Maximum stage known, 22.6 feet, present datum, Nov. 22, 1909 (discharge, estimated, 90,000 second-feet).

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

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|---------|---------|---------|---------|---------|---------|-------|---------|---------|------|-------|
| 1----- | 781 | 826 | 980 | 2,120 | * 4,880 | 2,670 | 3,320 | 3,840 | 2,370 | 1,430 | 866 | 727 |
| 2----- | 835 | 826 | * 1,250 | * 4,300 | 7,860 | 3,150 | 3,320 | 4,020 | 2,370 | 1,370 | 866 | 718 |
| 3----- | 882 | 835 | 1,030 | 7,860 | 5,770 | 3,660 | 2,990 | 4,200 | 2,370 | 1,810 | 866 | 718 |
| 4----- | 1,030 | 835 | 980 | * 4,300 | 4,380 | 4,020 | 2,670 | 4,020 | 2,670 | * 1,800 | 847 | 718 |
| 5----- | 1,360 | 835 | 930 | 2,840 | 3,660 | 5,770 | 2,670 | 3,660 | * 3,050 | * 1,210 | 847 | 718 |
| 6----- | 980 | * 840 | 882 | 2,120 | 3,320 | 4,380 | 2,520 | 3,320 | * 3,150 | * 1,200 | 847 | 718 |
| 7----- | 882 | * 825 | 835 | 1,850 | 2,670 | 3,490 | 2,520 | 3,150 | * 3,050 | * 1,160 | 847 | 700 |
| 8----- | 826 | * 835 | 826 | 1,720 | 2,870 | 2,990 | 2,670 | 2,990 | * 3,150 | 1,140 | 828 | 700 |
| 9----- | 817 | 1,030 | 826 | 1,660 | 2,090 | * 3,050 | 2,670 | 2,990 | * 3,050 | 1,140 | 809 | 683 |
| 10----- | 817 | 1,660 | 1,720 | 1,540 | 1,950 | 5,770 | 2,520 | 2,990 | 2,830 | 1,140 | 800 | 683 |
| 11----- | 826 | 1,360 | 2,120 | 1,480 | 1,810 | 4,380 | 2,670 | 3,150 | * 2,600 | 1,140 | 790 | 683 |
| 12----- | 826 | 1,480 | 1,480 | 1,480 | 1,740 | 3,660 | 2,990 | 3,320 | * 2,350 | 1,090 | 790 | 700 |
| 13----- | 808 | * 1,480 | 1,250 | 1,420 | 1,680 | 3,320 | 3,150 | 3,660 | * 2,200 | 1,040 | 772 | 700 |
| 14----- | * 820 | * 1,200 | 1,140 | 1,420 | 1,620 | 2,990 | 11,900 | 3,660 | * 2,350 | 1,040 | 772 | 700 |
| 15----- | * 835 | * 1,110 | 1,080 | 1,360 | 1,620 | 2,670 | 12,700 | 3,490 | * 2,600 | * 1,000 | 772 | 683 |
| 16----- | * 890 | * 1,120 | 1,030 | 1,360 | 1,490 | 2,670 | 9,320 | 3,490 | * 3,200 | * 1,000 | 772 | 683 |
| 17----- | 882 | * 1,550 | 980 | 1,480 | 1,550 | 2,670 | 7,860 | 3,490 | * 2,900 | 985 | 772 | 683 |
| 18----- | 835 | 1,140 | 930 | 1,720 | 1,490 | 2,670 | 5,980 | 3,660 | * 2,600 | 985 | 754 | 683 |
| 19----- | 835 | 1,080 | 882 | 1,980 | 1,430 | 2,670 | 6,200 | 3,660 | * 2,850 | 985 | 754 | 683 |
| 20----- | 817 | 1,030 | 882 | 1,980 | 1,430 | 3,840 | 7,860 | 3,660 | 2,230 | 985 | 754 | 700 |
| 21----- | 790 | 980 | 835 | 1,360 | 1,490 | 21,100 | 7,600 | 3,660 | 2,230 | 985 | 754 | 700 |
| 22----- | 772 | 930 | 817 | 1,480 | 1,550 | 11,400 | 8,120 | 3,660 | 2,090 | 985 | 754 | 700 |
| 23----- | 754 | 862 | 836 | 1,540 | 2,230 | 7,350 | 6,580 | 3,660 | 1,950 | 985 | 754 | 700 |
| 24----- | 754 | 882 | * 850 | 1,540 | 2,520 | * 5,300 | 5,770 | 3,320 | 1,950 | 935 | 754 | 700 |
| 25----- | 772 | 835 | 2,840 | 2,690 | 2,670 | * 4,400 | 5,150 | 3,150 | 1,810 | 935 | 763 | 709 |
| 26----- | 781 | 882 | * 2,750 | 4,210 | 3,150 | * 3,900 | 4,750 | 2,830 | 1,680 | 935 | 754 | 718 |
| 27----- | 781 | 882 | 3,000 | 4,600 | 2,670 | * 3,900 | 4,750 | 2,670 | 1,550 | 885 | 754 | 718 |
| 28----- | 763 | 930 | 3,320 | 3,320 | 2,520 | * 4,600 | 4,380 | 2,520 | 1,550 | 885 | 754 | 727 |
| 29----- | 799 | 930 | 3,660 | 2,400 | ----- | 5,560 | * 4,500 | 2,370 | 1,490 | 885 | 754 | 736 |
| 30----- | 835 | 930 | 3,660 | 1,980 | ----- | 4,380 | 4,020 | 2,230 | 1,490 | 885 | 736 | 736 |
| 31----- | 835 | ----- | 3,490 | 3,160 | ----- | 3,840 | ----- | 2,230 | ----- | 876 | 736 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October----- | 1,360 | 754 | 846 | 0.699 | 0.81 | 52,000 |
| November----- | 1,660 | 825 | 1,040 | .860 | .96 | 61,900 |
| December----- | 3,660 | 817 | 1,550 | 1.28 | 1.48 | 95,300 |
| January----- | 7,860 | 1,360 | 2,400 | 1.98 | 2.28 | 148,000 |
| February----- | 7,860 | 1,430 | 2,630 | 2.17 | 2.26 | 146,000 |
| March----- | 21,100 | 2,670 | 4,720 | 3.90 | 4.50 | 290,000 |
| April----- | 12,700 | 2,520 | 5,150 | 4.26 | 4.75 | 306,000 |
| May----- | 4,200 | 2,230 | 3,310 | 2.74 | 3.16 | 204,000 |
| June----- | 3,200 | 1,490 | 2,370 | 1.96 | 2.19 | 141,000 |
| July----- | 1,430 | 876 | 1,060 | .876 | 1.01 | 65,200 |
| August----- | 866 | 736 | 787 | .650 | .75 | 48,700 |
| September----- | 736 | 683 | 704 | .582 | .65 | 41,900 |
| The year----- | 21,100 | 683 | 2,210 | 1.83 | 24.80 | 1,600,000 |

* Discharge estimated by comparison with records for North Umpqua River at Winchester and above Rock Creek.

NORTH UMPQUA RIVER AT WINCHESTER, OREG.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 25, T. 26 S., R. 6 W., at railroad bridge in Winchester, 300 yards below plant of the California Oregon Power Co.

DRAINAGE AREA.—1,290 square miles.

RECORDS AVAILABLE.—November, 1908, to December, 1913; October, 1923, to September, 1929, when station was discontinued.

EXTREMES.—Maximum discharge during year, 25,900 second-feet Mar. 21 (gage height, 11.0 feet); minimum, 643 second-feet, owing to regulation, Sept. 22 (gage height, 0.32 foot).

1908-1913, 1923-1929: Maximum discharge, 92,000 second-feet Nov. 23, 1909 (gage height, 28.1 feet); minimum, 590 second-feet Oct. 22 and 23, 1925.

Flood of November, 1909, was probably highest in 60 years.

REMARKS.—Records fair. No irrigation diversions above station. Slight regulation of flow by power plant 300 yards upstream. Gage-height record furnished by the California Oregon Power Co.

Daily and monthly discharge, in second-feet, 1923-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|---------|-------|---------|---------|--------|---------|---------|---------|-------|-------|
| 1 | 794 | 840 | 1,050 | 2,800 | 5,000 | * 2,750 | 3,420 | * 3,850 | * 2,400 | 1,400 | 870 | * 740 |
| 2 | 794 | 840 | 1,310 | 4,450 | 7,830 | * 3,200 | 3,100 | * 4,050 | * 2,400 | * 1,400 | 859 | * 730 |
| 3 | 827 | 840 | 1,130 | 8,550 | 6,220 | * 3,750 | 2,950 | * 4,250 | * 2,400 | 1,310 | 870 | 729 |
| 4 | 975 | 872 | 1,010 | 4,450 | 4,810 | * 4,100 | 2,800 | * 4,050 | * 2,700 | 1,310 | 870 | 729 |
| 5 | 1,400 | 872 | 975 | 2,950 | 4,090 | * 5,800 | 2,800 | 3,750 | 3,100 | 1,230 | 859 | 724 |
| 6 | 1,090 | 840 | 940 | 2,380 | 3,580 | * 4,450 | 2,510 | 3,580 | 3,260 | 1,230 | 854 | 720 |
| 7 | 940 | 827 | 905 | 2,130 | 2,800 | 3,920 | 2,650 | * 3,200 | 3,100 | 1,150 | 848 | 716 |
| 8 | 905 | 840 | 905 | 1,790 | 2,380 | 3,100 | 2,650 | * 3,050 | 3,260 | 1,150 | 832 | 706 |
| 9 | 840 | 1,220 | 872 | 1,690 | 2,130 | 3,100 | 2,800 | * 3,050 | 3,100 | 1,150 | 837 | 706 |
| 10 | 834 | 1,790 | * 1,800 | 1,590 | 2,130 | * 5,900 | 2,650 | * 3,050 | 2,800 | 1,150 | 820 | 706 |
| 11 | 840 | 1,220 | 2,380 | 1,490 | 1,790 | 4,630 | 2,800 | * 3,200 | 2,650 | * 1,150 | 800 | 688 |
| 12 | 840 | 1,690 | 1,690 | 1,490 | 1,690 | * 3,750 | 3,100 | * 3,350 | 2,380 | 1,110 | 810 | 702 |
| 13 | 834 | 1,690 | 1,400 | 1,490 | 1,790 | * 3,400 | 3,100 | * 3,700 | 2,250 | 1,030 | 810 | 698 |
| 14 | 820 | 1,220 | 1,220 | 1,490 | 1,590 | * 3,050 | 9,720 | * 3,700 | 2,380 | 1,030 | * 800 | 698 |
| 15 | 840 | 1,130 | 1,130 | 1,400 | 1,590 | 2,650 | 14,200 | * 3,500 | 2,650 | * 1,020 | 800 | 698 |
| 16 | 905 | 1,130 | 1,050 | 1,400 | 1,490 | * 2,700 | 9,830 | * 3,500 | 3,260 | * 1,020 | 795 | 693 |
| 17 | 940 | 1,590 | 1,010 | 1,310 | 1,490 | * 2,700 | 7,590 | * 3,500 | 2,950 | 995 | 790 | 693 |
| 18 | 905 | 1,220 | 975 | 1,590 | 1,490 | * 2,700 | 5,800 | * 3,700 | 2,650 | 962 | 775 | 698 |
| 19 | * 840 | 1,090 | 940 | 2,250 | 1,490 | * 2,700 | 6,010 | * 3,700 | 2,380 | 995 | 765 | 693 |
| 20 | 834 | 1,010 | 940 | 1,790 | 1,400 | * 4,000 | 7,590 | * 3,700 | 2,250 | 995 | 760 | 693 |
| 21 | 820 | 975 | 905 | 1,490 | 1,400 | 21,600 | 7,590 | * 3,700 | 2,130 | 995 | 765 | 698 |
| 22 | 814 | 905 | 905 | 1,590 | * 1,560 | 12,400 | 8,560 | * 3,700 | * 2,100 | 962 | 760 | 702 |
| 23 | 808 | 905 | 905 | 1,690 | * 2,300 | 7,590 | 7,110 | * 3,700 | 2,010 | 962 | 729 | 698 |
| 24 | 801 | 940 | 905 | 1,690 | * 2,550 | 5,390 | 6,010 | * 3,350 | * 1,950 | 962 | 742 | 702 |
| 25 | 794 | 940 | * 2,900 | 2,650 | * 2,750 | 4,450 | 5,000 | * 3,200 | 1,790 | 930 | * 765 | 711 |
| 26 | 775 | 872 | * 2,800 | 4,300 | * 3,200 | 3,920 | 4,630 | * 2,850 | 1,690 | 930 | * 760 | 711 |
| 27 | 775 | 872 | * 3,050 | 4,630 | * 2,750 | 3,920 | 4,630 | * 2,700 | 1,590 | 930 | * 760 | 711 |
| 28 | 775 | 940 | * 3,350 | 3,420 | * 2,600 | 4,630 | 4,450 | * 2,550 | 1,590 | 900 | * 760 | 711 |
| 29 | 808 | 1,010 | * 3,700 | 2,600 | ----- | 5,590 | 4,630 | * 2,400 | 1,490 | 870 | * 760 | 729 |
| 30 | 814 | 975 | * 4,090 | 2,250 | ----- | 4,270 | 4,090 | * 2,250 | 1,490 | 900 | 756 | 693 |
| 31 | 872 | ----- | * 3,600 | 3,260 | ----- | 3,750 | ----- | * 2,250 | ----- | 870 | 742 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 1,400 | 775 | 866 | 0.671 | 0.77 | 53,200 |
| November | 1,790 | 827 | 1,070 | .829 | .92 | 63,700 |
| December | 4,090 | 872 | 1,640 | 1.27 | 1.46 | 101,000 |
| January | 8,550 | 1,310 | 2,520 | 1.95 | 2.25 | 155,000 |
| February | 7,830 | 1,400 | 2,710 | 2.10 | 2.19 | 151,000 |
| March | 21,600 | 2,650 | 4,830 | 3.74 | 4.31 | 297,000 |
| April | 14,200 | 2,510 | 5,160 | 4.00 | 4.46 | 307,000 |
| May | 4,250 | 2,250 | 3,360 | 2.60 | 3.00 | 207,000 |
| June | 3,260 | 1,490 | 2,400 | 1.86 | 2.08 | 143,000 |
| July | 1,400 | 870 | 1,060 | .822 | .95 | 65,200 |
| August | 870 | 729 | 798 | .619 | .71 | 49,100 |
| September | 740 | 688 | 708 | .549 | .61 | 42,100 |
| The year | 21,600 | 688 | 2,260 | 1.75 | 23.71 | 1,630,000 |

* Discharge estimated by comparison with records for North Umpqua River near Glide and above Rock Creek.

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., 150 yards below outlet of Diamond Lake and 35 miles north of Fort Klamath.

DRAINAGE AREA.—57 square miles.

RECORDS AVAILABLE.—May, 1922, to September, 1925; October, 1926, to September, 1929. Records incomplete.

EXTREMES.—Maximum discharge during year, 75 second-feet Feb. 2 (gage height, 1.75 feet); minimum, 6 second-feet Dec. 12 (gage height, 0.68 foot). 1922-1925, 1926-1929: Maximum discharge, 146 second-feet June 1, 1925 (gage height, 2.13 feet); minimum (estimated), 1.0 second-foot Oct. 22, 1926.

REMARKS.—Records fair, October to March; good, April to September. Gage read about twice a week, October to March. Discharge estimated for periods included in braces and for Sept. 1 and 15-18. 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, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | | | | | | 50 | 57 | 57 | 56 | 45 | 30 | 13 |
| 2 | | | | | 75 | | 56 | 56 | 57 | 45 | 29 | 13 |
| 3 | | 41 | 47 | | | | 56 | 57 | 54 | 45 | 28 | 13 |
| 4 | 41 | 41 | | 71 | 67 | | 55 | 57 | 54 | | 27 | 13 |
| 5 | | | | | 65 | 48 | 55 | 57 | 54 | | 27 | 13 |
| 6 | | | | | | | 55 | 57 | 54 | | 26 | 12 |
| 7 | | | 45 | 67 | | | 55 | 57 | 54 | 40 | 26 | 13 |
| 8 | | 44 | | | | | 55 | 57 | 55 | | 26 | 13 |
| 9 | 41 | | | | | 48 | 57 | 55 | 55 | | 25 | 12 |
| 10 | | | | 63 | | | 57 | 54 | 55 | | 25 | 12 |
| 11 | | 52 | | | 63 | | 57 | 54 | 55 | | 24 | 12 |
| 12 | | | 6 | | | | 57 | 54 | 54 | 36 | 24 | 12 |
| 13 | | | 42 | | | 47 | 59 | 54 | 54 | | 24 | 13 |
| 14 | 39 | 50 | | | 55 | | 65 | 54 | 54 | | 24 | 13 |
| 15 | | | | 61 | | | 69 | 54 | 65 | 36 | 24 | 13 |
| 16 | 39 | | 50 | | | | 66 | 54 | 64 | | 24 | 13 |
| 17 | | | | | | | 66 | 55 | 63 | | 23 | 12 |
| 18 | | | | | | | 64 | 56 | 61 | 35 | 22 | 12 |
| 19 | | 50 | | 59 | 54 | 45 | 63 | 54 | 61 | 35 | 21 | 12 |
| 20 | | | 48 | | | | 68 | 54 | 59 | 34 | 21 | 12 |
| 21 | | 48 | | 59 | | | 68 | 55 | 57 | 34 | 20 | 12 |
| 22 | 41 | | 47 | 59 | 52 | | 67 | 54 | 57 | 34 | 18 | 12 |
| 23 | | | | | | 61 | 66 | 54 | 57 | 34 | 18 | 12 |
| 24 | 39 | 49 | | | 50 | | 63 | 54 | 57 | 32 | 21 | 12 |
| 25 | | | | 59 | | | 69 | 54 | 57 | 31 | 17 | 12 |
| 26 | | 45 | | | | | 61 | 54 | 50 | 29 | 62 | |
| 27 | 38 | | | | | 59 | 57 | 55 | 48 | 30 | | |
| 28 | | 47 | 61 | 64 | | | 57 | 54 | 47 | 30 | | |
| 29 | | | | | | | 57 | 54 | 46 | 29 | 15 | 12 |
| 30 | | 47 | | | | | 57 | 54 | 46 | 29 | | |
| 31 | 41 | | 59 | | | 57 | | 54 | | 29 | | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | | | • 39.9 | 0.700 | 0.81 | 2,450 |
| November | | | • 46.7 | .819 | .91 | 2,780 |
| December | | | • 45.0 | .789 | .91 | 2,770 |
| January | | | • 62.4 | 1.09 | 1.26 | 3,840 |
| February | | | • 60.1 | 1.05 | 1.09 | 3,340 |
| March | | | • 51.9 | .911 | 1.05 | 3,190 |
| April | 69 | 55 | 60.5 | 1.06 | 1.18 | 3,600 |
| May | 57 | 54 | 54.9 | .963 | 1.11 | 3,380 |
| June | 65 | 46 | 55.3 | .970 | 1.08 | 3,290 |
| July | 45 | 29 | 36.0 | .632 | .73 | 2,210 |
| August | | | 23.6 | .414 | .48 | 1,450 |
| September | 13 | 12 | 12.4 | .218 | .24 | 738 |
| The year | 75 | 12 | • 45.6 | .800 | 10.85 | 33,000 |

• Mean of days when gage was read.

CLEARWATER RIVER ABOVE TRAP CREEK, OREG.

LOCATION.—Water-stage recorder in SE. ¼ 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, 1929; incomplete.

EXTREMES.—Maximum discharge during, year, 262 second-feet May 22 (gage height, 1.30 feet); minimum, 123 second-feet Sept. 27–30 (gage height, 0.56 foot).

1927–1929: Extremes same as in 1929.

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

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|-------|-------|-------|------|-----|-------|------|------|-------|
| 1 | 135 | 147 | 142 | 140 | | | 140 | 170 | 192 | 160 | 138 | 127 |
| 2 | 135 | 147 | 140 | 140 | | | 144 | 176 | 187 | 156 | 138 | 127 |
| 3 | 139 | 149 | 140 | 140 | | | 147 | 178 | 185 | 154 | 138 | 127 |
| 4 | 146 | 147 | 140 | 138 | | | 151 | 178 | 192 | 152 | 138 | 127 |
| 5 | 152 | 145 | 140 | 138 | | | 151 | 172 | 196 | 151 | 140 | 127 |
| 6 | 147 | 145 | 140 | 137 | | | 151 | 169 | 194 | 149 | 140 | 127 |
| 7 | 145 | 145 | 140 | 137 | | | 151 | 167 | 194 | 147 | 140 | 127 |
| 8 | 145 | 147 | 140 | 137 | | * 131 | 151 | 169 | 196 | 145 | 140 | 127 |
| 9 | 145 | 149 | 140 | 137 | | | 149 | 169 | 192 | 145 | 140 | 127 |
| 10 | 145 | 152 | 145 | 137 | | | 149 | 169 | 192 | 144 | 140 | 127 |
| 11 | 145 | 149 | 142 | 137 | | | 147 | 172 | 192 | 144 | 140 | 125 |
| 12 | 147 | 149 | 142 | 137 | | | 147 | 179 | 192 | 144 | 140 | 125 |
| 13 | 145 | 137 | 140 | 137 | | | 147 | 189 | 198 | 144 | 138 | 125 |
| 14 | 145 | 147 | 140 | 137 | | | 154 | 191 | 202 | 144 | 138 | 125 |
| 15 | 147 | 145 | 138 | 137 | * 135 | | 151 | 194 | | 142 | 137 | 125 |
| 16 | 147 | 147 | 138 | 137 | | 130 | 151 | 200 | | 142 | 137 | 125 |
| 17 | 147 | 145 | 138 | 137 | | 130 | 147 | 206 | | 140 | 137 | 125 |
| 18 | 149 | 144 | 138 | 137 | | 130 | 149 | 212 | * 195 | 140 | 135 | 127 |
| 19 | 149 | 144 | 138 | | | 130 | 154 | 221 | | 140 | 135 | 127 |
| 20 | 147 | 144 | 138 | | | 149 | 154 | 233 | | 140 | 135 | 127 |
| 21 | 147 | 142 | 138 | | | 132 | 152 | 240 | | 138 | 133 | 127 |
| 22 | 147 | 142 | 138 | | | 154 | 154 | 252 | 170 | 138 | 133 | 127 |
| 23 | 147 | 142 | 137 | | | 147 | 154 | 254 | 174 | 137 | 132 | 125 |
| 24 | 147 | 142 | 140 | | | 140 | 156 | 243 | 178 | 137 | 132 | 125 |
| 25 | 147 | 142 | 138 | * 137 | | 135 | 156 | 228 | 178 | 137 | 130 | 127 |
| 26 | 147 | 142 | 140 | | | | 160 | 210 | 172 | 137 | 130 | 125 |
| 27 | 145 | 142 | 142 | | | 128 | 163 | 200 | 170 | 135 | 128 | 123 |
| 28 | 145 | 140 | 140 | | | 128 | 169 | 194 | 167 | 135 | 128 | 123 |
| 29 | 147 | 140 | 142 | | | 125 | 169 | 192 | 165 | 137 | 128 | 123 |
| 30 | 149 | 142 | 140 | | | 150 | 169 | 196 | 161 | 137 | 127 | 123 |
| 31 | 147 | | 138 | | | 133 | | 196 | | 137 | 127 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-foot |
| October | 152 | 135 | 146 | 3.65 | 4.21 | 8,980 |
| November | 152 | 140 | 145 | 3.62 | 4.04 | 8,630 |
| December | 145 | 137 | 140 | 3.50 | 4.04 | 8,610 |
| January | | | 137 | 3.42 | 3.94 | 8,420 |
| February | | | 135 | 3.38 | 3.52 | 7,500 |
| March | 172 | 125 | 134 | 3.35 | 3.86 | 8,240 |
| April | 169 | 140 | 153 | 3.82 | 4.26 | 9,100 |
| May | 254 | 167 | 197 | 4.92 | 5.67 | 12,100 |
| June | | 161 | 187 | 4.68 | 5.22 | 11,100 |
| July | 160 | 135 | 143 | 3.58 | 4.13 | 8,790 |
| August | 140 | 127 | 135 | 3.38 | 3.90 | 8,300 |
| September | 127 | 123 | 126 | 3.15 | 3.51 | 7,500 |
| The year | 254 | 123 | 148 | 3.70 | 50.30 | 107,000 |

* Estimated.

SILETZ RIVER BASIN

SILETZ RIVER AT SILETZ, OREG.

LOCATION.—Staff gage in SW $\frac{1}{4}$ sec. 9, T. 10 S., R. 10 W., three-eighths mile above county road to Toledo and three-eighths mile southwest of Siletz.

DRAINAGE AREA.—204 square miles.

RECORDS AVAILABLE.—November, 1905, to May, 1912; January, 1924, to September, 1929, incomplete.

EXTREMES.—Maximum discharge during year, 11,200 second-feet Nov. 9 (gage height, 9.80 feet); minimum, 67 second-feet Oct. 1 (gage height, -1.40 feet).

1905-1912, 1924-1929: Maximum discharge, 34,600 second-feet Nov. 22, 1909 (gage height, 24.6 feet, determined by leveling to high-water marks in 1910); minimum, 53 second-feet Oct. 25, 1925.

Maximum known flood, 40,800 second-feet Nov. 20, 1921 (gage height, 28.2 feet at present gage).

REMARKS.—Records fair. Discharge estimated June 30. No diversions above station. Flow regulated slightly by operation of logging pond at Valsetz.

Daily and monthly discharge, in second-feet, 1928-29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-----|-------|------|------|-------|
| 1 | 67 | 360 | 750 | 5,540 | 2,240 | 1,800 | 4,220 | 848 | 382 | 685 | 143 | 105 |
| 2 | 173 | 405 | 685 | 6,500 | 3,120 | 1,640 | 3,780 | 815 | 382 | 685 | 126 | 108 |
| 3 | 455 | 430 | 655 | 5,780 | 2,900 | 1,320 | 3,120 | 750 | 382 | 655 | 115 | 100 |
| 4 | 685 | 455 | 625 | 5,210 | 2,330 | 1,160 | 2,510 | 565 | 405 | 655 | 121 | 100 |
| 5 | 316 | 510 | 595 | 4,660 | 1,800 | 1,090 | 2,330 | 685 | 382 | 625 | 115 | 95 |
| 6 | 455 | 565 | 555 | 4,330 | 1,320 | 960 | 2,150 | 555 | 382 | 565 | 126 | 95 |
| 7 | 1,160 | 595 | 565 | 4,220 | 1,020 | 815 | 1,970 | 625 | 382 | 510 | 121 | 90 |
| 8 | 316 | 685 | 565 | 3,780 | 880 | 750 | 1,880 | 565 | 382 | 482 | 115 | 95 |
| 9 | 405 | 6,260 | 2,240 | 3,120 | 750 | 815 | 1,800 | 565 | 382 | 455 | 121 | 105 |
| 10 | 430 | 8,180 | 7,820 | 2,240 | 685 | 880 | 1,720 | 565 | 360 | 455 | 115 | 100 |
| 11 | 565 | 6,500 | 4,110 | 1,970 | 625 | 848 | 1,640 | 538 | 360 | 430 | 110 | 100 |
| 12 | 750 | 5,320 | 3,230 | 1,480 | 595 | 815 | 1,720 | 510 | 338 | 430 | 110 | 95 |
| 13 | 750 | 4,220 | 2,420 | 1,320 | 565 | 815 | 1,800 | 510 | 316 | 405 | 115 | 95 |
| 14 | 815 | 4,220 | 2,060 | 1,240 | 565 | 782 | 8,420 | 482 | 565 | 360 | 105 | 95 |
| 15 | 880 | 3,450 | 1,400 | 1,240 | 565 | 750 | 6,980 | 482 | 815 | 316 | 110 | 95 |
| 16 | 685 | 2,330 | 1,320 | 1,160 | 595 | 685 | 6,620 | 482 | 950 | 276 | 105 | 100 |
| 17 | 565 | 1,560 | 1,320 | 1,160 | 565 | 685 | 5,320 | 782 | 1,020 | 276 | 105 | 95 |
| 18 | 455 | 1,320 | 1,240 | 1,160 | 655 | 718 | 4,220 | 482 | 1,090 | 268 | 105 | 100 |
| 19 | 382 | 1,240 | 1,160 | 1,060 | 685 | 718 | 4,330 | 455 | 1,020 | 289 | 100 | 100 |
| 20 | 360 | 1,160 | 1,160 | 1,160 | 750 | 750 | 4,440 | 455 | 1,020 | 222 | 95 | 95 |
| 21 | 338 | 1,090 | 1,160 | 1,240 | 782 | 3,010 | 4,220 | 455 | 950 | 199 | 100 | 95 |
| 22 | 316 | 1,020 | 1,090 | 1,320 | 1,160 | 2,900 | 4,000 | 455 | 915 | 199 | 100 | 115 |
| 23 | 316 | 880 | 1,090 | 1,400 | 1,800 | 2,150 | 3,670 | 430 | 880 | 186 | 90 | 105 |
| 24 | 296 | 750 | 1,090 | 1,400 | 2,150 | 2,060 | 1,970 | 405 | 848 | 173 | 90 | 100 |
| 25 | 276 | 625 | 1,020 | 1,320 | 2,240 | 2,150 | 1,970 | 405 | 815 | 173 | 105 | 100 |
| 26 | 276 | 685 | 2,330 | 1,400 | 2,330 | 3,120 | 1,640 | 405 | 782 | 143 | 100 | 105 |
| 27 | 276 | 750 | 8,900 | 1,480 | 2,150 | 2,900 | 1,320 | 405 | 750 | 132 | 105 | 115 |
| 28 | 276 | 782 | 5,780 | 1,320 | 1,970 | 3,560 | 1,160 | 405 | 685 | 132 | 115 | 110 |
| 29 | 316 | 782 | 4,660 | 1,400 | ----- | 4,660 | 1,020 | 405 | 625 | 121 | 105 | 105 |
| 30 | 276 | 750 | 5,320 | 1,560 | ----- | 4,220 | 880 | 405 | 655 | 115 | 105 | 105 |
| 31 | 316 | ----- | 4,880 | 2,060 | ----- | 4,440 | ----- | 382 | ----- | 115 | 115 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 1,160 | 67 | 450 | 2.21 | 2.55 | 27,700 |
| November | 8,180 | 360 | 1,930 | 9.46 | 10.56 | 115,000 |
| December | 8,900 | 565 | 2,320 | 11.4 | 13.14 | 143,000 |
| January | 6,500 | 1,090 | 2,400 | 11.8 | 13.60 | 148,000 |
| February | 3,120 | 565 | 1,350 | 6.62 | 6.89 | 75,000 |
| March | 4,660 | 685 | 1,740 | 8.53 | 9.83 | 107,000 |
| April | 8,420 | 880 | 3,090 | 15.1 | 16.85 | 184,000 |
| May | 848 | 382 | 528 | 2.59 | 2.99 | 32,500 |
| June | 1,090 | 316 | 641 | 3.14 | 3.50 | 38,100 |
| July | 685 | 115 | 344 | 1.69 | 1.95 | 21,200 |
| August | 143 | 90 | 110 | .539 | .62 | 6,760 |
| September | 115 | 90 | 100 | .490 | .55 | 5,950 |
| The year | 8,900 | 67 | 1,250 | 6.13 | 83.03 | 904,000 |

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, 1929.

EXTREMES.—Maximum discharge during year, 320 second-feet, while clock was not running, Dec. 30 or 31 (gage height, 3.00 feet); minimum, 1.2 second-feet Sept. 17–21, 29, and 30.

REMARKS.—Records good except those estimated, which are fair. No diversions above gage. Flow regulated to a small extent by dam at outlet of Meadow Lake.

Daily and monthly discharge, in second-feet, 1928–29

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-------|------|------|------|------|------|------|-------|-------|-------|
| 1..... | | 4.6 | 23 | | | * 65 | 56 | | 12 | 7.6 | | 1.8 |
| 2..... | | 4.9 | 22 | | | * 64 | 50 | | 11 | 6.8 | | 1.7 |
| 3..... | | 5.3 | 21 | | | * 62 | 46 | | 10 | | | 1.7 |
| 4..... | | 6.2 | 19 | | | 54 | 43 | | 10 | | | 1.6 |
| 5..... | | 6.6 | 18 | | | 54 | 39 | | 10 | | | 1.6 |
| 6..... | | 6.4 | 16 | | | | 37 | | 11 | | | 1.5 |
| 7..... | | 6.0 | 16 | | | | 37 | | 11 | | | 1.5 |
| 8..... | | 8.1 | 18 | | | | 36 | * 26 | 10 | | * 2.4 | 1.4 |
| 9..... | | 76 | 25 | | | | 34 | | 9.8 | | | 1.3 |
| 10..... | | 139 | 120 | | | | 34 | | 9.5 | | | 1.3 |
| 11..... | | 96 | 114 | | | | 36 | | 9.0 | | | 1.3 |
| 12..... | | 70 | 81 | | | * 44 | 37 | | 8.7 | | | 1.3 |
| 13..... | | 57 | 62 | | | | 44 | | 8.4 | | | 1.3 |
| 14..... | | 53 | 49 | | | | 197 | | 8.4 | | | 1.2 |
| 15..... | | 48 | 40 | | * 48 | | 203 | | 11 | | 2.0 | 1.8 |
| 16..... | | 50 | 35 | * 69 | | | 144 | 18 | 13 | * 4.1 | 2.0 | 1.3 |
| 17..... | | 50 | 31 | | | | 107 | 18 | 16 | | 2.0 | 1.2 |
| 18..... | | 43 | 28 | | | | 86 | 17 | 21 | | 1.9 | 1.2 |
| 19..... | | 37 | 24 | | | | 75 | 16 | 25 | | 1.9 | 1.2 |
| 20..... | | 33 | 23 | | | 32 | | 15 | 24 | | 1.9 | 1.2 |
| 21..... | | 29 | 22 | | | 37 | | 15 | 21 | | 1.8 | 1.2 |
| 22..... | | 26 | 21 | | | 37 | | 14 | 18 | | 1.8 | 1.3 |
| 23..... | | 23 | 20 | | | 34 | | 13 | 15 | | 1.9 | 1.3 |
| 24..... | | 21 | 20 | | | 33 | | 14 | 13 | | 1.9 | 1.3 |
| 25..... | | 18 | 50 | | | 33 | * 50 | 16 | 12 | | 1.9 | 1.4 |
| 26..... | | 18 | 95 | | | 62 | | 16 | 11 | | 1.8 | 1.5 |
| 27..... | | 26 | 118 | | | 114 | | 16 | 9.8 | | 1.8 | 1.4 |
| 28..... | | 26 | | | | 102 | | 15 | 9.0 | | 1.8 | 1.3 |
| 29..... | | 23 | | | | 86 | | 14 | 8.7 | | 1.8 | 1.2 |
| 30..... | 4.4 | 22 | * 192 | | | 73 | | 13 | 8.1 | | 1.8 | 1.2 |
| 31..... | 4.3 | | | | | 64 | | 12 | | | 1.8 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | | | * 4.5 | 0.375 | 0.43 | 277 |
| November..... | 139 | 4.6 | 34.4 | 2.87 | 3.20 | 2,060 |
| December..... | | 16 | 61.3 | 5.11 | 5.89 | 3,770 |
| January..... | | | * 69 | 5.75 | 6.63 | 4,240 |
| February..... | | | * 48 | 4.00 | 4.16 | 2,670 |
| March..... | 114 | | 52.3 | 4.36 | 5.03 | 3,220 |
| April..... | 203 | | 63.0 | 5.25 | 5.86 | 3,760 |
| May..... | | 12 | 20.4 | 1.70 | 1.96 | 1,260 |
| June..... | 25 | 8.1 | 12.5 | 1.04 | 1.16 | 744 |
| July..... | 7.6 | | 4.30 | .353 | .41 | 264 |
| August..... | | 1.8 | 2.11 | .176 | .20 | 130 |
| September..... | 1.8 | 1.2 | 1.37 | .114 | .13 | 82 |
| The year..... | | | 1.2 | 31.0 | 35.06 | 22,400 |

* Estimated.

MISCELLANEOUS DISCHARGE MEASUREMENTS

In addition to the records of flow obtained at the gaging stations and reported in the preceding pages, measurements were made at other points, as shown by the following tables:

Miscellaneous discharge measurements in Pacific slope basins in Oregon and in lower Columbia River Basin during the year ending September, 30, 1929

Walla Walla River Basin, Wash.

| Date | Stream | Tributary to or diverting from | Locality | Gage height | Discharge |
|--------|---------------------------|--------------------------------|-------------------------------------------------------|-------------|-----------|
| | | | | Feet | Sec.-ft. |
| Mar. 7 | Farmers Mill Co.'s ditch. | Touchet River..... | In flume 150 feet below highway crossing, Huntsville. | ----- | 55 |
| Apr. 6 | do..... | do..... | do..... | ----- | 33 |
| May 12 | do..... | do..... | do..... | ----- | 60 |

John Day River Basin, Oreg.

| | | | | | |
|----------|--------------------------------|-------------------------------|-------------------------------------------------------------|-------|------|
| July 24 | Strawberry Creek... | John Day River..... | In sec. 17, T. 14 S., R. 34 E., at Malheur Forest boundary. | ----- | 15.2 |
| Sept. 23 | do..... | do..... | do..... | ----- | 3.1 |
| 20 | Desolation Creek.... | North Fork of John Day River. | At mouth, at Dale..... | ----- | 4.7 |
| Apr. 25 | Middle Fork of John Day River. | do..... | In sec. 8, T. 8 S., R. 30 E., at Ritter. | ----- | 954 |

Tributaries in Columbia River Basin in Washington from White Salmon River to Salmon Creek

| | | | | | |
|---------|-------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------|-------|------|
| Oct. 15 | Trout Lake Water Co.'s ditch. | Trout Creek..... | In NE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 22, T. 6 N., R. 10 E., at Trout Lake. | ----- | 14.5 |
| Jan. 18 | do..... | do..... | do..... | ----- | * 2 |
| May 24 | do..... | do..... | do..... | ----- | 43.6 |
| Aug. 8 | do..... | do..... | do..... | ----- | 24.9 |
| Oct. 15 | Pearson and Peterson ditch. | do..... | In NE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 22, T. 6 N., R. 10 E., at Trout Lake. | ----- | 6.9 |
| Jan. 18 | do..... | do..... | do..... | ----- | 0 |
| May 24 | do..... | do..... | do..... | ----- | 18.4 |
| Aug. 8 | do..... | do..... | do..... | ----- | 20.5 |
| Oct. 15 | Pearson and Olsen ditch. | White Salmon River.. | Below lateral, in NW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 24, T. 6 N., R. 10 E., on left side of river. | ----- | 3.4 |
| Jan. 18 | do..... | do..... | do..... | ----- | 0 |
| May 24 | do..... | do..... | do..... | ----- | * 4 |
| Aug. 8 | do..... | do..... | do..... | ----- | 4.8 |
| Oct. 15 | Pearson and Olsen lateral. | Pearson and Olsen ditch. | In NW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 24, T. 6 N., R. 10 E., crosses river to right side. | ----- | 6.5 |
| Jan. 18 | do..... | do..... | do..... | ----- | * 1 |
| May 24 | do..... | do..... | do..... | ----- | 16.7 |
| Aug. 8 | do..... | do..... | do..... | ----- | 10.4 |
| Oct. 15 | Coats Bros. ditch.... | White Salmon River.. | In SW. $\frac{1}{4}$ sec. 19, T. 6 N., R. 11 E., below wasteway on left side of river. | ----- | 8.1 |
| Jan. 18 | do..... | do..... | do..... | ----- | * 10 |
| May 24 | do..... | do..... | do..... | ----- | * 1 |
| Aug. 8 | do..... | do..... | do..... | ----- | 10.8 |
| Oct. 15 | Coats Bros. ditch wasteway. | Coats Bros. ditch.... | do..... | ----- | 11.7 |
| Jan. 18 | do..... | do..... | do..... | ----- | 0 |
| May 24 | do..... | do..... | do..... | ----- | 24.5 |
| Aug. 8 | do..... | do..... | do..... | ----- | 7.2 |
| Oct. 15 | J. C. Hoak ditch.... | White Salmon River.. | do..... | ----- | 6.3 |
| Jan. 18 | do..... | do..... | do..... | ----- | 0 |
| May 24 | do..... | do..... | do..... | ----- | 22.9 |
| Aug. 8 | do..... | do..... | do..... | ----- | 27.2 |
| May 29 | Little White Salmon River. | Columbia River..... | In SE. $\frac{1}{4}$ sec. 26, T. 4 N., R. 9 E., at bridge just below Moss Creek. | ----- | 218 |
| Aug. 7 | do..... | do..... | do..... | ----- | 131 |
| May 29 | Broughton Lumber Co.'s flume. | Little White Salmon River. | In SW. $\frac{1}{4}$ sec. 36, T. 4 N., R. 9 E., at dam above Lava Creek. | ----- | 27.4 |
| Aug. 7 | do..... | do..... | do..... | ----- | 30.4 |

* Estimated.

Miscellaneous discharge measurements in Pacific slope basins in Oregon and in lower Columbia River Basin during the year ending September, 30, 1929—Con.

Tributaries in Columbia River Basin in Washington from White Salmon River to Salmon Creek—Con.

| Date | Stream | Tributary to or diverting from | Locality | Gage height | Discharge |
|--------|----------------------|--------------------------------|---------------------------------------------------------------------------------------------|-------------|-----------|
| | | | | Feet | Sec.-ft. |
| May 29 | Lava Creek..... | Little White Salmon River. | In SW. $\frac{1}{4}$ sec. 36, T. 4 N., R. 9 E., at Willard ranger station. | ----- | 120 |
| Aug. 7 | do..... | do..... | do..... | ----- | 55 |
| May 28 | Wind River..... | Columbia River..... | In NW. $\frac{1}{4}$ sec. 29, T. 5 N., R. 7 E., below Falls Creek. | ----- | 258 |
| Aug. 6 | do..... | do..... | do..... | ----- | 33.2 |
| May 28 | do..... | do..... | In Sec. 17, T. 3 N., R. 8 E., below Bear Creek. | 2.27 | 984 |
| Aug. 6 | do..... | do..... | do..... | .44 | 239 |
| May 28 | Falls Creek..... | Wind River..... | One-fourth mile above mouth. | ----- | 133 |
| Aug. 6 | do..... | do..... | do..... | ----- | 23.2 |
| May 27 | Washougal River..... | Columbia River..... | In SE. $\frac{1}{4}$ sec. 28, T. 2 N., R. 4 E., $\frac{1}{4}$ miles above Washougal. | ----- | 356 |
| Aug. 5 | do..... | do..... | do..... | ----- | 90 |
| May 27 | Salmon Creek..... | do..... | In SE. $\frac{1}{4}$ sec. 26, T. 3 N., R. 1 E., at Pacific highway bridge below Moss Creek. | ----- | 38.7 |
| Aug. 5 | do..... | do..... | do..... | ----- | 15.4 |

Willamette River Basin, Oreg.

| | | | | | |
|--------|-----------------|--------------------|--------------------------|-------|-----|
| Aug. 3 | Mill Creek..... | Pudding River..... | At mouth, at Aurora..... | ----- | 6.0 |
| 26 | do..... | do..... | do..... | ----- | 6.2 |

Lewis River Basin, Wash.

| | | | | | |
|----------|---------------------------|---------------------|--------------------------------------------------------------------|-------|------|
| Sept. 1 | Lewis River..... | Columbia River..... | E. $\frac{1}{4}$ sec. 12, T. 8 N., R. 8 E., above Steamboat Creek. | ----- | 116 |
| 2 | do..... | do..... | NE. $\frac{1}{4}$ sec. 26, T. 8 N., R. 7 E., below Sheep Bridge. | ----- | 134 |
| May 24 | Rush Creek..... | Lewis River..... | SE. $\frac{1}{4}$ sec. 36, T. 7 N., R. 7 E., above Meadow Creek. | ----- | 117 |
| Aug. 30 | Muddy River..... | do..... | 2,000 feet below mouth of Clearwater Creek. | ----- | 111 |
| 29 | Clearwater Creek..... | Muddy River..... | W. $\frac{1}{4}$ sec. 25, T. 9 N., R. 6 E., above Paradise Falls. | ----- | 16.3 |
| 30 | Clear Creek..... | do..... | Sec. 1, T. 7 N., R. 6 E., at mouth. | ----- | 19.3 |
| May 28 | Swift Creek..... | Lewis River..... | NW. $\frac{1}{4}$ sec. 16, T. 7 N., R. 5 E., below West Fork. | 0.72 | 175 |
| June 5 | do..... | do..... | do..... | .64 | 166 |
| 7 | do..... | do..... | do..... | .63 | 161 |
| 16 | do..... | do..... | do..... | .86 | 211 |
| Aug. 16 | do..... | do..... | do..... | .86 | 111 |
| June 17 | East Fork of Lewis River. | do..... | Sec. 18, T. 4 N., R. 3 E., at highway bridge near Helsen. | ----- | 709 |
| Sept. 10 | do..... | do..... | Sec. 17, T. 4 N., R. 3 E., near Lewisville. | ----- | 44.4 |

Tributaries in Columbia River Basin in Washington below mouth of Lewis River

| | | | | | |
|---------|-----------------------------------------------|-------------------------------|--------------------------------------------------------------------------------|-------|------|
| June 13 | Coweman River..... | Cowlitz River..... | 250 feet above suspension bridge 3 miles east of Kelo. | ----- | 128 |
| Nov. 6 | Mill Creek..... | Columbia River..... | 225 feet below bridge and 1 mile above mouth near Oak Point. | ----- | 16.4 |
| 7 | Alochaman River..... | do..... | 500 feet above bridge in sec. 29, T. 9 N., R. 5 W., near Cathlamet. | ----- | 61.7 |
| 7 | East Fork of Skamokawa Creek. | Skamokawa Creek..... | SE. $\frac{1}{4}$ sec. 5, T. 9 N., R. 6 W., 1 mile above mouth near Skamokawa. | ----- | 51.8 |
| 7 | South Branch of East Fork of Skamokawa Creek. | East Fork of Skamokawa Creek. | Near center sec. 4, T. 9 N., R. 6 W., near Skamokawa. | ----- | 15.0 |
| 8 | Grays River..... | Columbia River..... | 250 feet below bridge and 2 miles above Grays River. | ----- | 251 |
| 8 | West Fork of Grays River. | Grays River..... | 200 feet above mouth near Grays River. | ----- | 121 |

Miscellaneous discharge measurements in Pacific slope basins in Oregon and in lower Columbia River Basin during the year ending September, 30, 1929—Con.

Tributaries in Columbia River Basin in Oregon below mouth of Willamette River

| Date | Stream | Tributary to or diverting from | Locality | Gage height | Dis-charge |
|--------|-----------------------------------------|-----------------------------------------|----------------------------------------------------|-------------|-----------------|
| | | | | <i>Feet</i> | <i>Sec.-ft.</i> |
| June 1 | Milton Creek..... | Columbia River..... | St. Helens..... | ----- | 15.6 |
| May 30 | North Fork of Scap- poose Creek..... | do..... | Columbia River Highway Bridge, near Scappoose. | ----- | 22.6 |
| 30 | South Fork of Scap- poose Creek..... | North Fork of Scap- poose Creek..... | do..... | ----- | 18.2 |
| June 1 | Clatskanie River.... | Columbia River..... | In NW. ¼ sec. 15, T. 7 N., R. 4 W. | ----- | 44.6 |
| 29 | do..... | do..... | do..... | ----- | 29.5 |
| June 1 | Beaver Creek..... | Clatskanie River.... | In SE. ¼ sec. 12, T. 7 N., R. 4 W. | ----- | 8.4 |
| July 1 | do..... | do..... | do..... | ----- | 2.5 |
| June 1 | Fall Creek..... | do..... | In NE. ¼ sec. 7, T. 7 N., R. 4 W. | ----- | 4.2 |
| May 31 | Plymouth Creek.... | Columbia River..... | Westport..... | ----- | 17.4 |
| July 1 | do..... | do..... | do..... | ----- | 13.1 |
| Aug. 1 | Big Creek..... | do..... | In SE. ¼ sec. 3, T. 7 N., R. 7 W., at Crossett. | ----- | 17.8 |
| May 31 | do..... | do..... | In NW. ¼ sec. 29, T. 8 N., R. 7 W. | ----- | 67 |
| July 1 | do..... | do..... | do..... | ----- | 54 |
| Aug. 1 | do..... | do..... | do..... | ----- | 30.4 |

Rogue River Basin, Oreg.

| | | | | | |
|---------|---------------------|----------------------|----------------------------------------|-------|------|
| Apr. 19 | Barr Creek..... | Rogue River..... | In E. ¼ sec. 28, T. 32 S., R. 3 E. | ----- | 20.1 |
| July 18 | Red Blanket ditch.. | Red Blanket Creek... | In NE. ¼ sec. 23, T. 32 S., R. 3 E. | ----- | 6.0 |

Coquille River Basin, Oreg.

| | | | | | |
|---------|-------------------------------------|-----------------------------------|-------------------------------|-------|-----|
| Oct. 16 | Middle Fork of Co- quille River. | South Fork of Co- quille River | At junction with South Fork.. | ----- | 2.5 |
|---------|-------------------------------------|-----------------------------------|-------------------------------|-------|-----|

Umpqua River Basin, Oreg.

| | | | | | |
|----------|------------------------|---------------------|----------------------------------------------------------------------------------------------|-------|------|
| Oct. 6 | North Umpqua River. | Umpqua River..... | In T. 26 S., R. 4 E., above Loafer Creek. | ----- | 420 |
| 10 | do..... | do..... | do..... | ----- | 385 |
| 7 | do..... | do..... | Below Umpqua Hot Springs.. | ----- | 483 |
| 10 | do..... | do..... | do..... | ----- | 483 |
| 6 | Spring River..... | North Umpqua River. | Near SE. corner of sec. 18, T. 26 S., R. 8 E. (unsurveyed), below junction of springs. | ----- | 196 |
| Sept. 24 | Silent Creek..... | Diamond Lake..... | At road crossing 1 mile south of Diamond Lake. | ----- | 22.0 |
| 24 | Short Creek..... | do..... | At mouth..... | ----- | 7.8 |
| Oct. 5 | Fish Creek..... | North Umpqua River. | At road crossing above Camas Creek. | 0.87 | 62 |
| May 3 | do..... | do..... | do..... | 1.74 | 426 |
| June 28 | do..... | do..... | do..... | 1.30 | 180 |
| July 10 | do..... | do..... | do..... | 1.04 | 107 |
| Sept. 13 | do..... | do..... | do..... | .98 | 92 |
| Sept. 23 | do..... | do..... | do..... | .69 | 84.7 |
| May 2 | Steamboat Creek... | do..... | At mouth..... | ----- | 766 |

Nestucca River Basin, Oreg.

| | | | | | |
|---------|---------------------|--------------------|-------------------------------------------------|-------|-----|
| July 31 | Nestucca River..... | Pacific Ocean..... | 150 feet below dam at outlet of Meadow Lake. | ----- | 1.2 |
|---------|---------------------|--------------------|-------------------------------------------------|-------|-----|

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