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SURFACE WATER SUPPLY *of the* UNITED STATES 1930

PART 12

NORTH PACIFIC SLOPE DRAINAGE BASINS A. PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN

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ILLUSTRATION

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| FIGURE 1. Typical river-measurement station showing concrete well and house for water-gage recorder and staff gages, cable, and car. | Page |
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SURFACE WATER SUPPLY OF PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUM- BIA RIVER BASIN, 1930

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, 1930.

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 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, 1895-1931

| | | | |
|----------------|---------------|----------------|----------------|
| 1895----- | \$12, 500. 00 | 1919----- | \$148, 244. 10 |
| 1896----- | 24, 500. 00 | 1920----- | 175, 000. 00 |
| 1897-1899----- | 50, 000. 00 | 1921-1923----- | 180, 000. 00 |
| 1900----- | 70, 000. 00 | 1924-25----- | 170, 000. 00 |
| 1901-2----- | 100, 000. 00 | 1926----- | 165, 000. 00 |
| 1903-1906----- | 200, 000. 00 | 1927----- | 151, 000. 00 |
| 1907----- | 150, 000. 00 | 1928----- | 147, 000. 00 |
| 1908-1910----- | 100, 000. 00 | 1929----- | 270, 500. 00 |
| 1911-1917----- | 150, 000. 00 | 1930----- | 275, 000. 00 |
| 1918----- | 175, 000. 00 | 1931----- | 565, 000. 00 |

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

Measurements of stream flow have been made at about 6,070 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1930, 2,430 gaging stations were being maintained by the Geological Survey and the cooperating organiza-

tions. Many miscellaneous discharge measurements were made at other points. In connection with this work, data were 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, 1929, and ending September 30, 1930. 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

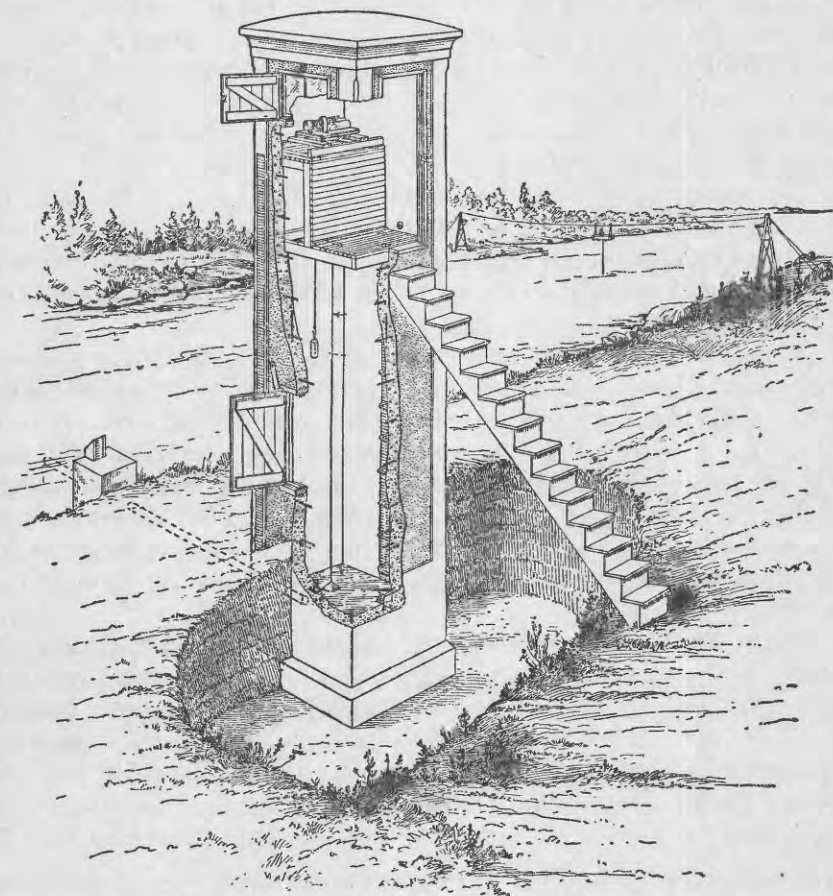


FIGURE 1.—Typical river-measurement station, showing concrete well and house for water-stage recorder and staff gages, cable, and car

daily flow. The records of stage are obtained either from direct readings on a staff or chain gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. A typical gaging station, equipped with water-stage recorder and measuring cable and car, is shown in Figure 1.

From the discharge measurements rating tables are prepared that give the discharge for any stage. The application of the daily gage heights to these rating tables gives the daily discharge from which the monthly and yearly mean discharge is computed.

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 a once-daily reading or the mean of twice-daily readings of a nonrecording gage or the mean daily gage height obtained from a water-stage recorder graph.

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily on the permanency of the stage-discharge relation and 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," within 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 run-off 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 water, and quality of waters. Most of the results of these investigations have been published in the series of water-supply papers, but some have appeared in the bulletins, professional papers, monographs, and annual reports.

The results of stream-flow measurements are now published annually in 12 parts, each part covering an area whose boundaries coincide with natural drainage features as indicated below:

- Part
1. North Atlantic slope basins (St. John River to York River).
 2. South Atlantic slope and eastern Gulf of Mexico basins (James River to the Mississippi).
 3. Ohio River Basin.
 4. St. Lawrence River Basin.
 5. Hudson Bay and Upper Mississippi River Basins.
 6. Missouri River Basin.
 7. Lower Mississippi River Basin.
 8. Western Gulf of Mexico basins.
 9. Colorado River Basin.

10. The Great Basin.
11. Pacific slope basins in California.
12. North Pacific slope drainage basins, in three parts:
 - A, Pacific slope basins in Washington and upper Columbia River Basin.
 - B, Snake River Basin.
 - C, Pacific slope basins in Oregon and lower Columbia River Basin.

Water-supply papers and other publications of the United States Geological Survey containing data in regard to the water resources of the United States may be obtained or consulted as indicated below.

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

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

3. Sets are available for consultation in the local offices of the water-resources branch of the Geological Survey, as follows:

Augusta, Me., Statehouse.
 Boston, Mass., 2500 Customhouse.
 Hartford, Conn., 318 State Office Building.
 Albany, N. Y., 506 Broadway-Arcade Building.
 Trenton, N. J., 710 Trenton Trust Building.
 Harrisburg, Pa., 366 State Capitol.
 Charlottesville, Va., Brooks Museum, University of Virginia.
 South Charleston, W. Va., Naval Ordnance Plant.
 Asheville, N. C., 220 Post Office Building.
 Columbia, S. C., 801 National Loan & Exchange Bank Building.
 Ocala, Fla., Post Office Building.
 Chattanooga, Tenn., 630 Power Building.
 Tuscaloosa, Ala., Post Office 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.
 Santa Fe, N. Mex., 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 51C.
 Honolulu, Hawaii, Territorial Office Building.

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

Stream-flow records have been obtained at about 6,070 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 and 1908. |
| 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 494..... | do..... | 1918. |
| W 501 to 514..... | do..... | 1919 and 1920. |
| W 521 to 534..... | do..... | 1921. |
| W 541 to 554..... | do..... | 1922. |
| W 561 to 574..... | do..... | 1923. |
| W 581 to 594..... | do..... | 1924. |
| W 601 to 614..... | do..... | 1925. |
| W 621 to 634..... | do..... | 1926. |
| W 641 to 654..... | do..... | 1927. |
| W 661 to 674..... | do..... | 1928. |
| W 681 to 694..... | do..... | 1929. |
| W 696 to 709..... | do..... | 1930. |

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 1930. 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 from 1910 to 1920 for any station in the area covered by Part 3 are published in Water-Supply Papers 283, 303, 323, 353, 383, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

Numbers of water-supply papers containing results of stream measurements, 1899-1930

[For basins included see p. 5]

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12-A | 12-B | 12-C |
|---------|--------------------|----------|--------|--------|--------|----------|----------|--------|----------|----------|---------|--------|--------|----------|
| 1899 | 35 | 85, 36 | 36 | 36 | 36 | 36, 37 | 37 | 37 | 37, 38 | 38, 39 | 38, 739 | 33 | 38 | 38 |
| 1900 | 47, 48 | 65, 46 | 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 | 66, 75 | 66, 75 | 66, 75 | 66, 75 | 66, 75 | 66, 75 | 66, 75 | 66, 75 | 66, 75 |
| 1902 | 82, 83 | 82, 83 | 82, 83 | 82, 83 | 82, 83 | 83, 84 | 83, 84 | 83, 84 | 83, 84 | 85 | 85 | 85 | 85 | 85 |
| 1903 | 97, 98 | 97, 98 | 98 | 98 | 98 | 98, 99 | 98, 99 | 98 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1904 | 124, 125, 126, 127 | 126, 127 | 128 | 128 | 128 | 130, 131 | 128, 131 | 132 | 133 | 133, 134 | 134 | 135 | 135 | 135 |
| 1905 | 165, 166, 167, 168 | 167, 168 | 169 | 170 | 171 | 172 | 169, 173 | 174 | 175, 177 | 176, 177 | 177 | 178 | 178 | 177, 178 |
| 1906 | 201, 202, 203, 204 | 203, 204 | 205 | 206 | 207 | 208 | 206, 209 | 210 | 211, 213 | 212, 213 | 213 | 214 | 214 | 214 |
| 1907-8 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250, 251 | 251 | 252 | 252 | 252 |
| 1909 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270, 271 | 271 | 272 | 272 | 272 |
| 1910 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 292 | 292 |
| 1911 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 312 | 312 |
| 1912 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332-A | 332-B | 332-C |
| 1913 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362-A | 362-B | 362-C |
| 1914 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 |
| 1915 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 |
| 1916 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 |
| 1917 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 |
| 1918 | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 | 481 | 482 | 483 | 484 |
| 1919-20 | 501 | 502 | 503 | 504 | 505 | 506 | 507 | 508 | 509 | 510 | 511 | 512 | 513 | 514 |
| 1921 | 521 | 522 | 523 | 524 | 525 | 526 | 527 | 528 | 529 | 530 | 531 | 532 | 533 | 534 |
| 1922 | 541 | 542 | 543 | 544 | 545 | 546 | 547 | 548 | 549 | 550 | 551 | 552 | 553 | 554 |
| 1923 | 561 | 562 | 563 | 564 | 565 | 566 | 567 | 568 | 569 | 570 | 571 | 572 | 573 | 574 |
| 1924 | 581 | 582 | 583 | 584 | 585 | 586 | 587 | 588 | 589 | 590 | 591 | 592 | 593 | 594 |
| 1925 | 601 | 602 | 603 | 604 | 605 | 606 | 607 | 608 | 609 | 610 | 611 | 612 | 613 | 614 |
| 1926 | 621 | 622 | 623 | 624 | 625 | 626 | 627 | 628 | 629 | 630 | 631 | 632 | 633 | 634 |
| 1927 | 641 | 642 | 643 | 644 | 645 | 646 | 647 | 648 | 649 | 650 | 651 | 652 | 653 | 654 |
| 1928 | 661 | 662 | 663 | 664 | 665 | 666 | 667 | 668 | 669 | 670 | 671 | 672 | 673 | 674 |
| 1929 | 681 | 682 | 683 | 684 | 685 | 686 | 687 | 688 | 689 | 690 | 691 | 692 | 693 | 694 |
| 1930 | 696 | 697 | 698 | 699 | 700 | 701 | 702 | 703 | 704 | 705 | 706 | 707 | 708 | 709 |

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

James River only

Chalatin River

Green and Gunnison Rivers and Grand River above junction with Gunnison.

Mohave River only

Kings and Kerns Rivers and south Pacific slope 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 4.

Wissachick and Schuykill Rivers to James River.

Soloto River.

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

Tributaries of Mississippi from east.

Lake Ontario and tributaries to St. Lawrence River proper.

Rio Grande only.

New England Rivers only.

Zudon River to Delaware River, inclusive.

Chickamauga River to Yaden River, inclusive.

Plate and Kansas Rivers.

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

Below junction with Ohio.

Rogue, Umpqua, and Siletz Rivers only.

COOPERATION

The work was done under cooperative agreements with the several States as follows: In Washington with the department of conservation and development, division of water resources, E. J. Barnes, director, and R. K. Tiffany, supervisor of hydraulics, succeeded by C. J. Bartholet; in Montana with the office of the State engineer, J. S. James; in Idaho with the department of reclamation, G. N. Carter, commissioner.

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DIVISION OF WORK

The data for stations in Washington and for Clark Fork at Priest River, Idaho, were collected and prepared for publication under the direction of G. L. Parker, district engineer, assisted by D. J. F. Calkins, D. A. Dudley, R. B. Kilgore, Arthur Johnson, G. M. Thayer, M. C. Boyer, H. C. Woster, Frank Stermitz, L. I. Meyer, and R. J. Swanson.

The data for stations in Montana, except as noted below, were collected and prepared for publication under the direction of W. A. Lamb, district engineer, assisted by A. H. Tuttle, C. S. Heidel, G. C. Sanders, W. J. Parsons, Edward Post, E. H. Bekkedahl, H. C. Smith, and Mrs. G. Thompson.

The data for stations in Idaho (except Clark Fork at Priest River, Idaho) and on Clark Fork near Heron, Mont., Flathead River near Trail Creek, Mont., and Kootenai River near Rexford, Mont., were collected and prepared for publication under the direction of C. G. Paulsen, district engineer, assisted by F. M. Veatch, R. G. Kasel, Berkeley Johnson, F. C. Craig, W. I. Travis, Miss F. H. Hauge, and Miss Josephine Ruick.

Records were reviewed and manuscript assembled by F. L. LeMert.

GAGING-STATION RECORDS

DRAINAGE BASINS BETWEEN COLUMBIA RIVER AND PUGET SOUND

NASELLE RIVER BASIN

NASELLE RIVER NEAR NASELLE, WASH.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 1, T. 10 N., R. 9 W., $1\frac{1}{2}$ miles above Salmon Creek and $3\frac{1}{2}$ miles east of Naselle.

DRAINAGE AREA.—66 square miles.

RECORDS AVAILABLE.—May, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,270 second-feet Dec. 23 (gage height, 7.00 feet); minimum, 22 second-feet Oct. 6, 7 (gage height, 1.75 feet).

1929-30: Maximum discharge, that of Dec. 23, 1929; minimum, that of Oct. 6, 7, 1929.

REMARKS.—Records good. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-----|-------|------|------|-------|
| 1..... | 25 | 35 | 35 | 864 | 1,850 | 430 | 293 | 184 | 222 | 97 | 44 | 26 |
| 2..... | 25 | 26 | 33 | 765 | 964 | 393 | 263 | 172 | 235 | 94 | 42 | 26 |
| 3..... | 25 | 26 | 32 | 814 | 814 | 325 | 468 | 172 | 222 | 86 | 37 | 26 |
| 4..... | 26 | 25 | 32 | 1,070 | 914 | 325 | 630 | 160 | 222 | 83 | 37 | 26 |
| 5..... | 26 | 25 | 33 | 964 | 1,450 | 293 | 765 | 160 | 196 | 81 | 37 | 26 |
| 6..... | 22 | 26 | 34 | 765 | 964 | 263 | 588 | 160 | 184 | 81 | 37 | 28 |
| 7..... | 24 | 26 | 35 | 588 | 1,450 | 249 | 507 | 160 | 209 | 78 | 37 | 28 |
| 8..... | 30 | 26 | 42 | 468 | 1,180 | 249 | 468 | 160 | 184 | 75 | 37 | 28 |
| 9..... | 73 | 33 | 138 | 430 | 914 | 249 | 430 | 138 | 160 | 67 | 37 | 28 |
| 10..... | 37 | 53 | 293 | 358 | 1,230 | 235 | 393 | 138 | 160 | 65 | 37 | 28 |
| 11..... | 37 | 58 | 209 | 293 | 1,010 | 222 | 358 | 134 | 149 | 65 | 36 | 28 |
| 12..... | 35 | 38 | 222 | 278 | 914 | 209 | 309 | 128 | 138 | 65 | 35 | 28 |
| 13..... | 32 | 37 | 765 | 263 | 1,340 | 209 | 293 | 120 | 138 | 65 | 33 | 49 |
| 14..... | 29 | 35 | 1,180 | 235 | 1,340 | 184 | 293 | 118 | 134 | 65 | 32 | 76 |
| 15..... | 26 | 32 | 547 | 209 | 964 | 184 | 293 | 116 | 120 | 62 | 32 | 49 |
| 16..... | 29 | 40 | 430 | 196 | 814 | 172 | 263 | 114 | 118 | 62 | 37 | 33 |
| 17..... | 40 | 85 | 430 | 196 | 718 | 160 | 249 | 118 | 118 | 59 | 37 | 29 |
| 18..... | 50 | 47 | 358 | 184 | 718 | 160 | 235 | 122 | 110 | 58 | 36 | 27 |
| 19..... | 53 | 44 | 376 | 172 | 1,500 | 160 | 222 | 196 | 107 | 56 | 34 | 27 |
| 20..... | 45 | 37 | 325 | 160 | 1,560 | 222 | 209 | 718 | 99 | 53 | 30 | 25 |
| 21..... | 40 | 36 | 358 | 160 | 1,340 | 1,230 | 196 | 630 | 99 | 53 | 30 | 25 |
| 22..... | 33 | 35 | 1,230 | 222 | 1,120 | 1,010 | 184 | 488 | 99 | 52 | 28 | 27 |
| 23..... | 28 | 32 | 1,910 | 184 | 964 | 1,010 | 172 | 376 | 97 | 50 | 28 | 41 |
| 24..... | 26 | 33 | 1,120 | 160 | 814 | 1,670 | 160 | 325 | 95 | 50 | 28 | 35 |
| 25..... | 26 | 40 | 1,070 | 160 | 718 | 1,230 | 160 | 278 | 94 | 50 | 27 | 41 |
| 26..... | 26 | 42 | 864 | 138 | 630 | 814 | 160 | 235 | 95 | 50 | 26 | 47 |
| 27..... | 32 | 37 | 718 | 122 | 547 | 630 | 249 | 222 | 108 | 49 | 26 | 99 |
| 28..... | 35 | 42 | 547 | 128 | 468 | 547 | 249 | 209 | 138 | 47 | 26 | 99 |
| 29..... | 27 | 42 | 468 | 184 | ----- | 449 | 209 | 184 | 116 | 45 | 26 | 86 |
| 30..... | 26 | 35 | 430 | 160 | ----- | 376 | 184 | 196 | 110 | 44 | 26 | 70 |
| 31..... | 35 | ----- | 488 | 249 | ----- | 342 | ----- | 184 | ----- | 44 | 26 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 73 | 22 | 33.0 | 0.500 | 0.58 | 2,030 |
| November..... | 85 | 25 | 37.6 | .570 | .64 | 2,240 |
| December..... | 1,910 | 32 | 476 | 7.21 | 8.31 | 29,300 |
| January..... | 1,070 | 122 | 360 | 5.45 | 6.28 | 22,100 |
| February..... | 1,850 | 468 | 1,040 | 15.8 | 16.47 | 57,800 |
| March..... | 1,670 | 160 | 458 | 6.94 | 8.00 | 28,200 |
| April..... | 765 | 160 | 315 | 4.77 | 5.32 | 18,700 |
| May..... | 718 | 114 | 220 | 3.33 | 3.84 | 13,500 |
| June..... | 235 | 94 | 143 | 2.17 | 2.42 | 8,510 |
| July..... | 97 | 44 | 62.9 | .953 | 1.10 | 3,870 |
| August..... | 44 | 26 | 32.9 | .498 | .57 | 2,020 |
| September..... | 99 | 25 | 40.4 | .612 | .68 | 2,400 |
| The year..... | 1,910 | 22 | 264 | 4.00 | 54.16 | 191,000 |

NORTH RIVER BASIN

NORTH RIVER NEAR RAYMOND, WASH.

LOCATION.—Water-stage recorder in sec. 6, T. 15 N., R. 9 W., $1\frac{1}{4}$ miles above Salmon Creek and 10 miles northwest of Raymond.

RECORDS AVAILABLE.—August, 1927, to September, 1930.

EXTREMES.—Maximum discharge during year, 4,900 second-feet Dec. 23 (gage height, 6.05 feet); minimum, 3 second-feet Sept. 25, 26 (gage height, -0.11 foot).

1927-1930: Maximum discharge, 8,610 second-feet Nov. 24, 1927 (gage height, 7.8 feet); minimum, that of Sept. 25, 26, 1930 (result of regulation).

REMARKS.—Records excellent. Splash dam 800 feet above gage operated at irregular intervals. Many discharge measurements furnished by Western Washington Electric Light & Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 54 | 62 | 79 | 1,280 | 2,070 | 1,040 | 748 | 458 | 415 | 166 | 77 | 53 |
| 2..... | 53 | 61 | 77 | 1,700 | 3,360 | 918 | 685 | 422 | 314 | 153 | 77 | 53 |
| 3..... | 54 | 60 | 76 | 1,760 | 2,560 | 823 | 760 | 378 | 197 | 147 | 76 | 52 |
| 4..... | 58 | 59 | 71 | 2,560 | 2,720 | 760 | 1,070 | 396 | 311 | 146 | 73 | 52 |
| 5..... | 60 | 58 | 69 | 2,790 | 3,360 | 706 | 2,000 | 374 | 483 | 143 | 73 | 52 |
| 6..... | 59 | 58 | 68 | 2,420 | 3,190 | 660 | 1,760 | 374 | 374 | 136 | 72 | 52 |
| 7..... | 60 | 57 | 66 | 1,700 | 2,640 | 620 | 1,330 | 374 | 354 | 130 | 71 | 51 |
| 8..... | 69 | 56 | 68 | 1,290 | 2,790 | 610 | 942 | 368 | 350 | 126 | 70 | 53 |
| 9..... | 84 | 60 | 94 | 1,020 | 2,280 | 635 | 999 | 343 | 337 | 124 | 69 | 53 |
| 10..... | 82 | 66 | 264 | 870 | 2,140 | 620 | 894 | 360 | 307 | 118 | 70 | 57 |
| 11..... | 93 | 68 | 566 | 748 | 2,350 | 560 | 816 | 310 | 284 | 114 | 69 | 57 |
| 12..... | 93 | 78 | 630 | 660 | 2,140 | 523 | 742 | 291 | 274 | 110 | 68 | 57 |
| 13..... | 85 | 84 | 682 | 500 | 2,400 | 492 | 695 | 281 | 265 | 108 | 68 | 57 |
| 14..... | 86 | 78 | 1,440 | 510 | 3,800 | 466 | 760 | 265 | 265 | 107 | 67 | 61 |
| 15..... | 78 | 71 | 1,650 | 528 | 3,720 | 446 | 1,060 | 258 | 240 | 106 | 65 | 176 |
| 16..... | 69 | 73 | 886 | 550 | 2,640 | 422 | 1,040 | 252 | 220 | 102 | 66 | 90 |
| 17..... | 74 | 89 | 706 | 546 | 2,000 | 404 | 902 | 249 | 202 | 93 | 65 | 74 |
| 18..... | 77 | 89 | 665 | 541 | 1,820 | 389 | 795 | 252 | 197 | 91 | 70 | 67 |
| 19..... | 89 | 90 | 590 | 420 | 2,420 | 378 | 724 | 298 | 192 | 93 | 65 | 61 |
| 20..... | 99 | 86 | 565 | 320 | 3,110 | 411 | 665 | 488 | 187 | 93 | 61 | 59 |
| 21..... | 110 | 78 | 580 | 320 | 3,530 | 970 | 625 | 940 | 185 | 94 | 61 | 56 |
| 22..... | 96 | 72 | 1,380 | 324 | 2,950 | 2,280 | 585 | 1,040 | 183 | 93 | 59 | 53 |
| 23..... | 84 | 68 | 4,210 | 404 | 2,350 | 2,000 | 546 | 830 | 180 | 93 | 58 | 50 |
| 24..... | 77 | 67 | 3,800 | 364 | 2,070 | 2,950 | 514 | 675 | 155 | 93 | 58 | 58 |
| 25..... | 72 | 78 | 2,080 | 343 | 1,820 | 3,530 | 501 | 585 | 149 | 91 | 57 | 28 |
| 26..... | 69 | 74 | 1,820 | 343 | 1,590 | 2,650 | 484 | 518 | 166 | 90 | 56 | 63 |
| 27..... | 69 | 100 | 1,590 | 337 | 1,130 | 1,820 | 560 | 466 | 185 | 89 | 56 | 226 |
| 28..... | 68 | 104 | 1,290 | 314 | 1,130 | 1,380 | 595 | 446 | 195 | 85 | 55 | 268 |
| 29..... | 67 | 93 | 1,060 | 364 | ----- | 1,120 | 565 | 426 | 185 | 64 | 55 | 271 |
| 30..... | 67 | 85 | 918 | 488 | ----- | 958 | 501 | 411 | 185 | 57 | 55 | 155 |
| 31..... | 66 | ----- | 942 | 581 | ----- | 838 | ----- | 400 | ----- | 73 | 54 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|-------------------------|
| October..... | 110 | 53 | 74.9 | 4,610 |
| November..... | 104 | 56 | 74.1 | 4,410 |
| December..... | 4,210 | 66 | 935 | 57,500 |
| January..... | 2,790 | 314 | 868 | 53,400 |
| February..... | 3,800 | 1,130 | 2,500 | 139,000 |
| March..... | 3,530 | 378 | 1,040 | 64,000 |
| April..... | 2,000 | 484 | 829 | 49,300 |
| May..... | 1,040 | 249 | 436 | 26,800 |
| June..... | 1,483 | 149 | 251 | 14,900 |
| July..... | 166 | 57 | 107 | 6,580 |
| August..... | 77 | 64 | 65.0 | 4,000 |
| September..... | 271 | 28 | 83.8 | 4,990 |
| The year..... | 4,210 | 28 | 594 | 429,000 |

CHEHALIS RIVER BASIN

CHEHALIS RIVER NEAR CHEHALIS, WASH.

LOCATION.—Chain gage on line between secs. 1 and 2, T. 13 N., R. 3 W., at highway bridge $1\frac{1}{2}$ miles above Newaukum River and southwest of Chehalis.

DRAINAGE AREA.—465 square miles.

RECORDS AVAILABLE.—February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 7,580 second-feet Dec. 23 (gage height, 23.84 feet); minimum, 54 second-feet Oct. 1 (gage height, 1.37 feet).
1929-30: Maximum discharge, 7,630 second-feet Apr. 15, 1929; minimum, that of Oct. 1, 1929.

REMARKS.—Records good. Discharge estimated Jan. 8-21. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|-------|-------|-------|-------|-------|------|------|------|-------|
| 1 | 54 | 88 | 100 | 1,850 | 3,980 | 1,610 | 1,070 | 708 | 510 | 208 | 101 | 79 |
| 2 | 72 | 88 | 94 | 3,070 | 5,090 | 1,460 | 950 | 686 | 510 | 192 | 101 | 69 |
| 3 | 75 | 88 | 94 | 2,400 | 3,940 | 1,310 | 890 | 642 | 510 | 184 | 101 | 74 |
| 4 | 74 | 82 | 88 | 2,780 | 3,460 | 1,190 | 1,280 | 554 | 532 | 184 | 101 | 74 |
| 5 | 77 | 82 | 88 | 3,520 | 5,010 | 1,100 | 1,370 | 532 | 488 | 176 | 96 | 69 |
| 6 | 82 | 88 | 88 | 2,930 | 4,650 | 1,010 | 1,190 | 510 | 424 | 169 | 96 | 64 |
| 7 | 88 | 106 | 94 | 2,090 | 3,420 | 950 | 1,010 | 554 | 403 | 176 | 96 | 69 |
| 8 | 94 | 82 | 88 | | 6,130 | 920 | 980 | 532 | 424 | 176 | 90 | 74 |
| 9 | 100 | 138 | 112 | | 4,450 | 920 | 890 | 488 | 383 | 154 | 90 | 79 |
| 10 | 181 | 71 | 531 | 1,220 | 3,240 | 920 | 831 | 424 | 345 | 154 | 101 | 74 |
| 11 | 132 | 106 | 1,010 | | 3,880 | 803 | 777 | 424 | 345 | 154 | 90 | 79 |
| 12 | 118 | 118 | 683 | | 3,100 | 753 | 730 | 403 | 345 | 147 | 90 | 74 |
| 13 | 118 | 106 | 569 | | 2,640 | 708 | 708 | 383 | 326 | 140 | 90 | 74 |
| 14 | 118 | 94 | 5,850 | | 5,930 | 686 | 753 | 364 | 307 | 133 | 84 | 69 |
| 15 | 106 | 94 | 4,370 | 610 | 4,850 | 664 | 950 | 364 | 288 | 126 | 79 | 79 |
| 16 | 94 | 94 | 2,090 | | 4,570 | 620 | 803 | 345 | 270 | 133 | 90 | 84 |
| 17 | 94 | 88 | 2,230 | | 2,720 | 598 | 730 | 345 | 252 | 133 | 90 | 79 |
| 18 | 118 | 112 | 1,640 | | 2,120 | 576 | 686 | 345 | 252 | 133 | 90 | 74 |
| 19 | 145 | 118 | 1,490 | | 2,900 | 554 | 664 | 345 | 252 | 126 | 84 | 69 |
| 20 | 152 | 106 | 1,370 | 550 | 4,730 | 554 | 620 | 620 | 234 | 120 | 84 | 64 |
| 21 | 138 | 94 | 1,130 | | 5,530 | 730 | 620 | 1,950 | 234 | 130 | 90 | 64 |
| 22 | 118 | 94 | 1,250 | 532 | 4,300 | 4,450 | 598 | 1,880 | 234 | 113 | 84 | 60 |
| 23 | 106 | 88 | 7,580 | 642 | 3,560 | 4,850 | 554 | 1,310 | 234 | 113 | 84 | 60 |
| 24 | 100 | 88 | 5,530 | 620 | 3,350 | 4,370 | 576 | 1,010 | 217 | 113 | 79 | 64 |
| 25 | 88 | 94 | 3,380 | 554 | 2,960 | 5,050 | 554 | 831 | 217 | 107 | 79 | 74 |
| 26 | 94 | 118 | 3,490 | 576 | 2,620 | 3,630 | 532 | 730 | 234 | 107 | 79 | 84 |
| 27 | 88 | 132 | 2,680 | 576 | 2,200 | 2,620 | 642 | 642 | 234 | 107 | 74 | 96 |
| 28 | 88 | 112 | 2,090 | 598 | 1,850 | 1,980 | 1,160 | 554 | 234 | 107 | 74 | 192 |
| 29 | 106 | 106 | 1,670 | 753 | | 1,640 | 950 | 576 | 252 | 107 | 69 | 217 |
| 30 | 94 | 100 | 1,430 | 980 | | 1,370 | 803 | 554 | 217 | 113 | 74 | 133 |
| 31 | 88 | | 1,550 | 1,340 | | 1,220 | | 510 | | 101 | 79 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 181 | 54 | 103 | 0.222 | 0.24 | 6,330 |
| November | 138 | 71 | 90.2 | .213 | .24 | 5,900 |
| December | 7,580 | 88 | 1,760 | 3.76 | 4.34 | 108,000 |
| January | 3,520 | 532 | 1,200 | 2.58 | 2.77 | 73,800 |
| February | 6,130 | 1,850 | 3,830 | 8.24 | 8.53 | 213,000 |
| March | 5,050 | 554 | 1,610 | 3.46 | 3.99 | 99,000 |
| April | 1,370 | 532 | 829 | 1.78 | 1.99 | 49,300 |
| May | 1,950 | 545 | 649 | 1.40 | 1.61 | 39,900 |
| June | 532 | 217 | 324 | .697 | .78 | 19,300 |
| July | 208 | 101 | 140 | .301 | .35 | 8,610 |
| August | 101 | 69 | 87.4 | .188 | .22 | 5,370 |
| September | 217 | 60 | 83.8 | .180 | .20 | 4,990 |
| The year | 7,580 | 54 | 874 | 1.88 | 25.53 | 634,000 |

CHEHALIS RIVER NEAR GRAND MOUND, WASH.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 23, T. 15 N., R. 3 W., at Meadow, $1\frac{1}{2}$ miles southwest of Grand Mound.

DRAINAGE AREA.—928 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 12,000 second-feet Feb. 8 (gage height, 7.19 feet); minimum, 147 second-feet Aug. 29 (gage height, 0.04 foot).

1928-1930: Maximum discharge, 13,500 second-feet Mar. 27, 1929; minimum, that of Aug. 29, 1930.

REMARKS.—Records good. Cities of Chehalis and Centralia divert possibly 15 second-feet from Newaukum River, a tributary, for municipal use. No noticeable regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-------|-------|--------|--------|-------|-------|-------|------|------|-------|
| 1..... | 182 | 270 | 322 | 3,630 | 5,100 | 2,680 | 2,160 | 1,520 | 990 | 515 | 165 | 151 |
| 2..... | 182 | 285 | 310 | 5,100 | 9,470 | 2,410 | 1,800 | 1,320 | 1,190 | 466 | 168 | 163 |
| 3..... | 188 | 280 | 300 | 4,160 | 7,120 | 2,160 | 1,730 | 1,260 | 1,090 | 459 | 165 | 151 |
| 4..... | 202 | 275 | 300 | 5,290 | 6,290 | 2,040 | 2,310 | 1,130 | 1,090 | 445 | 168 | 149 |
| 5..... | 214 | 300 | 300 | 6,700 | 9,250 | 1,810 | 2,310 | 950 | | 438 | 159 | 151 |
| 6..... | 232 | 295 | 305 | 5,690 | 7,960 | 1,590 | 2,010 | 950 | 890 | 398 | 161 | 155 |
| 7..... | 232 | 305 | 305 | 3,630 | 7,120 | 1,590 | 1,730 | 1,070 | 845 | 386 | 157 | 163 |
| 8..... | 240 | 300 | 310 | 2,970 | 12,000 | 1,590 | 1,730 | 950 | 845 | 374 | 157 | 167 |
| 9..... | 256 | 280 | 377 | 2,410 | 8,380 | 1,480 | 1,520 | 840 | 755 | 320 | 157 | 168 |
| 10..... | 391 | 310 | 1,810 | 2,040 | 5,890 | 1,420 | 1,380 | 740 | 710 | 300 | 161 | 180 |
| 11..... | 358 | 340 | 1,920 | 1,700 | 7,120 | 1,320 | 1,320 | 740 | 710 | 292 | 161 | 172 |
| 12..... | 340 | 448 | 1,370 | 920 | 5,690 | 1,270 | 1,070 | 695 | 710 | 300 | 153 | 170 |
| 13..... | 300 | 352 | 1,170 | 1,320 | 5,290 | 1,170 | 1,070 | 650 | 755 | 300 | 151 | 180 |
| 14..... | 280 | 328 | 8,170 | 1,220 | 11,700 | 1,120 | 1,730 | 610 | 670 | 292 | 151 | 190 |
| 15..... | 256 | 316 | 6,700 | 1,170 | 9,470 | 1,070 | 2,010 | 610 | 630 | 288 | 151 | 188 |
| 16..... | 252 | 316 | 3,980 | 1,170 | 6,490 | 1,020 | 1,730 | 650 | 590 | 256 | 153 | 180 |
| 17..... | 244 | 310 | 3,460 | 970 | 4,910 | 920 | 1,520 | 650 | 590 | 252 | 155 | 170 |
| 18..... | 290 | 334 | 2,540 | 1,020 | 3,980 | 895 | 1,380 | 650 | 550 | 248 | 155 | 172 |
| 19..... | 358 | 352 | 2,160 | 1,020 | 6,090 | 840 | 1,260 | 740 | 550 | 236 | 153 | 170 |
| 20..... | 328 | 328 | 2,160 | 870 | 8,590 | 950 | 1,130 | 1,390 | 550 | 228 | 151 | 168 |
| 21..... | 322 | 310 | 1,810 | 735 | 9,250 | 2,160 | 1,130 | 3,480 | 515 | 220 | 149 | 165 |
| 22..... | 300 | 300 | 2,410 | 780 | 7,330 | 9,940 | 1,130 | 3,150 | 550 | 214 | 149 | 168 |
| 23..... | 285 | 305 | 9,690 | 970 | 6,090 | 9,940 | 1,130 | 2,310 | 550 | 205 | 151 | 178 |
| 24..... | 270 | 310 | 8,810 | 870 | 5,690 | 10,400 | 1,010 | 1,830 | 515 | 193 | 151 | 180 |
| 25..... | 265 | 310 | 8,170 | 780 | 4,340 | 9,940 | 1,010 | 1,610 | 515 | 199 | 151 | 185 |
| 26..... | 265 | 398 | 5,490 | 780 | 3,800 | 7,060 | 1,010 | 1,290 | 515 | 188 | 149 | 202 |
| 27..... | 280 | 426 | 4,160 | 780 | 3,630 | 4,950 | 1,380 | 1,190 | 550 | 185 | 153 | 300 |
| 28..... | 265 | 384 | 3,290 | 735 | 3,130 | 3,900 | 2,310 | 1,090 | 670 | 180 | 149 | 368 |
| 29..... | 285 | 370 | 2,540 | 920 | | 3,240 | 2,160 | 1,190 | 670 | 175 | 147 | 340 |
| 30..... | 305 | 346 | 2,280 | 1,590 | | 2,780 | 1,800 | 1,090 | 550 | 172 | 151 | 264 |
| 31..... | 290 | | 2,540 | 2,280 | | 2,310 | | 990 | | 168 | 153 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 391 | 182 | 272 | 0.293 | 0.34 | 16,700 |
| November..... | 448 | 270 | 328 | .351 | .39 | 19,400 |
| December..... | 9,690 | 300 | 2,890 | 3.11 | 3.58 | 178,000 |
| January..... | 6,700 | 735 | 2,070 | 2.23 | 2.57 | 127,000 |
| February..... | 12,000 | 3,130 | 6,830 | 7.36 | 7.66 | 379,000 |
| March..... | 10,400 | 840 | 3,100 | 3.34 | 3.85 | 191,000 |
| April..... | 2,310 | 1,010 | 1,570 | 1.69 | 1.89 | 93,400 |
| May..... | 3,480 | 610 | 1,200 | 1.29 | 1.49 | 73,800 |
| June..... | 1,190 | 515 | 710 | .765 | .85 | 42,200 |
| July..... | 515 | 168 | 287 | .309 | .36 | 17,600 |
| August..... | 168 | 147 | 155 | .167 | .19 | 9,530 |
| September..... | 368 | 149 | 189 | .204 | .23 | 11,200 |
| The year..... | 12,000 | 147 | 1,600 | 1.72 | 23.40 | 1,160,000 |

NEWAUKUM RIVER NEAR CHEHALIS, WASH.

LOCATION.—Staff gage on line between secs. 9 and 15, T. 13 N., R. 2 W., 3 miles above mouth and southeast of Chehalis.

DRAINAGE AREA.—158 square miles.

RECORDS AVAILABLE.—March, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 3,020 second-feet Mar. 24 (gage height, 8.64 feet); minimum, 27 second-feet Sept. 23.

1929-30: Maximum discharge, that of Mar. 24, 1930; minimum, that of Sept. 23, 1930.

REMARKS.—Records excellent. Cities of Chehalis and Centralia divert possibly as much as 15 second-feet for municipal use. No regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-----|-------|------|------|-------|
| 1----- | 33 | 37 | 44 | 1,380 | 1,550 | 483 | 379 | 302 | 197 | 85 | 41 | 32 |
| 2----- | 33 | 37 | 43 | 1,220 | 1,380 | 431 | 353 | 277 | 266 | 84 | 41 | 30 |
| 3----- | 33 | 37 | 40 | 893 | 1,030 | 379 | 327 | 266 | 242 | 83 | 39 | 29 |
| 4----- | 34 | 37 | 39 | 1,220 | 1,180 | 353 | 379 | 220 | 231 | 75 | 39 | 30 |
| 5----- | 37 | 38 | 39 | 1,140 | 1,500 | 328 | 314 | 208 | 208 | 75 | 38 | 32 |
| 6----- | 47 | 38 | 39 | 829 | 1,030 | 303 | 290 | 197 | 186 | 70 | 37 | 32 |
| 7----- | 37 | 47 | 39 | 619 | 1,420 | 278 | 277 | 242 | 175 | 70 | 37 | 32 |
| 8----- | 38 | 40 | 43 | 537 | 2,300 | 290 | 266 | 197 | 164 | 67 | 37 | 33 |
| 9----- | 63 | 42 | 204 | 457 | 1,220 | 303 | 242 | 175 | 143 | 63 | 36 | 41 |
| 10----- | 76 | 57 | 765 | 379 | 1,100 | 266 | 231 | 164 | 143 | 62 | 35 | 37 |
| 11----- | 50 | 80 | 431 | 353 | 1,180 | 240 | 208 | 154 | 143 | 56 | 38 | 36 |
| 12----- | 46 | 56 | 353 | 278 | 960 | 228 | 208 | 143 | 164 | 57 | 36 | 37 |
| 13----- | 42 | 49 | 328 | 253 | 1,180 | 216 | 220 | 143 | 134 | 55 | 35 | 35 |
| 14----- | 38 | 46 | 1,750 | 266 | 2,060 | 204 | 483 | 134 | 134 | 57 | 34 | 49 |
| 15----- | 37 | 42 | 765 | 253 | 1,300 | 192 | 483 | 134 | 134 | 54 | 33 | 57 |
| 16----- | 36 | 40 | 735 | 240 | 995 | 192 | 379 | 134 | 124 | 54 | 37 | 39 |
| 17----- | 39 | 40 | 647 | 204 | 705 | 180 | 327 | 134 | 119 | 53 | 35 | 32 |
| 18----- | 53 | 50 | 510 | 228 | 647 | 168 | 200 | 134 | 115 | 54 | 36 | 33 |
| 19----- | 45 | 45 | 483 | 204 | 1,220 | 157 | 266 | 164 | 113 | 54 | 34 | 31 |
| 20----- | 44 | 40 | 483 | 180 | 1,380 | 192 | 231 | 564 | 110 | 52 | 34 | 28 |
| 21----- | 39 | 42 | 431 | 157 | 1,100 | 619 | 231 | 893 | 108 | 46 | 33 | 28 |
| 22----- | 38 | 40 | 647 | 204 | 960 | 2,600 | 242 | 765 | 106 | 47 | 33 | 28 |
| 23----- | 37 | 39 | 1,900 | 228 | 861 | 1,550 | 208 | 537 | 106 | 47 | 32 | 27 |
| 24----- | 36 | 39 | 1,100 | 180 | 797 | 2,670 | 208 | 431 | 99 | 46 | 32 | 30 |
| 25----- | 36 | 49 | 705 | 180 | 705 | 1,750 | 254 | 353 | 96 | 45 | 33 | 32 |
| 26----- | 36 | 106 | 735 | 157 | 735 | 1,140 | 231 | 290 | 99 | 45 | 33 | 35 |
| 27----- | 38 | 66 | 647 | 157 | 619 | 829 | 277 | 242 | 122 | 44 | 32 | 41 |
| 28----- | 45 | 53 | 564 | 155 | 537 | 675 | 431 | 231 | 154 | 43 | 31 | 89 |
| 29----- | 39 | 50 | 405 | 204 | ----- | 591 | 483 | 254 | 117 | 43 | 30 | 63 |
| 30----- | 37 | 47 | 457 | 278 | ----- | 483 | 353 | 208 | 101 | 41 | 32 | 38 |
| 31----- | 37 | ----- | 537 | 510 | ----- | 431 | ----- | 186 | ----- | 40 | 33 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|-------------------------|
| October----- | 76 | 33 | 41.3 | 2,540 |
| November----- | 106 | 37 | 47.6 | 2,830 |
| December----- | 1,900 | 39 | 513 | 31,500 |
| January----- | 1,380 | 155 | 437 | 26,900 |
| February----- | 2,300 | 537 | 1,130 | 62,800 |
| March----- | 2,670 | 157 | 604 | 37,100 |
| April----- | 483 | 208 | 302 | 18,000 |
| May----- | 893 | 134 | 273 | 16,800 |
| June----- | 266 | 96 | 145 | 8,630 |
| July----- | 89 | 40 | 57.4 | 3,530 |
| August----- | 41 | 30 | 35.0 | 2,150 |
| September----- | 89 | 27 | 37.2 | 2,210 |
| The year----- | 2,670 | 27 | 297 | 215,000 |

SKOOKUMCHUCK RIVER NEAR CENTRALIA, WASH.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 18, T. 15 N., R. 1 E., about 15 miles north-east of Centralia.

DRAINAGE AREA.—60 square miles.

RECORDS AVAILABLE.—April, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,840 second-feet Mar. 22 (gage height, 6.04 feet); minimum, 21 second-feet Sept. 23, 24 (gage height, 1.36 feet).

1929-30: Maximum discharge, that of Mar. 22, 1930; minimum, that of Sept. 23, 24, 1930.

REMARKS.—Records good except those for period Jan. 11-30, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|------|------|-------|------|-----|------|------|------|-------|
| 1 | 23 | 22 | 23 | 449 | 599 | 200 | 190 | 134 | 110 | 50 | 30 | 23 |
| 2 | 22 | 22 | 23 | 485 | 639 | 180 | 170 | 125 | 142 | 48 | 30 | 23 |
| 3 | 22 | 22 | 23 | 414 | 522 | 170 | 170 | 118 | 126 | 48 | 30 | 23 |
| 4 | 23 | 22 | 22 | 522 | 449 | 160 | 211 | 103 | 118 | 46 | 29 | 23 |
| 5 | 28 | 22 | 22 | 485 | 722 | 151 | 190 | 96 | 103 | 44 | 29 | 23 |
| 6 | 26 | 27 | 23 | 366 | 522 | 134 | 170 | 96 | 96 | 44 | 29 | 23 |
| 7 | 24 | 25 | 22 | 268 | 860 | 125 | 180 | 96 | 96 | 43 | 29 | 23 |
| 8 | 25 | 23 | 22 | 211 | 970 | 134 | 160 | 90 | 90 | 42 | 29 | 25 |
| 9 | 57 | 25 | 96 | 180 | 599 | 142 | 151 | 84 | 82 | 40 | 29 | 28 |
| 10 | 46 | 34 | 522 | 151 | 639 | 125 | 142 | 82 | 79 | 40 | 29 | 25 |
| 11 | 31 | 38 | 222 | 80 | 680 | 118 | 125 | 77 | 77 | 40 | 28 | 23 |
| 12 | 29 | 29 | 125 | | 560 | 118 | 118 | 74 | 77 | 39 | 27 | 23 |
| 13 | 26 | 26 | 233 | | 722 | 110 | 125 | 72 | 82 | 38 | 27 | 23 |
| 14 | 25 | 25 | 1,300 | | 970 | 110 | 222 | 70 | 72 | 38 | 26 | 25 |
| 15 | 24 | 23 | 336 | | 722 | 103 | 190 | 68 | 69 | 38 | 26 | 24 |
| 16 | 24 | 23 | 398 | 55 | 522 | 96 | 170 | 66 | 65 | 36 | 28 | 23 |
| 17 | 35 | 29 | 366 | | 432 | 96 | 151 | 66 | 63 | 36 | 26 | 23 |
| 18 | 31 | 27 | 244 | | 381 | 90 | 142 | 65 | 61 | 36 | 26 | 22 |
| 19 | 29 | 25 | 233 | | 722 | 84 | 125 | 79 | 59 | 36 | 26 | 22 |
| 20 | 27 | 23 | 190 | | 722 | 96 | 118 | 294 | 59 | 36 | 25 | 22 |
| 21 | 25 | 23 | 211 | 55 | 680 | 560 | 110 | 522 | 57 | 35 | 25 | 22 |
| 22 | 25 | 23 | 485 | | 560 | 1,760 | 118 | 398 | 57 | 35 | 25 | 22 |
| 23 | 23 | 23 | 1,030 | | 522 | 910 | 103 | 268 | 54 | 34 | 25 | 21 |
| 24 | 23 | 23 | 599 | | 432 | 1,030 | 103 | 200 | 52 | 33 | 25 | 21 |
| 25 | 23 | 31 | 485 | | 381 | 810 | 96 | 160 | 52 | 33 | 25 | 22 |
| 26 | 23 | 32 | 432 | 244 | 321 | 599 | 96 | 142 | 54 | 33 | 25 | 22 |
| 27 | 23 | 28 | 350 | | 268 | 449 | 134 | 125 | 60 | 32 | 23 | 25 |
| 28 | 23 | 26 | 268 | | 233 | 366 | 211 | 125 | 69 | 31 | 23 | 29 |
| 29 | 23 | 25 | 222 | | | 294 | 180 | 118 | 57 | 31 | 23 | 26 |
| 30 | 22 | 24 | 222 | | | 244 | 151 | 103 | 52 | 31 | 23 | 23 |
| 31 | 22 | | 211 | 244 | | 222 | | 96 | | 31 | 23 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 57 | 22 | 26.8 | 0.447 | 0.52 | 1,650 |
| November | 38 | 22 | 25.7 | .428 | .48 | 1,530 |
| December | 1,300 | 22 | 289 | 4.82 | 5.56 | 17,800 |
| January | 522 | | 165 | 2.75 | 3.17 | 10,100 |
| February | 970 | 233 | 584 | 9.73 | 10.13 | 32,400 |
| March | 1,760 | 84 | 316 | 5.27 | 6.08 | 19,400 |
| April | 222 | 96 | 151 | 2.52 | 2.81 | 8,960 |
| May | 522 | 65 | 136 | 2.27 | 2.62 | 8,860 |
| June | 142 | 52 | 78.3 | 1.27 | 1.42 | 4,540 |
| July | 50 | 31 | 38.0 | .633 | .73 | 2,340 |
| August | 30 | 23 | 26.5 | .442 | .51 | 1,630 |
| September | 39 | 21 | 23.7 | .395 | .44 | 1,410 |
| The year | 1,760 | 21 | 152 | 2.53 | 34.47 | 110,000 |

SATSOP RIVER NEAR SATSOP, WASH.

LOCATION.—Staff gage in sec. 36, T. 18 N., R. 7 W., 1 mile west of Satsop.

DRAINAGE AREA.—315 square miles.

RECORDS AVAILABLE.—March, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 10,700 second-feet Dec. 23 (gage height, 9.66 feet); minimum, 203 second-feet Sept. 21, 22 (gage height, 1.76 feet).

1929-30: Maximum discharge, that of Dec. 23, 1929; minimum, that of Sept. 21, 22, 1930.

REMARKS.—Records good. Discharge estimated Dec. 21. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1----- | 220 | 245 | 735 | 2,290 | 9,870 | 1,990 | 1,500 | 1,070 | 830 | 445 | 284 | 228 |
| 2----- | 220 | 245 | 705 | 2,090 | 5,470 | 1,890 | 1,500 | 1,070 | 745 | 424 | 269 | 228 |
| 3----- | 232 | 245 | 260 | 3,590 | 3,910 | 1,690 | 1,590 | 1,000 | 718 | 404 | 269 | 228 |
| 4----- | 290 | 245 | 245 | 4,070 | 6,560 | 1,500 | 3,430 | 930 | 690 | 404 | 269 | 228 |
| 5----- | 305 | 232 | 260 | 3,590 | 8,270 | 1,410 | 7,700 | 930 | 662 | 404 | 269 | 228 |
| 6----- | 260 | 232 | 275 | 2,610 | 4,410 | 1,320 | 4,070 | 895 | 635 | 385 | 269 | 228 |
| 7----- | 245 | 232 | 260 | 2,190 | 5,650 | 1,320 | 2,990 | 895 | 662 | 385 | 269 | 215 |
| 8----- | 245 | 232 | 260 | 1,990 | 4,750 | 1,320 | 2,730 | 860 | 662 | 366 | 269 | 228 |
| 9----- | 460 | 245 | 340 | 1,690 | 3,430 | 1,410 | 2,500 | 860 | 610 | 366 | 255 | 228 |
| 10----- | 358 | 260 | 460 | 1,590 | 6,010 | 1,410 | 2,290 | 860 | 585 | 366 | 255 | 228 |
| 11----- | 322 | 260 | 535 | 3,750 | 5,290 | 1,230 | 2,090 | 830 | 585 | 348 | 255 | 215 |
| 12----- | 322 | 245 | 510 | 1,320 | 4,070 | 1,150 | 1,890 | 830 | 585 | 348 | 255 | 215 |
| 13----- | 290 | 232 | 800 | 1,230 | 5,290 | 1,070 | 1,790 | 800 | 560 | 348 | 255 | 228 |
| 14----- | 275 | 232 | 5,470 | 1,150 | 3,280 | 1,070 | 2,290 | 800 | 535 | 348 | 241 | 241 |
| 15----- | 275 | 245 | 2,430 | 1,070 | 3,430 | 930 | 2,190 | 745 | 512 | 331 | 255 | 241 |
| 16----- | 275 | 245 | 1,820 | 1,000 | 3,750 | 930 | 1,990 | 745 | 512 | 331 | 255 | 228 |
| 17----- | 290 | 560 | 1,820 | 930 | 3,280 | 930 | 1,790 | 745 | 490 | 331 | 255 | 215 |
| 18----- | 305 | 395 | 1,420 | 930 | 4,410 | 895 | 1,690 | 745 | 468 | 315 | 255 | 215 |
| 19----- | 560 | 340 | 1,250 | 895 | 6,940 | 860 | 1,500 | 718 | 468 | 331 | 241 | 215 |
| 20----- | 460 | 305 | 1,250 | 860 | 8,470 | 895 | 1,410 | 1,150 | 468 | 315 | 241 | 215 |
| 21----- | 460 | 305 | 2,340 | 800 | 6,190 | 2,960 | 1,320 | 1,690 | 468 | 315 | 241 | 203 |
| 22----- | 395 | 290 | 3,430 | 745 | 5,110 | 3,590 | 1,230 | 1,230 | 468 | 315 | 241 | 203 |
| 23----- | 375 | 275 | 9,270 | 745 | 4,240 | 2,860 | 1,150 | 1,070 | 445 | 315 | 241 | 215 |
| 24----- | 340 | 275 | 4,410 | 718 | 3,430 | 5,470 | 1,150 | 930 | 445 | 299 | 241 | 241 |
| 25----- | 305 | 340 | 6,010 | 690 | 2,990 | 4,930 | 1,150 | 860 | 445 | 299 | 241 | 255 |
| 26----- | 305 | 305 | 4,070 | 690 | 2,610 | 3,280 | 1,070 | 800 | 445 | 299 | 228 | 635 |
| 27----- | 275 | 305 | 3,280 | 690 | 2,500 | 2,610 | 1,590 | 745 | 512 | 284 | 228 | 1,150 |
| 28----- | 275 | 275 | 2,610 | 690 | 2,190 | 2,290 | 1,500 | 745 | 535 | 299 | 228 | 662 |
| 29----- | 275 | 275 | 2,190 | 930 | ----- | 1,990 | 1,230 | 745 | 490 | 299 | 228 | 445 |
| 30----- | 260 | 275 | 2,060 | 1,000 | ----- | 1,790 | 1,150 | 718 | 445 | 284 | 228 | 366 |
| 31----- | 245 | ----- | 2,190 | 1,230 | ----- | 1,590 | ----- | 690 | ----- | 284 | 228 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October----- | 560 | 220 | 314 | 0.997 | 1.15 | 19,300 |
| November----- | 560 | 232 | 280 | .889 | .99 | 16,700 |
| December----- | 9,270 | 245 | 2,030 | 6.44 | 7.42 | 125,000 |
| January----- | 4,070 | 690 | 1,540 | 4.89 | 5.64 | 94,700 |
| February----- | 9,870 | 2,190 | 4,850 | 15.4 | 16.04 | 269,600 |
| March----- | 5,470 | 860 | 1,890 | 6.00 | 6.92 | 116,000 |
| April----- | 7,700 | 1,070 | 2,500 | 6.51 | 7.26 | 122,000 |
| May----- | 1,690 | 690 | 894 | 2.84 | 3.27 | 55,000 |
| June----- | 830 | 445 | 556 | 1.77 | 1.98 | 33,100 |
| July----- | 445 | 284 | 342 | 1.09 | 1.26 | 21,000 |
| August----- | 284 | 228 | 250 | .794 | .92 | 15,400 |
| September----- | 1,150 | 203 | 296 | .940 | 1.05 | 17,600 |
| The year----- | 9,870 | 203 | 1,250 | 3.97 | 53.90 | 905,000 |

WYNOOCHEE RIVER AT OXBOW, NEAR ABERDEEN, WASH.

LOCATION.—Water-stage recorder in sec. 12, T. 21 N., R. 8 W., 1 mile below Oxbow and 24 miles northeast of Aberdeen.

DRAINAGE AREA.—65 square miles.

RECORDS AVAILABLE.—May, 1925, to September, 1930.

EXTREMES.—Maximum discharge during year, 7,870 second-feet Dec. 23 (gage height, 19.4 feet); minimum, 76 second-feet Sept. 23 (gage height, 2.09 feet).

1925-1930: Maximum discharge, 9,910 second-feet Jan. 12, 1928 (gage height, 21.9 feet); minimum, that of Sept. 23, 1930.

REMARKS.—Records excellent. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-37

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-----|-------|------|------|-------|
| 1..... | 87 | 128 | 113 | 916 | 2,860 | 640 | 558 | 502 | 387 | 242 | 110 | 87 |
| 2..... | 87 | 124 | 111 | 865 | 1,700 | 592 | 524 | 492 | 387 | 227 | 109 | 86 |
| 3..... | 101 | 120 | 110 | 1,190 | 1,310 | 558 | 881 | 460 | 367 | 213 | 106 | 86 |
| 4..... | 148 | 117 | 108 | 1,020 | 3,330 | 524 | 1,860 | 428 | 329 | 206 | 105 | 85 |
| 5..... | 139 | 118 | 119 | 840 | 3,320 | 492 | 4,720 | 408 | 312 | 192 | 104 | 85 |
| 6..... | 115 | 115 | 116 | 740 | 1,620 | 460 | 1,970 | 387 | 303 | 186 | 103 | 84 |
| 7..... | 104 | 113 | 112 | 640 | 1,900 | 481 | 1,700 | 377 | 320 | 180 | 102 | 83 |
| 8..... | 123 | 111 | 128 | 580 | 1,470 | 481 | 1,520 | 357 | 312 | 173 | 101 | 83 |
| 9..... | 346 | 112 | 150 | 524 | 1,070 | 492 | 1,280 | 338 | 285 | 167 | 99 | 84 |
| 10..... | 250 | 117 | 167 | 492 | 1,580 | 460 | 1,070 | 329 | 287 | 167 | 99 | 83 |
| 11..... | 180 | 112 | 173 | 450 | 1,280 | 450 | 942 | 320 | 280 | 160 | 98 | 82 |
| 12..... | 154 | 108 | 161 | 418 | 1,050 | 439 | 815 | 312 | 272 | 155 | 97 | 82 |
| 13..... | 137 | 107 | 638 | 397 | 942 | 418 | 765 | 312 | 264 | 154 | 97 | 87 |
| 14..... | 130 | 105 | 3,980 | 377 | 916 | 397 | 815 | 312 | 250 | 151 | 96 | 103 |
| 15..... | 142 | 114 | 1,230 | 357 | 1,070 | 377 | 765 | 303 | 234 | 149 | 96 | 102 |
| 16..... | 149 | 174 | 916 | 338 | 1,160 | 357 | 665 | 295 | 234 | 143 | 105 | 91 |
| 17..... | 242 | 357 | 790 | 320 | 1,130 | 348 | 604 | 295 | 220 | 141 | 102 | 86 |
| 18..... | 272 | 220 | 616 | 312 | 2,890 | 329 | 569 | 295 | 220 | 139 | 97 | 84 |
| 19..... | 454 | 180 | 580 | 295 | 3,470 | 329 | 535 | 348 | 220 | 138 | 95 | 82 |
| 20..... | 348 | 157 | 513 | 287 | 3,830 | 338 | 524 | 694 | 227 | 136 | 93 | 81 |
| 21..... | 320 | 145 | 513 | 272 | 2,310 | 1,260 | 524 | 890 | 213 | 132 | 91 | 79 |
| 22..... | 264 | 138 | 2,630 | 272 | 1,770 | 1,440 | 513 | 640 | 206 | 129 | 92 | 78 |
| 23..... | 227 | 133 | 3,870 | 267 | 1,520 | 968 | 481 | 524 | 199 | 128 | 91 | 78 |
| 24..... | 199 | 128 | 2,300 | 267 | 1,250 | 1,510 | 470 | 460 | 192 | 126 | 91 | 91 |
| 25..... | 180 | 141 | 3,550 | 242 | 1,050 | 1,490 | 450 | 418 | 186 | 124 | 92 | 117 |
| 26..... | 167 | 134 | 1,940 | 242 | 916 | 1,130 | 481 | 387 | 192 | 122 | 91 | 441 |
| 27..... | 161 | 127 | 1,660 | 234 | 790 | 942 | 1,080 | 357 | 280 | 119 | 90 | 1,030 |
| 28..... | 151 | 123 | 1,190 | 242 | 715 | 865 | 815 | 367 | 377 | 116 | 90 | 483 |
| 29..... | 143 | 120 | 968 | 303 | ----- | 815 | 616 | 367 | 303 | 115 | 90 | 296 |
| 30..... | 137 | 119 | 968 | 351 | ----- | 690 | 546 | 348 | 264 | 114 | 89 | 227 |
| 31..... | 133 | ----- | 916 | 495 | ----- | 604 | ----- | 329 | ----- | 112 | 88 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|----------------------|
| October..... | 454 | 87 | 187 | 11,500 |
| November..... | 387 | 105 | 137 | 8,150 |
| December..... | 3,980 | 108 | 1,010 | 62,100 |
| January..... | 1,190 | 234 | 469 | 28,800 |
| February..... | 3,830 | 715 | 1,720 | 95,500 |
| March..... | 1,510 | 329 | 667 | 41,000 |
| April..... | 4,720 | 450 | 969 | 57,700 |
| May..... | 890 | 295 | 408 | 26,100 |
| June..... | 387 | 186 | 271 | 16,100 |
| July..... | 242 | 112 | 153 | 9,410 |
| August..... | 110 | 88 | 97.1 | 5,970 |
| September..... | 1,080 | 78 | 155 | 9,220 |
| The year..... | 4,720 | 78 | 512 | 371,000 |

WYNOOCHEE RIVER NEAR MONTESANO, WASH.

LOCATION.—Staff gage in sec. 36, T. 20 N., R. 8 W., at Waters ranch 3 miles below Shafer Creek and 14 miles north of Montesano.

DRAINAGE AREA.—About 105 square miles.

RECORDS AVAILABLE.—February, 1923, to September, 1930 (discontinued).

EXTREMES.—Maximum discharge during year, 7,040 second-feet Apr. 5 (gage height, 7.90 feet); minimum, 96 second-feet Oct. 1-3 (gage height, 1.28 feet).

1923-1930: Maximum discharge, about 25,000 second-feet Feb. 11, 1924 (gage height, 17.0 feet); minimum, that of Oct. 1-3, 1929.

REMARKS.—Records excellent. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 96 | 148 | 143 | 1,400 | 4,830 | 888 | 812 | 670 | 545 | 308 | 158 | 113 |
| 2 | 96 | 143 | 140 | 1,240 | 3,270 | 850 | 740 | 670 | 515 | 288 | 154 | 113 |
| 3 | 107 | 140 | 138 | 1,930 | 2,020 | 775 | 1,160 | 635 | 465 | 288 | 151 | 113 |
| 4 | 177 | 138 | 132 | 1,840 | 3,960 | 740 | 1,660 | 575 | 440 | 269 | 148 | 113 |
| 5 | 177 | 138 | 145 | 1,480 | 4,680 | 705 | 6,240 | 545 | 415 | 269 | 148 | 113 |
| 6 | 132 | 138 | 148 | 1,240 | 2,430 | 635 | 2,890 | 515 | 392 | 250 | 148 | 111 |
| 7 | 120 | 132 | 140 | 1,080 | 2,220 | 635 | 2,320 | 515 | 415 | 239 | 145 | 111 |
| 8 | 135 | 122 | 148 | 925 | 2,320 | 670 | 2,120 | 490 | 415 | 232 | 143 | 113 |
| 9 | 288 | 125 | 187 | 812 | 1,750 | 705 | 1,840 | 465 | 392 | 228 | 143 | 113 |
| 10 | 328 | 135 | 228 | 740 | 2,650 | 635 | 1,570 | 440 | 392 | 225 | 140 | 111 |
| 11 | 232 | 138 | 243 | 635 | 2,220 | 575 | 1,320 | 415 | 370 | 221 | 138 | 109 |
| 12 | 194 | 130 | 243 | 605 | 1,570 | 605 | 962 | 415 | 349 | 214 | 135 | 109 |
| 13 | 177 | 122 | 328 | 545 | 1,570 | 575 | 1,000 | 415 | 349 | 214 | 132 | 115 |
| 14 | 158 | 120 | 4,980 | 515 | 1,480 | 545 | 1,240 | 415 | 328 | 214 | 132 | 127 |
| 15 | 158 | 118 | 1,750 | 490 | 1,660 | 490 | 1,160 | 392 | 328 | 207 | 135 | 132 |
| 16 | 170 | 170 | 1,320 | 465 | 1,750 | 490 | 1,000 | 392 | 308 | 200 | 143 | 120 |
| 17 | 243 | 415 | 1,160 | 440 | 1,660 | 465 | 925 | 392 | 308 | 197 | 140 | 113 |
| 18 | 269 | 288 | 888 | 415 | 3,270 | 465 | 850 | 392 | 288 | 190 | 135 | 111 |
| 19 | 415 | 225 | 850 | 392 | 4,380 | 490 | 775 | 440 | 288 | 187 | 132 | 109 |
| 20 | 370 | 197 | 740 | 392 | 4,980 | 1,400 | 740 | 775 | 308 | 180 | 130 | 107 |
| 21 | 308 | 183 | 740 | 370 | 3,270 | 2,320 | 705 | 1,240 | 288 | 183 | 127 | 107 |
| 22 | 288 | 174 | 1,930 | 370 | 2,320 | 1,840 | 705 | 888 | 269 | 180 | 127 | 104 |
| 23 | 269 | 164 | 5,130 | 349 | 2,120 | 1,570 | 670 | 705 | 269 | 180 | 125 | 107 |
| 24 | 250 | 161 | 3,010 | 328 | 1,930 | 2,320 | 635 | 605 | 269 | 180 | 122 | 120 |
| 25 | 236 | 177 | 4,680 | 328 | 1,750 | 1,750 | 605 | 575 | 269 | 174 | 122 | 143 |
| 26 | 207 | 167 | 2,770 | 328 | 1,570 | 1,480 | 605 | 515 | 269 | 167 | 122 | 515 |
| 27 | 194 | 158 | 2,320 | 328 | 1,400 | 1,400 | 1,570 | 465 | 288 | 167 | 122 | 1,240 |
| 28 | 180 | 154 | 1,750 | 328 | 1,080 | 1,240 | 1,240 | 465 | 415 | 167 | 120 | 705 |
| 29 | 170 | 145 | 1,400 | 415 | ----- | 1,080 | 888 | 465 | 392 | 167 | 118 | 490 |
| 30 | 161 | 145 | 1,400 | 465 | ----- | 962 | 740 | 465 | 349 | 161 | 118 | 370 |
| 31 | 154 | ----- | 1,400 | 575 | ----- | 888 | ----- | 545 | ----- | 161 | 118 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|-------------------------|
| October | 415 | 96 | 208 | 12,800 |
| November | 415 | 118 | 164 | 9,760 |
| December | 5,130 | 132 | 1,310 | 80,600 |
| January | 1,930 | 328 | 702 | 43,200 |
| February | 4,980 | 1,080 | 2,500 | 139,000 |
| March | 2,320 | 465 | 974 | 59,900 |
| April | 6,240 | 605 | 1,320 | 78,600 |
| May | 1,240 | 392 | 545 | 33,500 |
| June | 545 | 269 | 366 | 21,200 |
| July | 308 | 161 | 210 | 12,900 |
| August | 158 | 118 | 135 | 8,300 |
| September | 1,240 | 104 | 206 | 12,300 |
| The year | 6,240 | 96 | 707 | 512,000 |

QUINAUULT RIVER BASIN

QUINAUULT RIVER AT QUINAUULT LAKE, WASH.

LOCATION.—Water-stage recorder in sec. 25, T. 23 N., R. 10 W., at outlet of Quinault Lake 4 miles southwest of Quinault.

DRAINAGE AREA.—264 square miles.

RECORDS AVAILABLE.—October, 1911, to December, 1922; July to November, 1924; September, 1925, to September, 1930.

EXTREMES.—Maximum discharge during year, 11,800 second-feet Feb. 5 (gage height, 7.95 feet); minimum, 297 second-feet Oct. 2, 3 (gage height, 0.77 foot).

1911-1922; 1924-1930: Maximum discharge, 37,000 second-feet Dec. 12, 1921 (gage height, 16.3 feet); minimum, 285 second-feet Sept. 20, 1924.

REMARKS.—Records good. No diversions above station. Slight regulation caused by natural storage in lake.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|------|-------|
| 1----- | 305 | 525 | 445 | 3,180 | 3,580 | 2,250 | 2,620 | 2,190 | 1,710 | 1,310 | 541 | 331 |
| 2----- | 301 | 498 | 435 | 3,110 | 5,580 | 2,070 | 2,370 | 2,130 | 1,890 | 1,260 | 523 | 327 |
| 3----- | 318 | 452 | 419 | 3,330 | 5,200 | 1,890 | 2,430 | 2,130 | 1,830 | 1,200 | 499 | 319 |
| 4----- | 399 | 466 | 404 | 3,330 | 7,400 | 1,710 | 3,070 | 1,950 | 1,770 | 1,120 | 487 | 315 |
| 5----- | 503 | 445 | 419 | 3,040 | 11,100 | 1,650 | 8,150 | 1,830 | 1,710 | 1,080 | 481 | 315 |
| 6----- | 535 | 435 | 419 | 2,690 | 8,080 | 1,540 | 8,540 | 1,710 | 1,710 | 1,050 | 469 | 312 |
| 7----- | 519 | 424 | 414 | 2,350 | 6,590 | 1,480 | 7,000 | 1,650 | 1,830 | 1,030 | 469 | 312 |
| 8----- | 503 | 409 | 435 | 2,090 | 5,990 | 1,480 | 7,000 | 1,540 | 1,950 | 1,000 | 463 | 308 |
| 9----- | 618 | 409 | 461 | 1,850 | 4,670 | 1,480 | 5,790 | 1,430 | 1,950 | 968 | 463 | 304 |
| 10----- | 726 | 409 | 492 | 1,680 | 4,330 | 1,430 | 4,670 | 1,380 | 1,890 | 944 | 475 | 304 |
| 11----- | 739 | 404 | 535 | 1,560 | 4,170 | 1,330 | 3,870 | 1,330 | 2,010 | 944 | 475 | 304 |
| 12----- | 714 | 394 | 557 | 1,460 | 3,650 | 1,320 | 3,300 | 1,330 | 1,890 | 986 | 475 | 301 |
| 13----- | 668 | 385 | 656 | 1,360 | 3,370 | 1,290 | 2,950 | 1,330 | 1,770 | 936 | 457 | 304 |
| 14----- | 634 | 371 | 4,860 | 1,250 | 3,230 | 1,220 | 2,820 | 1,430 | 1,650 | 928 | 451 | 343 |
| 15----- | 612 | 380 | 5,390 | 1,160 | 3,160 | 1,160 | 2,750 | 1,540 | 1,540 | 896 | 445 | 371 |
| 16----- | 596 | 435 | 4,030 | 1,090 | 3,370 | 1,100 | 2,560 | 1,600 | 1,540 | 859 | 445 | 375 |
| 17----- | 651 | 618 | 3,260 | 1,040 | 3,650 | 1,050 | 2,370 | 1,600 | 1,540 | 824 | 440 | 371 |
| 18----- | 714 | 668 | 2,620 | 994 | 5,860 | 1,020 | 2,190 | 1,600 | 1,430 | 784 | 430 | 355 |
| 19----- | 908 | 651 | 2,280 | 949 | 9,000 | 1,000 | 2,070 | 1,540 | 1,380 | 752 | 415 | 347 |
| 20----- | 1,030 | 618 | 2,090 | 908 | 10,200 | 992 | 2,010 | 1,890 | 1,380 | 727 | 395 | 339 |
| 21----- | 1,050 | 579 | 1,910 | 867 | 9,240 | 1,470 | 2,070 | 2,430 | 1,330 | 703 | 387 | 331 |
| 22----- | 1,000 | 546 | 3,110 | 838 | 7,900 | 2,880 | 2,190 | 2,430 | 1,300 | 691 | 383 | 312 |
| 23----- | 908 | 514 | 7,570 | 817 | 5,790 | 3,020 | 2,250 | 2,250 | 1,250 | 691 | 379 | 304 |
| 24----- | 831 | 503 | 7,360 | 783 | 4,850 | 3,580 | 2,190 | 2,130 | 1,210 | 679 | 371 | 301 |
| 25----- | 770 | 514 | 9,600 | 764 | 3,870 | 4,670 | 2,190 | 1,950 | 1,180 | 661 | 371 | 315 |
| 26----- | 714 | 519 | 8,670 | 739 | 3,370 | 4,670 | 2,130 | 1,830 | 1,150 | 637 | 359 | 592 |
| 27----- | 680 | 508 | 6,750 | 732 | 2,880 | 4,020 | 2,620 | 1,650 | 1,220 | 613 | 351 | 1,580 |
| 28----- | 646 | 492 | 5,200 | 732 | 2,560 | 3,720 | 2,950 | 1,650 | 1,380 | 601 | 343 | 2,070 |
| 29----- | 606 | 476 | 4,030 | 776 | ----- | 3,650 | 2,750 | 1,710 | 1,430 | 571 | 343 | 1,770 |
| 30----- | 579 | 455 | 3,560 | 838 | ----- | 3,370 | 2,430 | 1,710 | 1,380 | 559 | 339 | 1,430 |
| 31----- | 546 | ----- | 3,330 | 1,040 | ----- | 2,950 | ----- | 1,710 | ----- | 547 | 335 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October----- | 1,050 | 301 | 656 | 2.48 | 2.86 | 40,300 |
| November----- | 668 | 371 | 484 | 1.83 | 2.04 | 28,800 |
| December----- | 9,600 | 404 | 2,960 | 11.2 | 12.91 | 182,000 |
| January----- | 3,330 | 732 | 1,530 | 5.80 | 6.69 | 94,100 |
| February----- | 11,100 | 2,660 | 5,420 | 20.5 | 21.35 | 301,000 |
| March----- | 4,670 | 992 | 2,140 | 8.11 | 9.35 | 132,000 |
| April----- | 8,540 | 2,010 | 3,410 | 12.9 | 14.39 | 203,000 |
| May----- | 2,430 | 1,330 | 1,760 | 6.67 | 7.69 | 108,000 |
| June----- | 2,010 | 1,150 | 1,570 | 5.95 | 6.64 | 93,400 |
| July----- | 1,310 | 547 | 855 | 3.24 | 3.74 | 52,600 |
| August----- | 541 | 335 | 428 | 1.62 | 1.87 | 26,300 |
| September----- | 2,070 | 301 | 519 | 1.97 | 2.20 | 30,900 |
| The year----- | 11,100 | 301 | 1,780 | 6.74 | 91.73 | 1,290,000 |

HOH RIVER BASIN

HOH RIVER NEAR SPRUCE, WASH.

LOCATION.—Water-stage recorder in sec. 34, T. 27 N., R. 11 W., $2\frac{1}{4}$ miles below Spruce and 5 miles below South Fork.

DRAINAGE AREA.—193 square miles.

RECORDS AVAILABLE.—August, 1926, to September, 1930.

EXTREMES.—Maximum discharge during year, 11,900 second-feet Feb. 18 (gage height, 10.96 feet); minimum, 247 second-feet Nov. 14, 15 (gage height, 1.49 feet).

1926-1930: Maximum discharge, 16,800 second-feet Jan. 12, 1928 (gage height, 13.13 feet); minimum, that of Nov. 14, 15, 1929.

REMARKS.—Records excellent. Discharge estimated May 27-29. No diversions or artificial regulation. Stream subject to large diurnal fluctuation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 446 | 520 | 449 | 2,580 | 5,260 | 1,840 | 1,620 | 1,220 | 1,380 | 1,370 | 996 | 805 |
| 2..... | 461 | 570 | 422 | 2,400 | 3,560 | 1,700 | 1,460 | 1,380 | 1,530 | 1,320 | 928 | 909 |
| 3..... | 568 | 491 | 407 | 2,560 | 3,000 | 1,600 | 2,000 | 1,340 | 1,330 | 1,090 | 929 | 1,010 |
| 4..... | 1,580 | 467 | 389 | 2,260 | 8,440 | 1,500 | 3,400 | 1,160 | 1,340 | 1,130 | 994 | 1,000 |
| 5..... | 1,480 | 476 | 410 | 1,970 | 7,300 | 1,420 | 6,680 | 1,100 | 1,360 | 1,240 | 1,070 | 988 |
| 6..... | 880 | 425 | 425 | 1,700 | 4,160 | 1,340 | 3,970 | 1,120 | 1,460 | 1,280 | 1,140 | 907 |
| 7..... | 708 | 401 | 398 | 1,480 | 4,570 | 1,400 | 4,570 | 1,060 | 1,860 | 1,170 | 1,200 | 760 |
| 8..... | 908 | 389 | 433 | 1,360 | 3,780 | 1,420 | 4,050 | 995 | 1,760 | 1,120 | 1,140 | 842 |
| 9..... | 1,800 | 407 | 452 | 1,230 | 3,080 | 1,400 | 3,240 | 962 | 1,670 | 1,160 | 1,200 | 872 |
| 10..... | 974 | 398 | 437 | 1,120 | 3,480 | 1,200 | 2,700 | 936 | 2,740 | 1,300 | 1,200 | 782 |
| 11..... | 786 | 277 | 443 | 1,040 | 3,140 | 1,100 | 2,320 | 966 | 2,240 | 1,380 | 1,180 | 739 |
| 12..... | 854 | 268 | 422 | 979 | 2,780 | 1,020 | 2,100 | 987 | 1,750 | 1,430 | 1,180 | 692 |
| 13..... | 747 | 253 | 1,150 | 930 | 2,560 | 945 | 2,060 | 1,080 | 1,480 | 1,640 | 1,220 | 787 |
| 14..... | 910 | 250 | 5,920 | 878 | 2,480 | 908 | 2,090 | 1,250 | 1,320 | 1,460 | 1,260 | 1,300 |
| 15..... | 1,130 | 380 | 2,540 | 820 | 2,620 | 880 | 1,990 | 1,290 | 1,370 | 1,220 | 1,260 | 1,070 |
| 16..... | 1,410 | 923 | 1,950 | 792 | 2,940 | 850 | 1,780 | 1,360 | 1,620 | 1,130 | 1,160 | 890 |
| 17..... | 1,760 | 1,480 | 1,630 | 749 | 3,960 | 830 | 1,640 | 1,220 | 1,320 | 1,040 | 986 | 901 |
| 18..... | 1,120 | 745 | 1,340 | 741 | 8,960 | 819 | 1,560 | 1,090 | 1,250 | 1,000 | 927 | 890 |
| 19..... | 1,500 | 594 | 1,450 | 697 | 6,840 | 839 | 1,680 | 1,080 | 1,270 | 988 | 903 | 720 |
| 20..... | 998 | 497 | 1,260 | 660 | 6,640 | 855 | 1,550 | 1,920 | 1,380 | 1,060 | 811 | 712 |
| 21..... | 971 | 461 | 1,260 | 620 | 4,730 | 2,040 | 1,780 | 2,020 | 1,340 | 1,200 | 796 | 788 |
| 22..... | 790 | 437 | 4,720 | 621 | 4,040 | 2,360 | 2,000 | 1,620 | 1,280 | 1,330 | 841 | 652 |
| 23..... | 746 | 425 | 5,830 | 609 | 3,630 | 1,980 | 1,760 | 1,410 | 1,200 | 1,300 | 950 | 555 |
| 24..... | 711 | 419 | 4,350 | 587 | 3,100 | 3,530 | 1,690 | 1,340 | 1,170 | 1,160 | 806 | 492 |
| 25..... | 678 | 626 | 6,830 | 575 | 2,640 | 4,020 | 1,600 | 1,220 | 1,220 | 1,000 | 830 | 523 |
| 26..... | 732 | 560 | 4,140 | 553 | 2,200 | 3,440 | 1,640 | 1,120 | 1,170 | 922 | 776 | 2,940 |
| 27..... | 611 | 500 | 3,470 | 555 | 1,890 | 2,980 | 2,270 | 1,210 | 1,640 | 912 | 852 | 4,140 |
| 28..... | 520 | 488 | 2,640 | 564 | 1,740 | 2,890 | 1,850 | 1,300 | 1,700 | 980 | 891 | 1,530 |
| 29..... | 482 | 482 | 2,300 | 766 | ----- | 2,940 | 1,580 | 1,400 | 1,360 | 1,110 | 941 | 944 |
| 30..... | 467 | 470 | 2,360 | 830 | ----- | 2,440 | 1,400 | 1,340 | 1,300 | 1,140 | 836 | 796 |
| 31..... | 470 | ----- | 2,180 | 1,120 | ----- | 2,000 | ----- | 1,250 | ----- | 1,060 | 780 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 1,800 | 446 | 910 | 4.72 | 5.44 | 56,000 |
| November..... | 1,480 | 250 | 503 | 2.61 | 2.91 | 29,900 |
| December..... | 6,830 | 389 | 2,010 | 10.4 | 11.99 | 124,000 |
| January..... | 2,580 | 553 | 1,110 | 5.75 | 6.63 | 68,200 |
| February..... | 8,960 | 1,740 | 4,050 | 21.0 | 21.87 | 225,000 |
| March..... | 4,020 | 819 | 1,760 | 9.12 | 10.51 | 108,000 |
| April..... | 6,680 | 1,400 | 2,330 | 12.1 | 13.50 | 139,000 |
| May..... | 2,020 | 936 | 1,250 | 6.48 | 7.47 | 76,900 |
| June..... | 2,740 | 1,170 | 1,490 | 7.72 | 8.61 | 88,700 |
| July..... | 1,640 | 912 | 1,180 | 6.11 | 7.04 | 72,600 |
| August..... | 1,260 | 776 | 999 | 5.18 | 5.97 | 61,400 |
| September..... | 4,140 | 492 | 1,030 | 5.34 | 5.96 | 61,300 |
| The year..... | 8,960 | 250 | 1,530 | 7.93 | 107.90 | 1,110,000 |

ELWHA RIVER BASIN

ELWHA RIVER AT McDONALD BRIDGE, NEAR PORT ANGELES, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 33, T. 30 N., R. 7 W., at McDonald Bridge, 8 miles southwest of Port Angeles. Zero of gage, 206.29 feet above mean sea level.

DRAINAGE AREA.—262 square miles.

RECORDS AVAILABLE.—October, 1897, to December, 1901; October, 1918, to September, 1930.

EXTREMES.—Maximum discharge during year, 6,440 second-feet Feb. 18 (gage height, 5.7 feet); minimum, 28 second-feet Nov. 28, Sept. 1, 29; result of regulation.

1897-1901; 1918-1930: Maximum discharge, 23,800 second-feet Nov. 27, 1901 (gage height, 10.6 feet); minimum, 8 second-feet Oct. 9, 1927 (gage height, -0.07 foot); result of regulation.

REMARKS.—Records good. Discharge Jan. 1-6, Feb. 9-12 estimated from records of power-plant load and estimated inflow. Flow regulated by operation of Glines Canyon Reservoir for power. Flow diverted through power house is returned to river above gage. Many discharge measurements furnished by Northwestern Power & Light Co.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 464 | 484 | 31 | 930 | 582 | 1,300 | 1,750 | 1,570 | 1,050 | 1,560 | 640 | 29 |
| 2..... | 384 | 488 | 254 | 950 | 762 | 1,180 | 1,380 | 1,720 | 1,350 | 1,660 | 656 | 202 |
| 3..... | 375 | 314 | 420 | 950 | 1,230 | 1,100 | 1,630 | 1,710 | 1,290 | 1,160 | 554 | 472 |
| 4..... | 410 | 273 | 194 | 1,000 | 4,010 | 1,140 | 1,700 | 1,630 | 1,220 | 378 | 626 | 556 |
| 5..... | 466 | 472 | 250 | 810 | 3,870 | 1,050 | 3,680 | 1,540 | 1,260 | 778 | 530 | 573 |
| 6..... | 380 | 476 | 414 | 820 | 2,310 | 1,030 | 2,420 | 1,650 | 1,380 | 1,190 | 513 | 583 |
| 7..... | 375 | 472 | 240 | 675 | 2,550 | 1,030 | 3,120 | 1,580 | 1,880 | 1,030 | 514 | 304 |
| 8..... | 422 | 445 | 34 | 752 | 2,040 | 922 | 3,060 | 1,140 | 1,800 | 1,170 | 542 | 389 |
| 9..... | 418 | 426 | 302 | 753 | 1,730 | 889 | 2,340 | 1,140 | 1,610 | 1,030 | 540 | 524 |
| 10..... | 544 | 242 | 409 | 712 | 1,960 | 930 | 2,150 | 1,100 | 2,480 | 1,010 | 512 | 390 |
| 11..... | 583 | 332 | 186 | 632 | 1,560 | 956 | 1,830 | 1,080 | 1,960 | 1,130 | 653 | 382 |
| 12..... | 569 | 445 | 204 | 518 | 1,350 | 935 | 1,680 | 1,060 | 1,720 | 1,180 | 671 | 431 |
| 13..... | 392 | 390 | 165 | 628 | 1,380 | 908 | 2,050 | 1,140 | 1,320 | 1,230 | 678 | 377 |
| 14..... | 495 | 184 | 281 | 588 | 1,350 | 840 | 1,810 | 1,100 | 1,390 | 1,190 | 751 | 222 |
| 15..... | 585 | 268 | 606 | 533 | 1,350 | 786 | 1,920 | 1,160 | 1,410 | 1,080 | 710 | 436 |
| 16..... | 529 | 428 | 684 | 564 | 1,380 | 643 | 1,470 | 1,160 | 1,810 | 1,040 | 336 | 590 |
| 17..... | 518 | 201 | 649 | 501 | 2,730 | 689 | 1,740 | 1,100 | 1,350 | 940 | 331 | 588 |
| 18..... | 549 | 307 | 588 | 488 | 4,980 | 840 | 1,420 | 1,080 | 1,440 | 999 | 505 | 609 |
| 19..... | 523 | 212 | 584 | 432 | 4,120 | 676 | 1,510 | 1,130 | 1,330 | 976 | 663 | 616 |
| 20..... | 286 | 287 | 595 | 452 | 4,060 | 661 | 1,730 | 1,100 | 1,470 | 790 | 688 | 282 |
| 21..... | 492 | 466 | 603 | 485 | 3,070 | 851 | 1,770 | 1,320 | 1,680 | 873 | 775 | 266 |
| 22..... | 644 | 186 | 824 | 462 | 3,040 | 998 | 2,270 | 1,330 | 1,540 | 921 | 692 | 422 |
| 23..... | 614 | 226 | 835 | 522 | 1,950 | 848 | 2,040 | 1,320 | 1,370 | 967 | 305 | 502 |
| 24..... | 572 | 155 | 797 | 489 | 2,040 | 1,190 | 2,290 | 1,100 | 1,280 | 1,010 | 300 | 598 |
| 25..... | 509 | 290 | 2,690 | 460 | 1,790 | 2,490 | 2,110 | 771 | 1,460 | 960 | 545 | 510 |
| 26..... | 576 | 420 | 1,630 | 341 | 1,530 | 2,090 | 2,150 | 1,020 | 1,330 | 920 | 620 | 528 |
| 27..... | 395 | 174 | 1,350 | 437 | 1,510 | 1,870 | 2,240 | 1,020 | 1,200 | 736 | 804 | 324 |
| 28..... | 354 | 232 | 1,070 | 469 | 1,270 | 2,170 | 2,010 | 994 | 1,620 | 845 | 581 | 102 |
| 29..... | 494 | 366 | 1,050 | 489 | ----- | 2,340 | 1,840 | 1,170 | 1,330 | 732 | 522 | 258 |
| 30..... | 571 | 170 | 1,040 | 541 | ----- | 1,860 | 2,240 | 1,190 | 1,330 | 652 | 260 | 622 |
| 31..... | 548 | ----- | 914 | 517 | ----- | 1,670 | ----- | 1,170 | ----- | 724 | 30 | ----- |

Monthly discharge of Elwha River at McDonald Bridge, near Port Angeles, Wash., 1929-30

| Month | Observed | | | | Gain or loss in storage in Glines Canyon Reservoir (acre-feet) | Corrected for storage | | | |
|----------------|--------------------------|---------|-------|----------------------|--|-----------------------|--------------------------|-----------------|-------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run off in acre-feet | Discharge in second-feet | | Run-off in inches |
| | Maximum | Minimum | Mean | | | | Mean | Per square mile | |
| October..... | 644 | 286 | 485 | 29,800 | -6,480 | 23,300 | 379 | 1.45 | 1.67 |
| November..... | 488 | 155 | 328 | 19,500 | -2,110 | 17,400 | 282 | 1.11 | 1.24 |
| December..... | 2,690 | 31 | 642 | 39,500 | +12,520 | 52,000 | 846 | 3.23 | 3.72 |
| January..... | 1,000 | 341 | 609 | 37,400 | -3,650 | 33,800 | 550 | 2.10 | 2.42 |
| February..... | 4,980 | 582 | 2,200 | 122,000 | +4,100 | 126,000 | 2,270 | 8.66 | 9.02 |
| March..... | 2,490 | 643 | 1,190 | 73,200 | +40 | 73,200 | 1,190 | 4.54 | 5.23 |
| April..... | 3,680 | 1,380 | 2,040 | 121,000 | -6,300 | 115,000 | 1,930 | 7.37 | 8.22 |
| May..... | 1,720 | 771 | 1,240 | 76,200 | +5,610 | 81,800 | 1,330 | 5.08 | 5.66 |
| June..... | 2,480 | 1,050 | 1,490 | 88,700 | +90 | 88,800 | 1,490 | 5.69 | 6.35 |
| July..... | 1,660 | 378 | 996 | 61,200 | -1,860 | 59,300 | 964 | 3.68 | 4.24 |
| August..... | 804 | 30 | 550 | 33,800 | -1,380 | 32,400 | 527 | 2.01 | 2.32 |
| September..... | 622 | 29 | 423 | 25,200 | +1,710 | 26,900 | 452 | 1.73 | 1.93 |
| The year..... | 4,980 | 29 | 1,010 | 728,000 | +2,300 | 730,000 | 1,010 | 3.85 | 52.22 |

DUNGENESS RIVER BASIN

DUNGENESS RIVER NEAR SEQUIM, WASH.

LOCATION.—Staff gage in sec. 12, T. 29 N., R. 4 W., half a mile above State fish hatchery and $4\frac{1}{2}$ miles southwest of Sequim.

DRAINAGE AREA.—150 square miles.

RECORDS AVAILABLE.—June, 1923, to September, 1930 (discortinued). July, 1897, to July, 1898, at station $1\frac{1}{2}$ miles downstream.

EXTREMES.—Maximum discharge during year, 920 second-feet Feb. 20 (gage height, 3.2 feet); minimum discharge occurred during period of ice effect; not determined.

1897-98, 1923-1930: Maximum discharge, 5,140 second-feet Feb. 12, 1924 (gage height, 6.0 feet); minimum, 77 second-feet Sept. 10, 1928.

REMARKS.—Records fair. Discharge estimated because of ice Jan. 8-29. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|------|-------|------|------|------|------|-----|------|------|------|-------|
| 1 | 88 | 88 | * 85 | 147 | 125 | 212 | 312 | 390 | 390 | 390 | 201 | 132 |
| 2 | 88 | 88 | 82 | 140 | 125 | 212 | 297 | 390 | 390 | 357 | 192 | 132 |
| 3 | 82 | 88 | 82 | 140 | 125 | 201 | 297 | 390 | 408 | 342 | 201 | 140 |
| 4 | * 97 | 88 | 82 | 140 | 357 | 201 | 390 | 374 | 460 | 312 | 201 | 140 |
| 5 | 112 | 88 | 82 | 132 | 390 | 192 | 374 | 357 | 495 | 312 | 192 | 140 |
| 6 | 93 | 82 | 77 | 132 | 270 | 182 | 374 | 342 | 530 | 326 | 201 | 140 |
| 7 | 88 | * 82 | 77 | 105 | 234 | 173 | 408 | 326 | 680 | 326 | 192 | 140 |
| 8 | 93 | 82 | 77 | | 222 | 173 | 495 | 326 | 880 | 326 | 192 | 140 |
| 9 | 118 | 82 | * 80 | | 201 | 173 | 408 | 312 | 620 | 326 | 192 | 140 |
| 10 | 105 | 82 | 82 | | 222 | 173 | 390 | 312 | 845 | 342 | 192 | 140 |
| 11 | 93 | 82 | * 85 | 100 | 192 | 147 | 326 | 312 | 620 | 342 | 192 | 140 |
| 12 | 99 | * 82 | 88 | | 182 | 147 | 342 | 312 | 530 | 342 | 192 | 140 |
| 13 | * 96 | 82 | 201 | | 164 | 140 | 357 | 326 | 495 | 326 | 182 | 140 |
| 14 | 93 | 77 | 390 | | 147 | 132 | 342 | 342 | 442 | 312 | 173 | 140 |
| 15 | * 102 | * 77 | 173 | | 147 | 132 | 342 | 357 | 460 | 284 | 164 | 140 |
| 16 | 112 | 77 | * 163 | | 164 | 132 | 342 | 408 | 495 | 270 | 164 | 132 |
| 17 | 132 | 105 | * 152 | | 173 | 125 | 342 | 460 | 460 | 258 | 164 | 125 |
| 18 | 125 | 88 | * 142 | 85 | 650 | 125 | 326 | 460 | 442 | 245 | 164 | 125 |
| 19 | 105 | 88 | 132 | | 550 | 125 | 312 | 460 | 442 | 234 | 164 | 125 |
| 20 | 99 | 77 | * 127 | | 920 | 125 | 342 | 390 | 425 | 245 | 156 | 125 |
| 21 | 93 | 77 | * 123 | | 710 | 192 | 390 | 390 | 425 | 245 | 147 | 125 |
| 22 | 93 | * 77 | 118 | | 478 | 212 | 408 | 357 | 425 | 270 | 147 | 118 |
| 23 | 88 | 77 | 740 | | 342 | 192 | 425 | 342 | 425 | 258 | 147 | 118 |
| 24 | 88 | 93 | * 565 | | 297 | 258 | 425 | 342 | 425 | 258 | 147 | 118 |
| 25 | * 88 | 132 | 390 | | 258 | 357 | 425 | 342 | 408 | 258 | 147 | 118 |
| 26 | 88 | 99 | * 343 | 100 | 234 | 374 | 408 | 326 | 390 | 234 | 140 | 147 |
| 27 | 88 | 93 | * 296 | | 222 | 357 | 408 | 342 | 390 | 234 | 140 | 164 |
| 28 | 88 | 88 | * 250 | | 212 | 357 | 408 | 342 | 390 | 222 | 140 | 147 |
| 29 | 88 | * 88 | * 203 | | | 357 | 408 | 342 | 390 | 212 | 140 | 125 |
| 30 | 88 | 88 | 156 | 118 | | 357 | 408 | 357 | 390 | 201 | 132 | 118 |
| 31 | 88 | | 152 | 125 | | 312 | | 374 | | 201 | 132 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 132 | 82 | 96.7 | 0.645 | 0.74 | 5,950 |
| November | 132 | 77 | 86.6 | .577 | .64 | 5,150 |
| December | 740 | 77 | 187 | 1.25 | 1.44 | 11,500 |
| January | 147 | | 105 | .70 | .81 | 6,460 |
| February | 920 | 125 | 297 | 1.98 | 2.06 | 16,500 |
| March | 374 | 125 | 211 | 1.41 | 1.63 | 13,000 |
| April | 495 | 297 | 374 | 2.49 | 2.78 | 22,300 |
| May | 460 | 312 | 361 | 2.41 | 2.78 | 22,200 |
| June | 880 | 390 | 486 | 3.24 | 3.62 | 28,900 |
| July | 390 | 201 | 284 | 1.89 | 2.18 | 17,500 |
| August | 201 | 132 | 169 | 1.13 | 1.30 | 10,400 |
| September | 164 | 118 | 134 | .893 | 1.00 | 7,970 |
| The year | 920 | | 232 | 1.55 | 20.98 | 168,000 |

* Interpolated.

PUGET SOUND BASINS

DOSEWALLIPS RIVER BASIN

DOSEWALLIPS RIVER AT BRINNON, WASH.

LOCATION.—Staff gage in sec. 2, T. 25 N., R. 2 W., at old highway bridge half a mile above mouth at Brinnon.

DRAINAGE AREA.—130 square miles.

RECORDS AVAILABLE.—October, 1910, to October, 1911; July, 1924, to December, 1925; July, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,350 second-feet Feb. 20 (gage height, 3.9 feet); minimum, 40 second-feet Jan. 21 (gage height, 1.06 feet). 1910–11; 1924–25; 1928–1930: Maximum discharge, 4,920 second-feet Nov. 20, 1910 (gage height, 6.2 feet); minimum, 19 second-feet (result of regulation) Aug. 24, 1925.

REMARKS.—Records fair. Discharge estimated Mar. 15. Flash dam formerly used as aid to logging operations no longer in use. No regulation or diversions. One discharge measurement furnished by city of Tacoma.

Daily and monthly discharge, in second feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|------|-------|------|------|-----|------|------|------|-------|
| 1 | 75 | 68 | 60 | 187 | 198 | 348 | 520 | 555 | 460 | 460 | 212 | 121 |
| 2 | 79 | 79 | 57 | 168 | 370 | 319 | 490 | 630 | 490 | 374 | 209 | 132 |
| 3 | 77 | 68 | 54 | 158 | 253 | 304 | 460 | 590 | 460 | 374 | 198 | 137 |
| 4 | 127 | 66 | 52 | 168 | 690 | 285 | 490 | 520 | 430 | 400 | 205 | 137 |
| 5 | 161 | 62 | 51 | 158 | 1,150 | 276 | 980 | 520 | 460 | 400 | 205 | 134 |
| 6 | 97 | 60 | 54 | 141 | 610 | 257 | 795 | 555 | 590 | 460 | 220 | 134 |
| 7 | 79 | 60 | 51 | 114 | 570 | 244 | 840 | 460 | 670 | 374 | 212 | 126 |
| 8 | 83 | 58 | 50 | 109 | 570 | 228 | 885 | 430 | 630 | 374 | 209 | 126 |
| 9 | 191 | 58 | 52 | 104 | 465 | 220 | 710 | 400 | 590 | 374 | 212 | 119 |
| 10 | 117 | 57 | 57 | 88 | 500 | 209 | 590 | 400 | 670 | 400 | 212 | 116 |
| 11 | 92 | 57 | 62 | 73 | 430 | 212 | 555 | 400 | 750 | 460 | 205 | 111 |
| 12 | 122 | 56 | 54 | 57 | 370 | 220 | 520 | 430 | 630 | 460 | 198 | 126 |
| 13 | 97 | 54 | 54 | 58 | 345 | 212 | 555 | 490 | 520 | 460 | 192 | 119 |
| 14 | 106 | 54 | 1,390 | 58 | 299 | 198 | 590 | 590 | 490 | 460 | 192 | 143 |
| 15 | 106 | 52 | 400 | 79 | 299 | 190 | 590 | 630 | 520 | 400 | 198 | 126 |
| 16 | 147 | 68 | 258 | 68 | 370 | 181 | 555 | 710 | 520 | 374 | 185 | 116 |
| 17 | 237 | 151 | 176 | 44 | 465 | 181 | 520 | 590 | 520 | 348 | 169 | 116 |
| 18 | 122 | 77 | 134 | 75 | 730 | 181 | 520 | 520 | 490 | 290 | 160 | 126 |
| 19 | 161 | 64 | 122 | 71 | 1,210 | 195 | 490 | 460 | 490 | 276 | 157 | 111 |
| 20 | 106 | 60 | 122 | 46 | 2,350 | 192 | 520 | 520 | 490 | 285 | 154 | 104 |
| 21 | 114 | 56 | 114 | 40 | 1,180 | 266 | 590 | 490 | 520 | 309 | 143 | 109 |
| 22 | 92 | 54 | 154 | 50 | 885 | 430 | 670 | 460 | 520 | 319 | 137 | 102 |
| 23 | 88 | 54 | 690 | 52 | 795 | 348 | 630 | 430 | 490 | 319 | 154 | 93 |
| 24 | 88 | 54 | 430 | 45 | 670 | 400 | 630 | 430 | 490 | 299 | 137 | 93 |
| 25 | 83 | 64 | 1,210 | 43 | 555 | 590 | 590 | 400 | 490 | 271 | 132 | 84 |
| 26 | 106 | 79 | 610 | 54 | 490 | 630 | 590 | 400 | 430 | 236 | 132 | 252 |
| 27 | 81 | 64 | 430 | 51 | 430 | 590 | 710 | 400 | 490 | 228 | 132 | 490 |
| 28 | 73 | 64 | 320 | 48 | 374 | 670 | 670 | 460 | 460 | 220 | 134 | 195 |
| 29 | 71 | 60 | 274 | 54 | 750 | 630 | 490 | 430 | 430 | 232 | 137 | 132 |
| 30 | 68 | 60 | 249 | 52 | 630 | 555 | 490 | 430 | 430 | 261 | 134 | 107 |
| 31 | 68 | 214 | 57 | 555 | 490 | 490 | 490 | 490 | 490 | 228 | 129 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 237 | 68 | 107 | 0.823 | 0.98 | 6,580 |
| November | 151 | 52 | 64.6 | .497 | .55 | 3,840 |
| December | 1,390 | 50 | 258 | 1.98 | 2.28 | 15,900 |
| January | 187 | 40 | 82.9 | .638 | .74 | 5,100 |
| February | 2,350 | 198 | 629 | 4.84 | 5.64 | 34,900 |
| March | 750 | 181 | 339 | 2.61 | 3.01 | 20,800 |
| April | 980 | 460 | 615 | 4.73 | 5.28 | 36,600 |
| May | 710 | 400 | 495 | 3.81 | 4.39 | 30,400 |
| June | 750 | 430 | 521 | 4.01 | 4.47 | 31,000 |
| July | 460 | 220 | 346 | 2.66 | 3.07 | 21,300 |
| August | 220 | 129 | 174 | 1.34 | 1.54 | 10,700 |
| September | 490 | 84 | 138 | 1.06 | 1.19 | 8,210 |
| The year | 2,350 | 40 | 311 | 2.39 | 32.59 | 225,000 |

HAMMA HAMMA RIVER BASIN

HAMMA HAMMA RIVER NEAR HOODSPORT, WASH.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 27, T. 24 N., R. 3 W., three-fourths mile above mouth and 11 miles northeast of Hoodspport.

DRAINAGE AREA.—75 square miles.

RECORDS AVAILABLE.—February, 1926, to September, 1930, when records were discontinued.

EXTREMES.—Maximum discharge during year, 3,420 second-feet Feb. 20 (gage height, 6.1 feet); minimum, 26 second-feet Nov. 19-23, 2ⁿ (gage height, 1.28 feet).

1926-1930: Maximum discharge, 5,080 second-feet Dec. 2, 1926 (gage height, 7.7 feet); minimum, 23 second-feet Sept. 28, 1929 (gage height, 1.25 feet).

REMARKS.—Records fair. Discharge estimated Oct. 23-25, Mar. 18-20, May 9, June 8, Aug. 1, 16, 25. No diversions or regulation. Results of one discharge measurement furnished by city of Tacoma.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | 35 | 38 | 27 | 656 | 1,430 | 172 | 413 | 490 | 280 | 163 | 84 | 44 |
| 2..... | 38 | 40 | 27 | 594 | 2,110 | 165 | 473 | 518 | 280 | 156 | 77 | 44 |
| 3..... | 38 | 35 | 27 | 413 | 2,300 | 159 | 656 | 490 | 280 | 150 | 74 | 41 |
| 4..... | 38 | 38 | 28 | 283 | 2,300 | 168 | 1,050 | 436 | 280 | 150 | 70 | 41 |
| 5..... | 38 | 40 | 28 | 301 | 2,300 | 310 | 1,190 | 410 | 280 | 150 | 66 | 41 |
| 6..... | 40 | 38 | 28 | 283 | 2,300 | 301 | 1,190 | 384 | 280 | 143 | 66 | 39 |
| 7..... | 40 | 35 | 38 | 185 | 2,300 | 310 | 1,120 | 360 | 289 | 143 | 66 | 39 |
| 8..... | 48 | 30 | 38 | 178 | 845 | 358 | 1,120 | 335 | 282 | 137 | 66 | 39 |
| 9..... | 49 | 28 | 43 | 172 | 656 | 301 | 980 | 335 | 276 | 131 | 63 | 39 |
| 10..... | 52 | 32 | 38 | 165 | 718 | 231 | 845 | 335 | 289 | 131 | 63 | 39 |
| 11..... | 52 | 33 | 35 | 159 | 780 | 231 | 659 | 335 | 280 | 126 | 63 | 39 |
| 12..... | 48 | 34 | 38 | 159 | 718 | 223 | 601 | 335 | 280 | 126 | 63 | 38 |
| 13..... | 49 | 30 | 443 | 152 | 656 | 215 | 601 | 312 | 246 | 126 | 66 | 39 |
| 14..... | 52 | 28 | 2,600 | 152 | 594 | 204 | 601 | 312 | 226 | 120 | 63 | 39 |
| 15..... | 42 | 28 | 718 | 146 | 533 | 185 | 601 | 289 | 238 | 109 | 63 | 38 |
| 16..... | 52 | 30 | 594 | 135 | 533 | 178 | 490 | 289 | 238 | 109 | 62 | 38 |
| 17..... | 52 | 30 | 656 | 123 | 533 | 178 | 490 | 280 | 222 | 109 | 60 | 39 |
| 18..... | 52 | 28 | 656 | 118 | 1,350 | 266 | 518 | 289 | 214 | 104 | 63 | 39 |
| 19..... | 61 | 26 | 656 | 113 | 1,510 | 355 | 490 | 289 | 214 | 99 | 66 | 39 |
| 20..... | 72 | 26 | 656 | 108 | 3,420 | 444 | 490 | 312 | 214 | 95 | 74 | 38 |
| 21..... | 55 | 26 | 594 | 108 | 2,490 | 533 | 436 | 335 | 214 | 95 | 81 | 37 |
| 22..... | 49 | 26 | 980 | 103 | 1,350 | 594 | 436 | 384 | 206 | 95 | 81 | 37 |
| 23..... | 47 | 26 | 2,600 | 98 | 1,430 | 594 | 436 | 384 | 199 | 95 | 85 | 37 |
| 24..... | 44 | 28 | 2,500 | 94 | 1,350 | 594 | 436 | 360 | 199 | 95 | 81 | 38 |
| 25..... | 41 | 28 | 2,300 | 55 | 1,120 | 533 | 436 | 335 | 191 | 95 | 65 | 39 |
| 26..... | 38 | 28 | 980 | 72 | 980 | 533 | 436 | 335 | 191 | 95 | 49 | 37 |
| 27..... | 46 | 28 | 718 | 72 | 185 | 503 | 812 | 312 | 184 | 95 | 46 | 37 |
| 28..... | 46 | 28 | 718 | 72 | 178 | 503 | 845 | 289 | 184 | 90 | 44 | 37 |
| 29..... | 40 | 26 | 718 | 76 | ----- | 503 | 718 | 289 | 176 | 85 | 44 | 37 |
| 30..... | 38 | 27 | 780 | 80 | ----- | 473 | 518 | 289 | 169 | 90 | 44 | 37 |
| 31..... | 38 | ----- | 845 | 118 | ----- | 473 | ----- | 280 | ----- | 90 | 44 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 72 | 35 | 46.1 | 0.615 | 0.71 | 2,830 |
| November..... | 40 | 26 | 30.6 | .408 | .46 | 1,820 |
| December..... | 2,600 | 27 | 681 | 9.08 | 10.47 | 41,000 |
| January..... | 656 | 55 | 179 | 2.39 | 2.76 | 11,000 |
| February..... | 3,420 | 178 | 1,310 | 17.5 | 18.22 | 72,800 |
| March..... | 594 | 159 | 348 | 4.64 | 5.35 | 21,400 |
| April..... | 1,190 | 413 | 670 | 8.93 | 9.96 | 39,900 |
| May..... | 518 | 280 | 346 | 4.61 | 5.32 | 21,300 |
| June..... | 289 | 169 | 227 | 3.16 | 3.53 | 14,100 |
| July..... | 163 | 85 | 116 | 1.55 | 1.79 | 7,150 |
| August..... | 85 | 44 | 64.6 | .861 | .99 | 3,970 |
| September..... | 44 | 37 | 38.8 | .517 | .58 | 2,310 |
| The year..... | 3,420 | 26 | 332 | 4.43 | 60.14 | 240,000 |

SKOKOMISH RIVER BASIN

NORTH FORK OF SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 3, T. 23 N., R. 5 W., 2 miles above Dry Creek and $10\frac{1}{2}$ miles northwest of Hoodspport.

DRAINAGE AREA.—60 square miles.

RECORDS AVAILABLE.—July, 1924, to September, 1930.

EXTREMES.—Maximum discharge during year, 4,050 second-feet Dec. 14 (gage height, 6.62 feet); minimum, 16 second-feet Sept. 23 (gage height, 1.12 feet).

1924-1930: Maximum discharge, 5,350 second-feet Dec. 1, 1926 (gage height, 7.5 feet); minimum, that of Sept. 23, 1930.

REMARKS.—Records good except those for period Jan. 18-30, which were estimated because of ice, and those for June 6 to July 8, estimated because of no gage-height record. No diversions above station. Many discharge measurements furnished by city of Tacoma.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-------|------|-------|------|-------|-----|------|------|------|-------|
| 1..... | 46 | 49 | 34 | 266 | 851 | 292 | 394 | 393 | 313 | 180 | 84 | 43 |
| 2..... | 45 | 49 | 33 | 248 | 570 | 266 | 359 | 407 | 303 | | 80 | 41 |
| 3..... | 47 | 48 | 31 | 260 | 434 | 251 | 405 | 378 | 272 | | 76 | 40 |
| 4..... | 65 | 47 | 31 | 242 | 1,540 | 244 | 819 | 347 | 272 | | 79 | 39 |
| 5..... | 62 | 46 | 33 | 214 | 1,200 | 238 | 1,840 | 323 | 284 | | 80 | 37 |
| 6..... | 51 | 46 | 34 | 185 | 598 | 220 | 1,030 | 316 | 260 | 156 | 80 | 35 |
| 7..... | 48 | 45 | 32 | 163 | 716 | 217 | 1,220 | 291 | | 163 | 77 | 43 |
| 8..... | 101 | 45 | 32 | 154 | 554 | 206 | 925 | 281 | | 158 | 77 | 34 |
| 9..... | 202 | 45 | 34 | 139 | 424 | 203 | 700 | 272 | | 145 | 76 | 31 |
| 10..... | 100 | 45 | 34 | 132 | 447 | 189 | 565 | 272 | | 132 | 74 | 27 |
| 11..... | 72 | 45 | 37 | 128 | 401 | 206 | 487 | 281 | 230 | 161 | 72 | 25 |
| 12..... | 67 | 44 | 34 | 128 | 349 | 209 | 463 | 287 | | 154 | 71 | 24 |
| 13..... | 60 | 44 | 498 | 126 | 325 | 192 | 479 | 327 | | 158 | 70 | 26 |
| 14..... | 56 | 43 | 2,220 | 126 | 292 | 178 | 531 | 361 | | 145 | 70 | 56 |
| 15..... | 59 | 43 | 483 | 130 | 356 | 170 | 495 | 368 | | 113 | 70 | 43 |
| 16..... | 60 | 85 | 344 | 132 | 439 | 163 | 425 | 378 | 210 | 128 | 70 | 27 |
| 17..... | 126 | 109 | 275 | 132 | 520 | 160 | 389 | 337 | | 124 | 65 | 23 |
| 18..... | 119 | 63 | 219 | 120 | 1,350 | 166 | 375 | 303 | | 120 | 60 | 23 |
| 19..... | 174 | 52 | 236 | | 1,690 | 186 | 375 | 316 | | 115 | 59 | 21 |
| 20..... | 109 | 49 | 203 | | 1,870 | 176 | 400 | 550 | | 113 | 58 | 19 |
| 21..... | 89 | 46 | 206 | | 978 | 536 | 479 | 440 | 210 | 115 | 55 | 19 |
| 22..... | 74 | 45 | 970 | | 770 | 488 | 471 | 382 | | 116 | 53 | 19 |
| 23..... | 67 | 44 | 1,040 | | 621 | 352 | 440 | 358 | | 115 | 53 | 17 |
| 24..... | 62 | 42 | 911 | | 490 | 582 | 429 | 340 | | 109 | 52 | 48 |
| 25..... | 59 | 49 | 1,750 | | 420 | 743 | 400 | 281 | | 102 | 51 | 44 |
| 26..... | 58 | 46 | 721 | 130 | 366 | 621 | 472 | 260 | 210 | 93 | 49 | 192 |
| 27..... | 58 | 42 | 598 | | 335 | 576 | 808 | 257 | | 90 | 48 | 471 |
| 28..... | 53 | 39 | 382 | | 308 | 668 | 545 | 323 | | 88 | 46 | 160 |
| 29..... | 52 | 37 | 327 | | 644 | 429 | 333 | 333 | | 88 | 46 | 98 |
| 30..... | 51 | 35 | 313 | | 503 | 389 | 287 | 287 | | 88 | 45 | 79 |
| 31..... | 50 | --- | 275 | 139 | --- | 424 | --- | 275 | --- | 85 | 44 | --- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 202 | 45 | 75.5 | 1.26 | 1.45 | 4,640 |
| November..... | 109 | 35 | 48.9 | .815 | .91 | 2,910 |
| December..... | 2,220 | 31 | 396 | 6.60 | 7.61 | 24,300 |
| January..... | 266 | --- | 150 | 2.50 | 2.88 | 9,220 |
| February..... | 1,870 | 292 | 686 | 11.4 | 11.87 | 38,100 |
| March..... | 743 | 160 | 331 | 5.52 | 6.36 | 20,400 |
| April..... | 1,840 | 359 | 585 | 9.75 | 10.88 | 34,800 |
| May..... | 550 | 257 | 333 | 5.55 | 6.40 | 20,500 |
| June..... | 313 | --- | 242 | 4.03 | 4.50 | 14,400 |
| July..... | --- | 85 | 135 | 2.25 | 2.59 | 8,300 |
| August..... | 84 | 44 | 64.2 | 1.07 | 1.23 | 3,950 |
| September..... | 471 | 17 | 60.1 | 1.00 | 1.12 | 3,580 |
| The year..... | 2,220 | 17 | 256 | 4.27 | 57.80 | 185,000 |

NORTH FORK OF SKOKOMISH RIVER NEAR HOODSPORT, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 8, T. 22 N., R. 4 W., 1 mile below Cushman Reservoir Dam and $3\frac{1}{2}$ miles west of Hoodsport.

DRAINAGE AREA.—92 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1930. August, 1910, to September, 1911, February, 1913, to September, 1923, at site of dam 1 mile above.

EXTREMES.—Maximum discharge during year, 2,130 second-feet Oct. 3, 10 (gage height, 8.0 feet); minimum, 1 second-foot Jan. 13, 14 (gage height, 0.65 foot).

1913-1930: Maximum discharge (estimated), 14,000 second-feet Jan. 6, 1914 (gage height, about 23.5 feet); practically no flow when gates in dam and at power house are closed during late summer.

REMARKS.—Records excellent except those for Dec. 14 to Jan. 2, which were estimated, and those for very low discharge, which are fair. No diversions that are not returned to river above gage. Flow controlled by storage in Cushman Reservoir and by release for power purposes. Many discharge measurements furnished by city of Tacoma.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|------|-------|------|-------|------|------|-------|-------|
| 1 | 1,130 | 1,120 | 94 | 10 | 401 | 17 | 94 | 11 | 57 | 195 | 92 | 2 |
| 2 | 1,220 | 875 | 982 | 10 | 30 | 49 | 68 | 9 | 284 | 263 | 76 | 294 |
| 3 | 1,010 | 272 | 916 | 12 | 346 | 86 | 88 | 8 | 262 | 225 | 6 | 322 |
| 4 | 678 | 1,080 | 884 | 12 | 314 | 107 | 78 | 8 | 214 | 30 | 136 | 380 |
| 5 | 242 | 1,140 | 986 | 12 | 124 | 19 | 61 | 8 | 195 | 63 | 186 | 322 |
| 6 | 197 | 1,150 | 802 | 11 | 108 | 21 | 31 | 11 | 20 | 11 | 133 | 260 |
| 7 | 888 | 1,140 | 845 | 10 | 174 | 25 | 112 | 8 | 8 | 96 | 120 | 244 |
| 8 | 588 | 1,250 | 588 | 9 | 43 | 20 | 80 | 8 | 57 | 134 | 240 | 476 |
| 9 | 398 | 1,240 | 680 | 8 | 22 | 16 | 30 | 8 | 220 | 97 | 30 | 465 |
| 10 | 963 | 394 | 236 | 8 | 82 | 50 | 17 | 7 | 229 | 97 | 44 | 516 |
| 11 | 853 | 1,090 | 188 | 7 | 197 | 118 | 14 | 7 | 188 | 120 | 233 | 524 |
| 12 | 556 | 1,160 | 476 | 6 | 84 | 92 | 14 | 7 | 189 | 112 | 261 | 455 |
| 13 | 27 | 1,170 | 399 | 20 | 118 | 144 | 13 | 55 | 364 | 20 | 228 | 476 |
| 14 | 765 | 1,150 | 49 | 49 | 102 | 95 | 14 | 7 | 145 | 119 | 128 | 35 |
| 15 | 598 | 1,190 | 56 | 56 | 96 | 24 | 19 | 6 | 14 | 106 | 55 | 425 |
| 16 | 846 | 1,130 | 190 | 62 | 14 | 11 | 8 | 54 | 119 | 51 | 426 | |
| 17 | 387 | 400 | 1,190 | 22 | 84 | 54 | 7 | 203 | 160 | 85 | 331 | |
| 18 | 820 | 1,160 | 868 | 30 | 147 | 62 | 8 | 192 | 165 | 7 | 352 | |
| 19 | 598 | 1,200 | 342 | 32 | 126 | 10 | 7 | 167 | 26 | 4 | 807 | |
| 20 | 168 | 1,120 | 1,070 | 42 | 94 | 10 | 171 | 133 | 12 | 4 | 639 | |
| 21 | 805 | 1,180 | 1,070 | 34 | 84 | 13 | 156 | 72 | 135 | 4 | 400 | |
| 22 | 854 | 1,200 | 984 | 30 | 34 | 10 | 8 | 9 | 130 | 4 | 591 | |
| 23 | 916 | 956 | 944 | 29 | 16 | 10 | 7 | 223 | 120 | 4 | 848 | |
| 24 | 935 | 430 | 886 | 27 | 70 | 9 | 110 | 253 | 119 | 4 | 783 | |
| 25 | 849 | 993 | 897 | 69 | 64 | 9 | 6 | 243 | 138 | 4 | 904 | |
| 26 | 645 | 1,020 | 285 | 21 | 67 | 9 | 36 | 173 | 65 | 4 | 700 | |
| 27 | 233 | 1,270 | 878 | 20 | 76 | 17 | 177 | 183 | 16 | 4 | 626 | |
| 28 | 909 | 232 | 933 | 18 | 66 | 11 | 125 | 83 | 334 | 4 | 757 | |
| 29 | 1,050 | 928 | 658 | ----- | 164 | 10 | 104 | 9 | 121 | 4 | 854 | |
| 30 | 1,120 | 712 | 666 | ----- | 11 | 10 | 65 | 173 | 112 | 4 | 1,010 | |
| 31 | 1,100 | ----- | 440 | ----- | 66 | ----- | 151 | ----- | 78 | 4 | ----- | |

PUGET SOUND BASINS

29

Monthly discharge of North Fork of Skokomish River near Hoodsport, Wash.,
1929-30

| Month | Observed | | | | Gain or loss in storage, Lake Cush- man Reser- voir (acre- feet) | Corrected for storage | | | |
|----------------|--------------------------|--------------|------|----------------------------|---|----------------------------|-----------------------------|-----------------------|-------------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run-off in acre-feet | Discharge in second-feet | | Run-off in inches |
| | Maxi- mum | Mini- mum | Mean | | | | Mean | Per square mile | |
| October..... | 1,220 | 27 | 721 | 44,300 | -35,900 | 8,400 | 137 | 1.4 ⁶ | 1.72 |
| November..... | 1,270 | 232 | 978 | 58,200 | -51,600 | 6,600 | 111 | 1.2 ¹ | 1.85 |
| December..... | 986 | | 265 | 16,300 | +30,200 | 46,500 | 756 | 8.2 ³ | 9.48 |
| January..... | 1,190 | 6 | 405 | 24,900 | -5,860 | 19,000 | 309 | 3.3 ³ | 3.37 |
| February..... | 401 | 18 | 95.6 | 5,310 | +65,000 | 70,300 | 1,270 | 13.8 | 14.37 |
| March..... | 164 | 11 | 66.6 | 4,100 | +32,000 | 36,100 | 587 | 6.3 ³ | 7.36 |
| April..... | 112 | 9 | 32.9 | 1,960 | +55,700 | 57,700 | 970 | 10.5 | 11.71 |
| May..... | 177 | 6 | 42.4 | 2,610 | +27,100 | 29,700 | 453 | 5.2 ⁵ | 6.05 |
| June..... | 364 | 8 | 155 | 9,220 | +10,500 | 19,700 | 331 | 3.6 ¹ | 4.02 |
| July..... | 334 | 11 | 114 | 7,010 | +3,100 | 10,100 | 164 | 1.7 ³ | 2.05 |
| August..... | 261 | 4 | 69.8 | 4,290 | +1,220 | 5,510 | 89.6 | 1.9 ⁴ | 1.12 |
| September..... | 1,010 | 2 | 507 | 30,200 | -22,900 | 7,300 | 123 | 1.3 ⁴ | 1.50 |
| The year..... | 1,270 | 2 | 288 | 208,000 | +109,000 | 317,000 | 438 | 4.7 ³ | 64.60 |

SOUTH FORK OF SKOKOMISH RIVER NEAR POTLATCH, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 22, T. 22 N., R. 5 W., at head of canyon 2 miles below Brown Creek and $7\frac{1}{2}$ miles west of Potlatch.

DRAINAGE AREA.—63 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1930.

EXTREMES.—Maximum discharge during year, 4,570 second-feet Dec. 22 (gauge height, 9.33 feet); minimum, 52 second-feet Sept. 22, 23 (gauge height, 1.57 feet).

1923-1930: Maximum discharge, about 9,950 second-feet Jan. 31, 1924 (gauge height, 14.86 feet); minimum, 38 second-feet Sept. 15, 1926 (gauge height, 1.22 feet).

REMARKS.—Records fair. Discharge estimated Jan. 20-28, Aug. 6-27. No diversions or regulation. Many discharge measurements furnished by city of Tacoma.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|------|-------|------|-------|-----|------|------|------|-------|
| 1 | 69 | 76 | 69 | 522 | 1,490 | 490 | 256 | 352 | 245 | 141 | 82 | 61 |
| 2 | 67 | 76 | 67 | 505 | 1,110 | 460 | 234 | 340 | 245 | 137 | 82 | 61 |
| 3 | 69 | 74 | 66 | 678 | 876 | 432 | 411 | 316 | 233 | 133 | 82 | 60 |
| 4 | 79 | 73 | 66 | 635 | 1,960 | 418 | 1,200 | 304 | 223 | 131 | 80 | 60 |
| 5 | 84 | 73 | 67 | 538 | 2,060 | 404 | 2,080 | 293 | 218 | 127 | 79 | 60 |
| 6 | 74 | 72 | 67 | 446 | 1,140 | 391 | 1,050 | 282 | 212 | 123 | 78 | 60 |
| 7 | 73 | 72 | 66 | 391 | 1,340 | 391 | 896 | 265 | 223 | 117 | 78 | 60 |
| 8 | 59 | 70 | 70 | 352 | 1,100 | 391 | 852 | 256 | 223 | 117 | 77 | 58 |
| 9 | 198 | 70 | 78 | 328 | 810 | 378 | 766 | 247 | 212 | 115 | 76 | 57 |
| 10 | 143 | 73 | 80 | 304 | 898 | 378 | 744 | 243 | 203 | 112 | 76 | 57 |
| 11 | 108 | 70 | 80 | 293 | 854 | 378 | 575 | 238 | 203 | 110 | 75 | 57 |
| 12 | 96 | 69 | 78 | 270 | 700 | 378 | 490 | 236 | 193 | 108 | 74 | 56 |
| 13 | 90 | 67 | 587 | 252 | 594 | 365 | 446 | 238 | 193 | 105 | 74 | 56 |
| 14 | 85 | 66 | 2,540 | 245 | 522 | 352 | 475 | 238 | 183 | 105 | 73 | 60 |
| 15 | 85 | 66 | 866 | 238 | 635 | 340 | 432 | 232 | 183 | 106 | 72 | 61 |
| 16 | 88 | 86 | 678 | 223 | 766 | 328 | 391 | 232 | 173 | 103 | 72 | 58 |
| 17 | 121 | 146 | 556 | 221 | 832 | 316 | 382 | 227 | 173 | 101 | 71 | 57 |
| 18 | 129 | 103 | 418 | 221 | 1,710 | 316 | 328 | 223 | 170 | 103 | 70 | 56 |
| 19 | 212 | 90 | 391 | 212 | 2,280 | 316 | 316 | 240 | 163 | 98 | 70 | 56 |
| 20 | 158 | 84 | 340 | | 2,740 | 316 | 304 | 412 | 163 | 96 | 69 | 55 |
| 21 | 143 | 79 | 352 | | 1,740 | 856 | 316 | 522 | 163 | 96 | 68 | 53 |
| 22 | 123 | 78 | 1,880 | | 1,450 | 810 | 316 | 418 | 153 | 96 | 68 | 53 |
| 23 | 108 | 74 | 2,500 | | 1,240 | 522 | 293 | 340 | 153 | 95 | 67 | 53 |
| 24 | 99 | 73 | 1,890 | 200 | 968 | 722 | 293 | 304 | 153 | 95 | 66 | 60 |
| 25 | 95 | 74 | 2,320 | | 810 | 722 | 270 | 282 | 153 | 93 | 66 | 64 |
| 26 | 90 | 76 | 1,480 | | 700 | 538 | 293 | 268 | 153 | 90 | 65 | 160 |
| 27 | 85 | 73 | 1,180 | | 614 | 446 | 666 | 256 | 173 | 88 | 65 | 480 |
| 28 | 82 | 72 | 854 | | 538 | 418 | 556 | 256 | 193 | 85 | 64 | 267 |
| 29 | 80 | 70 | 656 | 192 | | 391 | 432 | 249 | 163 | 85 | 64 | 181 |
| 30 | 78 | 69 | 635 | 214 | | 316 | 378 | 240 | 153 | 84 | 62 | 143 |
| 31 | 78 | | 556 | 270 | | | 282 | 234 | | 82 | 62 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 212 | 67 | 103 | 1.51 | 1.74 | 6,330 |
| November | 146 | 66 | 77.1 | 1.13 | 1.26 | 4,590 |
| December | 2,540 | 66 | 694 | 10.2 | 11.76 | 42,700 |
| January | 678 | | 302 | 4.44 | 5.12 | 18,600 |
| February | 2,740 | 522 | 1,160 | 17.1 | 17.81 | 64,400 |
| March | 856 | 282 | 437 | 6.43 | 7.41 | 26,900 |
| April | 2,080 | 234 | 546 | 8.03 | 8.96 | 32,500 |
| May | 522 | 223 | 283 | 4.16 | 4.80 | 17,400 |
| June | 245 | 150 | 189 | 2.78 | 3.10 | 11,200 |
| July | 141 | 82 | 106 | 1.56 | 1.80 | 6,520 |
| August | 82 | 62 | 71.8 | 1.06 | 1.22 | 4,410 |
| September | 480 | 53 | 89.3 | 1.31 | 1.46 | 5,310 |
| The year | 2,740 | 53 | 333 | 4.90 | 66.44 | 241,000 |

NISQUALLY RIVER BASIN

NISQUALLY RIVER NEAR LA GRANDE, WASH.

LOCATION.—Water-stage recorder in sec. 9, T. 15 N., R. 4 E., 1,200 feet below diversion dam of Tacoma's municipal power plant and 2½ miles southeast of La Grande. Also water-stage recorder on power conduit.

DRAINAGE AREA.—287 square miles.

RECORDS AVAILABLE.—October, 1919, to September, 1930; September, 1906, to October, 1911, fragmentary.

EXTREMES.—Maximum combined discharge of river and power conduit during year, 6,070 second-feet Dec. 14. Practically no flow at times when conduit gates are closed and pondage is building up.

1919-1930: Maximum combined discharge of river and power conduit, 19,500 second-feet, Dec. 12, 1921 (river gage height, 15.6 feet). Practically no flow at times when conduit gates are closed and pondage is building up.

REMARKS.—Records good except those for Jan. 8-25, Mar. 2-6, which were estimated. Slight regulation caused by use of flash boards on dam. City of Tacoma diverts up to more than 900 second-feet for power purposes, but diversion is measured and is included in these results. Many discharge measurements furnished by city of Tacoma.

Combined daily discharge, in second-feet, of Nisqually River and Tacoma power conduit near La Grande, Wash., 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 224 | 212 | 204 | 1,360 | 2,180 | 1,060 | 1,530 | 919 | 981 | 676 | 528 | 374 |
| 2 | 263 | 228 | 219 | 1,390 | 2,440 | | 1,390 | 966 | 1,130 | 699 | 498 | 496 |
| 3 | 369 | 270 | 210 | 1,220 | 1,660 | | 1,346 | 1,080 | 1,030 | 555 | 524 | 555 |
| 4 | 420 | 248 | 223 | 1,270 | 1,940 | | 1,320 | 907 | 954 | 545 | 573 | 526 |
| 5 | 434 | 250 | 192 | 1,210 | 3,000 | 900 | 1,230 | 857 | 1,010 | 687 | 615 | 540 |
| 6 | 322 | 203 | 226 | 1,040 | 2,390 | | 1,160 | 807 | 569 | 819 | 630 | 513 |
| 7 | 333 | 240 | 186 | 901 | 3,200 | 690 | 1,390 | 762 | 634 | 703 | 650 | 315 |
| 8 | 273 | 177 | 184 | | 3,640 | 670 | 1,680 | 684 | 467 | 641 | 759 | 401 |
| 9 | 264 | 192 | 371 | | 2,590 | 640 | 1,570 | 669 | 628 | 709 | 641 | 427 |
| 10 | 289 | 247 | 822 | | 2,430 | 620 | 1,340 | 613 | 1,110 | 819 | 698 | 404 |
| 11 | 280 | 203 | 824 | 600 | 2,510 | 600 | 1,200 | 592 | 1,070 | 813 | 646 | 382 |
| 12 | 325 | 198 | 509 | | 2,060 | 590 | 1,140 | 702 | 948 | 927 | 684 | 395 |
| 13 | 281 | 205 | 606 | | 2,130 | 570 | 1,170 | 719 | 706 | 989 | 629 | 346 |
| 14 | 294 | 214 | 5,000 | | 2,850 | 550 | 1,470 | 850 | 796 | 867 | 678 | 667 |
| 15 | 314 | 175 | 2,620 | | 2,540 | 530 | 1,510 | 883 | 695 | 779 | 712 | 452 |
| 16 | 356 | 157 | 2,100 | 500 | 2,490 | 520 | 1,360 | 1,000 | 855 | 689 | 545 | 494 |
| 17 | 392 | 198 | 1,590 | | 2,300 | 500 | 1,210 | 917 | 809 | 588 | 444 | 498 |
| 18 | 267 | 210 | 1,260 | | 2,220 | 510 | 1,110 | 812 | 721 | 530 | 495 | 504 |
| 19 | 248 | 171 | 1,390 | | 3,720 | 520 | 1,040 | 880 | 773 | 548 | 517 | 433 |
| 20 | 218 | 146 | 1,390 | | 3,880 | 530 | 1,000 | 2,090 | 792 | 568 | 416 | 455 |
| 21 | 232 | 191 | 1,240 | | 3,110 | 1,100 | 1,200 | 2,520 | 769 | 653 | 456 | 484 |
| 22 | 239 | 156 | 1,560 | 400 | 2,520 | 3,000 | 1,420 | 2,100 | 631 | 719 | 473 | 416 |
| 23 | 304 | 178 | 3,160 | | 2,140 | 1,880 | 1,330 | 1,700 | 674 | 751 | 493 | 252 |
| 24 | 300 | 115 | 2,400 | | 1,810 | 2,640 | 1,250 | 1,510 | 653 | 654 | 415 | 282 |
| 25 | 296 | 269 | 2,260 | | 1,570 | 2,970 | 1,170 | 1,370 | 715 | 586 | 415 | 207 |
| 26 | 294 | 274 | 2,040 | 400 | 1,400 | 2,600 | 1,140 | 1,210 | 696 | 516 | 370 | 283 |
| 27 | 308 | 220 | 1,720 | 400 | 1,270 | 2,310 | 1,190 | 1,130 | 788 | 508 | 412 | 289 |
| 28 | 247 | 214 | 1,410 | 400 | 1,140 | 2,220 | 1,240 | 1,120 | 726 | 534 | 515 | 280 |
| 29 | 176 | 220 | 1,220 | 450 | | 2,320 | 1,150 | 1,140 | 609 | 587 | 515 | 260 |
| 30 | 209 | 224 | 1,170 | 500 | | 1,990 | 1,010 | 1,070 | 605 | 761 | 507 | 187 |
| 31 | 205 | | 1,100 | 800 | | 1,720 | | 1,050 | | 620 | 425 | |

Combined monthly discharge in second-feet, of Nisqually River and Tacoma power conduit near La Grande, Wash., 1929-30

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 434 | 176 | 290 | 1.01 | 1.16 | 17,800 |
| November..... | 274 | 115 | 207 | .721 | .80 | 12,300 |
| December..... | 5,000 | 184 | 1,270 | 4.43 | 5.11 | 78,100 |
| January..... | 1,390 | 400 | 653 | 2.29 | 2.64 | 40,800 |
| February..... | 3,880 | 1,140 | 2,400 | 8.36 | 8.70 | 133,000 |
| March..... | 3,000 | 500 | 1,240 | 4.32 | 4.98 | 76,200 |
| April..... | 1,680 | 1,000 | 1,280 | 4.46 | 4.98 | 76,200 |
| May..... | 2,520 | 592 | 1,080 | 3.76 | 4.34 | 66,400 |
| June..... | 1,130 | 467 | 785 | 2.74 | 3.06 | 46,700 |
| July..... | 989 | 508 | 677 | 2.36 | 2.72 | 41,600 |
| August..... | 759 | 370 | 544 | 1.90 | 2.19 | 33,400 |
| September..... | 667 | 187 | 404 | 1.41 | 1.57 | 24,000 |
| The year..... | 5,000 | 115 | 893 | 8.11 | 42.25 | 646,000 |

LITTLE NISQUALLY RIVER NEAR ALDER, WASH.

LOCATION.—Water-stage recorder in NW. ¼ sec. 16, T. 15 N., R. 4 E., 1,500 feet above mouth, 3,000 feet from diversion dam of Tacoma's municipal power plant, and 1½ miles southwest of Alder.

DRAINAGE AREA.—28.5 square miles.

RECORDS AVAILABLE.—August, 1920, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,270 second-feet Dec. 14 (gage height, 4.55 feet); minimum, 3.1 second-feet Nov. 1 (gage height, 0.75 foot).
1920-1930: Maximum discharge, 2,220 second-feet Jan. 7, 1923 (gage height, 6.4 feet); minimum, 0.9 second-foot July 17, 1926 (gage height, 0.58 foot).

REMARKS.—Records good except those for Jan. 9-29, which were estimated because of ice. No diversions. Occasional violent diurnal fluctuation due to operation of flash dam controlling small pondage for logging industry. Many discharge measurements furnished by city of Tacoma.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|-------|------|-------|------|-------|-------|------|------|-------|
| 1 | 6.2 | 3.1 | 5.4 | 156 | 342 | 85 | 106 | 60 | 50 | 22 | 10 | 8.3 |
| 2 | 6.2 | 3.4 | 5.8 | 155 | 333 | 77 | 93 | 55 | 52 | 20 | 10 | 8.3 |
| 3 | 6.7 | 4.0 | 5.4 | 148 | 265 | 72 | 98 | 54 | 51 | 20 | 11 | 7.8 |
| 4 | 6.7 | 4.0 | 5.8 | 168 | 290 | 70 | 114 | 50 | 47 | 19 | 11 | 7.4 |
| 5 | 7.6 | 4.4 | 6.2 | 150 | 490 | 66 | 119 | 45 | 43 | 18 | 9.8 | 7.4 |
| 6 | 7.2 | 5.4 | 5.4 | 123 | 337 | 61 | 106 | 43 | 42 | 16 | 9.3 | 7.4 |
| 7 | 6.2 | 5.8 | 4.9 | 102 | 600 | 58 | 130 | 40 | 39 | 15 | 9.3 | 7.4 |
| 8 | 6.7 | 5.4 | 5.4 | 91 | 593 | 56 | 150 | 38 | 36 | 13 | 9.8 | 9.3 |
| 9 | 13 | 5.4 | 30 | 345 | 54 | 123 | 39 | 33 | 14 | 9.8 | 9.3 | |
| 10 | 12 | 8.0 | 174 | 323 | 48 | 100 | 33 | 32 | 15 | 9.3 | 8.8 | |
| 11 | 8.5 | 8.0 | 72 | 340 | 50 | 85 | 30 | 30 | 15 | 8.8 | 9.3 | |
| 12 | 8.0 | 6.7 | 39 | 259 | 50 | 78 | 29 | 30 | 14 | 8.8 | 9.3 | |
| 13 | 6.7 | 5.8 | 279 | 289 | 50 | 75 | 28 | 28 | 13 | 8.8 | 8.3 | |
| 14 | 6.2 | 5.8 | 998 | 423 | 47 | 91 | 28 | 26 | 14 | 8.8 | 8.3 | |
| 15 | 6.2 | 5.8 | 389 | 350 | 46 | 89 | 27 | 26 | 13 | 8.8 | 8.8 | |
| 16 | 6.2 | 5.4 | 329 | 296 | 43 | 82 | 27 | 26 | 13 | 8.8 | 7.8 | |
| 17 | 8.0 | 8.0 | 224 | 241 | 42 | 72 | 28 | 26 | 13 | 7.8 | 8.3 | |
| 18 | 7.6 | 7.6 | 153 | 240 | 41 | 67 | 27 | 27 | 13 | 8.3 | 8.3 | |
| 19 | 7.6 | 6.2 | 145 | 628 | 39 | 64 | 39 | 27 | 17 | 14 | 8.3 | 8.3 |
| 20 | 7.6 | 5.8 | 127 | 545 | 41 | 61 | 220 | 26 | 13 | 8.3 | 7.8 | |
| 21 | 7.2 | 4.9 | 127 | 387 | 266 | 64 | 363 | 26 | 13 | 8.3 | 7.4 | |
| 22 | 6.7 | 4.9 | 261 | 290 | 585 | 64 | 266 | 25 | 12 | 8.8 | 7.4 | |
| 23 | 5.8 | 4.9 | 605 | 229 | 356 | 61 | 176 | 25 | 12 | 9.3 | 6.9 | |
| 24 | 5.4 | 4.9 | 390 | 187 | 387 | 58 | 127 | 23 | 12 | 9.3 | 9.3 | |
| 25 | 4.4 | 7.2 | 360 | 155 | 363 | 54 | 102 | 24 | 12 | 9.3 | 8.3 | |
| 26 | 3.7 | 8.5 | 306 | 132 | 290 | 52 | 84 | 26 | 12 | 9.3 | 9.3 | |
| 27 | 3.7 | 6.7 | 232 | 110 | 235 | 68 | 72 | 26 | 12 | 9.3 | 10 | |
| 28 | 3.7 | 5.4 | 145 | 98 | 201 | 80 | 68 | 28 | 12 | 9.3 | 9.3 | |
| 29 | 3.4 | 4.9 | 132 | 41 | 182 | 73 | 61 | 25 | 11 | 9.3 | 9.3 | |
| 30 | 3.4 | 4.9 | 123 | 61 | 145 | 67 | 54 | 22 | 11 | 9.3 | 9.3 | |
| 31 | 3.4 | ----- | 110 | ----- | 123 | ----- | 48 | ----- | ----- | 10 | 9.3 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 13 | 3.4 | 6.51 | 0.228 | 0.26 | 400 |
| November | 8.5 | 3.1 | 5.71 | .200 | .22 | 340 |
| December | 998 | 4.9 | 187 | 6.56 | 7.56 | 11,500 |
| January | 168 | ----- | 65.5 | 2.30 | 2.65 | 4,030 |
| February | 628 | 98 | 326 | 11.4 | 11.87 | 18,100 |
| March | 585 | 39 | 136 | 4.77 | 5.55 | 8,360 |
| April | 150 | 52 | 84.8 | 2.98 | 3.32 | 5,050 |
| May | 363 | 27 | 76.1 | 2.67 | 3.06 | 4,690 |
| June | 52 | 22 | 31.6 | 1.11 | 1.24 | 1,890 |
| July | 22 | 10 | 14.1 | .495 | .57 | 867 |
| August | 11 | 7.8 | 9.21 | .323 | .37 | 566 |
| September | 10 | 6.9 | 8.38 | .294 | .35 | 499 |
| The year | 998 | 3.1 | 77.7 | 2.73 | 36.97 | 56,300 |

• Interpolated.

OHOP CREEK NEAR EATONVILLE, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 10, T. 16 N., R. 4 E., 400 feet below mouth of Lynch Creek, 600 feet below outlet of Ohop Lake, and $1\frac{1}{4}$ miles northwest of Eatonville. Zero of gage 521.58 feet above mean sea level.

RECORDS AVAILABLE.—June, 1927, to September, 1930.

EXTREMES.—Maximum discharge during year, 416 second-feet Mar. 24 (gage height, 2.50 feet); minimum, 4.0 second-feet Aug. 28.

1927-1930: Maximum discharge, 511 second-feet Jan. 3, 1928 (gage height, 2.97 feet); minimum discharge, that of Aug. 28, 1930; minimum gage height, 0.50 foot Aug. 18-23, 1927.

REMARKS.—Records good. Natural regulation in Ohop Lake. No diversions. Many discharge measurements furnished by city of Tacoma.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1 | 6.5 | 7.0 | 11 | 121 | 190 | 53 | 68 | 43 | 36 | 13 | 6.5 | 4.3 |
| 2 | 6.5 | 7.5 | 11 | 98 | 192 | 47 | 59 | 41 | 60 | 12 | 7.0 | 4.3 |
| 3 | 6.5 | 7.5 | 11 | 86 | 186 | 45 | 53 | 40 | 46 | 12 | 6.5 | 4.3 |
| 4 | 6.5 | 7.5 | 11 | 75 | 197 | 43 | 53 | 36 | 40 | 11 | 6.5 | 4.7 |
| 5 | 10 | 7.5 | 11 | 75 | 217 | 40 | 50 | 33 | 33 | 11 | 6.5 | 4.7 |
| 6 | 8.5 | 13 | 13 | 66 | 160 | 39 | 46 | 32 | 30 | 11 | 6.5 | 4.7 |
| 7 | 7.0 | 10 | 12 | 56 | 187 | 38 | 44 | 30 | 26 | 10 | 6.5 | 4.7 |
| 8 | 7.0 | 9.0 | 12 | 49 | 237 | 38 | 44 | 28 | 27 | 10 | 6.5 | 4.7 |
| 9 | 8.5 | 10 | 60 | 39 | 170 | 37 | 40 | 27 | 25 | 9.6 | 6.5 | 5.5 |
| 10 | 8.5 | 15 | 113 | 36 | 146 | 36 | 37 | 26 | 26 | 9.6 | 6.0 | 5.1 |
| 11 | 8.0 | 17 | 75 | 31 | 148 | 34 | 34 | 25 | 26 | 9.0 | 5.5 | 6.0 |
| 12 | 8.0 | 14 | 59 | 29 | 128 | 33 | 33 | 25 | 22 | 8.5 | 5.5 | 7.0 |
| 13 | 8.0 | 13 | 96 | 26 | 193 | 30 | 32 | 24 | 21 | 8.5 | 5.5 | 7.0 |
| 14 | 7.5 | 12 | 194 | 26 | 332 | 29 | 46 | 23 | 19 | 8.0 | 5.1 | 8.0 |
| 15 | 7.5 | 11 | 122 | 25 | 249 | 28 | 63 | 22 | 16 | 8.0 | 4.7 | 7.5 |
| 16 | 7.5 | 11 | 130 | 25 | 189 | 27 | 56 | 21 | 18 | 8.0 | 4.7 | 6.5 |
| 17 | 9.0 | 11 | 105 | 24 | 148 | 26 | 49 | 22 | 16 | 7.0 | 4.7 | 6.5 |
| 18 | 9.0 | 11 | 85 | 24 | 124 | 26 | 45 | 21 | 16 | 7.0 | 5.1 | 6.5 |
| 19 | 8.5 | 10 | 96 | 24 | 120 | 26 | 41 | 27 | 15 | 7.0 | 5.1 | 7.0 |
| 20 | 8.5 | 10 | 85 | 22 | 124 | 28 | 38 | 73 | 15 | 7.0 | 4.7 | 7.0 |
| 21 | 8.0 | 10 | 74 | 22 | 109 | 74 | 37 | 81 | 15 | 7.0 | 4.7 | 7.0 |
| 22 | 7.5 | 9.6 | 83 | 22 | 102 | 250 | 36 | 69 | 15 | 7.5 | 4.7 | 7.0 |
| 23 | 7.5 | 9.6 | 106 | 22 | 93 | 243 | 34 | 59 | 14 | 7.5 | 4.3 | 6.5 |
| 24 | 7.5 | 9.6 | 98 | 22 | 83 | 365 | 34 | 50 | 14 | 7.0 | 4.7 | 6.0 |
| 25 | 7.0 | 14 | 86 | 21 | 77 | 285 | 33 | 43 | 14 | 7.0 | 4.7 | 6.0 |
| 26 | 7.0 | 15 | 77 | 21 | 70 | 202 | 34 | 38 | 14 | 6.5 | 4.7 | 6.5 |
| 27 | 7.5 | 14 | 72 | 21 | 64 | 153 | 37 | 34 | 14 | 7.0 | 4.3 | 6.5 |
| 28 | 7.5 | 12 | 64 | 21 | 59 | 122 | 47 | 31 | 19 | 7.0 | 4.0 | 7.5 |
| 29 | 7.5 | 11 | 57 | 21 | ----- | 100 | 57 | 33 | 15 | 7.0 | 4.3 | 7.0 |
| 30 | 7.5 | 11 | 59 | 26 | ----- | 85 | 50 | 30 | 14 | 7.0 | 4.3 | 6.5 |
| 31 | 7.0 | ----- | 62 | 50 | ----- | 75 | ----- | 28 | ----- | 6.5 | 4.3 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 10 | 6.5 | 7.69 | 473 |
| November | 17 | 7.0 | 11.0 | 655 |
| December | 194 | 11 | 69.4 | 4,270 |
| January | 121 | 21 | 89.4 | 2,420 |
| February | 332 | 59 | 153 | 8,500 |
| March | 365 | 26 | 85.7 | 5,270 |
| April | 68 | 32 | 44.3 | 2,640 |
| May | 81 | 21 | 36.0 | 2,210 |
| June | 60 | 14 | 22.7 | 1,350 |
| July | 13 | 6.5 | 8.52 | 524 |
| August | 7.0 | 4.0 | 5.31 | 326 |
| September | 8.0 | 4.3 | 6.08 | 362 |
| The year | 365 | 4.0 | 40.1 | 29,000 |

PUYALLUP RIVER BASIN

PUYALLUP RIVER AT PUYALLUP, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 20, T. 20 N., R. 4 E., 1 mile northwest of Puyallup.

DRAINAGE AREA.—914 square miles.

RECORDS AVAILABLE.—May, 1914, to September, 1930.

EXTREMES.—Maximum discharge during year, 8,390 second-feet Mar. 25 (gage height, 6.92 feet); minimum probably below 350 second-feet Nov. 24, 28, Dec. 1, 3-5; intake clogged; stage not determined.

1914-1930: Maximum discharge, 40,500 second-feet Dec. 18, 1917 (gage height, 34.15 feet¹); minimum discharge occurred Nov. 24, 28, Dec. 1, 3-5, 1929 (result of regulation).

REMARKS.—Records good except those for Oct. 1-14, Jan. 22-29, Feb. 1-17, Sept. 10-15, which were estimated. All diversions returned to river above gage. Large part of flow of White River, a tributary, regulated by Lake Tapps Reservoir. Some pondage on upper Puyallup and other tributaries.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 1,500 | 855 | 440 | 2,060 | 4,070 | 2,400 | 3,030 | 2,170 | 2,170 | 3,300 | 1,850 | 1,300 |
| 2 | | 820 | 540 | 2,280 | | 1,750 | 2,900 | 2,400 | 3,580 | 3,030 | 1,750 | 1,570 |
| 3 | | 505 | 575 | 2,520 | | 2,280 | 2,770 | 2,170 | 3,730 | 1,950 | 1,390 | 1,570 |
| 4 | | 750 | 540 | 2,900 | | 2,400 | 2,900 | 1,660 | 3,160 | 1,480 | 1,750 | 1,660 |
| 5 | | 855 | 575 | 2,900 | | 2,520 | 2,520 | 2,170 | 3,160 | 1,570 | 1,850 | 1,750 |
| 6 | 990 | 855 | 680 | 3,030 | 3,700 | 2,400 | 2,170 | 2,170 | 3,580 | 1,480 | 1,950 | 1,660 |
| 7 | | 855 | 610 | 2,770 | | 2,520 | 3,580 | 2,170 | 3,580 | 1,950 | 2,060 | 1,390 |
| 8 | | 855 | 440 | 2,400 | | 2,170 | 4,680 | 2,170 | 3,300 | 1,950 | 2,170 | 1,480 |
| 9 | | 820 | 890 | 1,950 | | 1,660 | 2,770 | 2,060 | 3,160 | 2,170 | 2,060 | 1,390 |
| 10 | | 540 | 1,950 | 2,060 | | 2,280 | 2,520 | 1,850 | 3,160 | 2,280 | 1,660 | |
| 11 | 1,050 | 715 | 1,750 | 2,060 | 3,700 | 2,400 | 2,060 | 1,570 | 3,300 | 2,280 | 1,950 | |
| 12 | | 715 | 1,210 | 1,750 | | 2,280 | 1,950 | 1,950 | 3,160 | 2,170 | 2,060 | 1,380 |
| 13 | | 750 | 1,300 | 2,060 | | 2,280 | 2,170 | 2,060 | 2,900 | 2,170 | 2,060 | |
| 14 | | 715 | 4,850 | 2,060 | | 2,400 | 3,880 | 2,170 | 2,640 | 2,770 | 2,060 | |
| 15 | | 715 | 3,300 | 1,750 | | 2,170 | 4,680 | 2,400 | 2,280 | 2,640 | 2,280 | |
| 16 | 1,210 | 680 | 2,400 | 1,750 | 4,850 | 1,570 | 4,350 | 2,900 | 2,900 | 2,400 | 2,060 | 1,570 |
| 17 | 1,210 | 505 | 1,950 | 1,660 | | 2,400 | 3,880 | 2,770 | 2,520 | 2,400 | 1,480 | 1,570 |
| 18 | 1,130 | 610 | 1,570 | 1,750 | | 2,400 | 2,280 | 2,400 | 2,280 | 1,950 | 1,660 | 1,570 |
| 19 | 970 | 645 | 2,520 | 1,300 | | 2,400 | 2,060 | 2,770 | 2,170 | 1,950 | 1,850 | 1,390 |
| 20 | 610 | 680 | 2,170 | 1,750 | | 2,400 | 1,670 | 4,970 | 2,170 | 1,480 | 1,570 | 1,300 |
| 21 | 970 | 715 | 1,850 | 1,210 | 930 | 6,310 | 2,280 | 5,020 | 2,170 | 2,060 | 1,750 | 1,130 |
| 22 | 1,050 | 750 | 1,850 | | | 4,850 | 4,350 | 4,350 | 2,170 | 2,280 | 1,750 | 1,480 |
| 23 | 1,010 | 575 | 2,770 | | | 3,030 | 3,300 | 2,770 | 3,730 | 2,170 | 2,400 | 1,390 |
| 24 | 1,130 | 410 | 2,520 | | | 3,030 | 5,340 | 3,300 | 3,440 | 2,170 | 2,520 | 1,300 |
| 25 | 1,130 | 540 | 2,170 | | | 2,770 | 7,730 | 3,440 | 2,520 | 2,170 | 2,520 | 1,660 |
| 26 | 1,130 | 645 | 2,520 | | 1,210 | 2,640 | 6,120 | 3,160 | 3,440 | 2,280 | 2,170 | 1,570 |
| 27 | 750 | 645 | 2,400 | | | 2,640 | 5,020 | 2,770 | 3,580 | 2,520 | 1,570 | 1,300 |
| 28 | 1,050 | 410 | 2,280 | | | 2,520 | 4,680 | 4,030 | 3,730 | 2,280 | 1,950 | 1,130 |
| 29 | 1,210 | 645 | 1,660 | | | | 4,510 | 4,030 | 3,440 | 2,400 | 2,170 | 1,750 |
| 30 | 1,210 | 575 | | 1,210 | | | 3,300 | 3,440 | 2,060 | 3,030 | 2,170 | 1,660 |
| 31 | 1,210 | | 2,280 | 1,390 | | | 3,300 | | 2,170 | | 1,950 | 1,300 |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | | | 610 | 1,160 | | 71,300 |
| November | 855 | 410 | 678 | | | 40,800 |
| December | 4,850 | 440 | 1,770 | | | 109,000 |
| January | 3,030 | | 1,730 | | | 106,000 |
| February | 7,520 | | 4,030 | | | 224,000 |
| March | 7,730 | 1,570 | 3,080 | | | 189,000 |
| April | 4,680 | 1,570 | 3,020 | | | 180,000 |
| May | 5,020 | 1,570 | 2,720 | | | 167,000 |
| June | 3,730 | 2,170 | 2,740 | | | 163,000 |
| July | 3,300 | 1,480 | 2,170 | | | 133,000 |
| August | 2,280 | 1,300 | 1,780 | | | 109,000 |
| September | 1,750 | 1,130 | 1,440 | | | 85,700 |
| The year | 7,730 | 410 | 2,180 | 2.39 | 32.44 | 1,580,000 |

NOTE.—Monthly discharge in second-feet per square mile and run-off in inches not computed, owing to regulation. Yearly figures closely represent natural flow.

¹ On gage $1\frac{1}{4}$ miles above present site and at different datum.

KAPOWSIN CREEK NEAR KAPOWSIN, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 5, T. 17 N., R. 5 E., half a mile below Kapowsin Lake and $1\frac{1}{2}$ miles east of Kapowsin. Zero of gage 564.2 feet above mean sea level.

RECORDS AVAILABLE.—June, 1927, to September, 1930.

EXTREMES.—Maximum discharge during year, 189 second-feet Feb. 15 (gage height, 2.68 feet); minimum, 1.4 second-feet Sept. 2 (gage height, 0.84 foot). 1927-1930: Maximum discharge, 302 second-feet Jan. 4, 1928 (gage height, 3.31 feet); minimum, that of Sept. 2, 1930.

REMARKS.—Records excellent except those for Jan. 16-28, Feb. 21 to Apr. 3, which were estimated and are poor. Flow subject to natural regulation in Kapowsin Lake. Many discharge measurements furnished by city of Tacoma.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 5.2 | 5.6 | 8.7 | 63 | 46 | 50 | 70 | 35 | 35 | 13 | 3.6 | 1.6 |
| 2 | 5.4 | 5.8 | 8.4 | 64 | 81 | | | 35 | 38 | 12 | 3.6 | 1.6 |
| 3 | 5.4 | 5.8 | 8.4 | 65 | 108 | | | 34 | 39 | 12 | 3.4 | 1.6 |
| 4 | 5.4 | 5.8 | 8.1 | 67 | 122 | | | 33 | 37 | 11 | 3.4 | 1.6 |
| 5 | 6.1 | 5.8 | 8.1 | 68 | 140 | | | 32 | 35 | 10 | 3.2 | 1.8 |
| 6 | 6.4 | 7.2 | 8.1 | 65 | 144 | 40 | 58 | 31 | 34 | 10 | 3.2 | 1.8 |
| 7 | 6.7 | 7.0 | 8.1 | 61 | 153 | | 56 | 29 | 33 | 9.6 | 3.2 | 1.8 |
| 8 | 6.4 | 7.0 | 8.4 | 56 | 186 | | 53 | 28 | 31 | 8.6 | 3.2 | 2.0 |
| 9 | 6.4 | 7.5 | 13 | 52 | 168 | | 50 | 28 | 29 | 8.2 | 3.0 | 2.0 |
| 10 | 6.4 | 8.7 | 25 | 47 | 153 | | 46 | 26 | 28 | 7.5 | 2.5 | 2.0 |
| 11 | 6.4 | 9.5 | 34 | 43 | 145 | 90 | 42 | 24 | 27 | 7.0 | 2.1 | 2.1 |
| 12 | 6.7 | 9.5 | 36 | 44 | 137 | | 40 | 23 | 25 | 6.7 | 2.0 | 2.1 |
| 13 | 6.4 | 9.5 | 37 | 37 | 137 | | 37 | 21 | 23 | 6.4 | 2.0 | 2.3 |
| 14 | 6.4 | 9.5 | 48 | 34 | 175 | | 39 | 21 | 21 | 6.2 | 2.0 | 2.3 |
| 15 | 6.1 | 9.1 | 62 | 32 | 184 | | 42 | 20 | 20 | 5.9 | 2.5 | 2.3 |
| 16 | 5.6 | 9.1 | 70 | 20 | 166 | 100 | 42 | 19 | 19 | 5.9 | 2.1 | 2.3 |
| 17 | 6.4 | 8.7 | 73 | | 150 | | 41 | 19 | 18 | 5.9 | 2.3 | 2.3 |
| 18 | 6.4 | 8.1 | 68 | | 136 | | 39 | 19 | 16 | 5.9 | 2.0 | 2.7 |
| 19 | 5.8 | 8.1 | 65 | | 129 | | 38 | 21 | 15 | 5.6 | 2.0 | 3.2 |
| 20 | 5.8 | 7.5 | 63 | | 129 | | 35 | 31 | 15 | 5.6 | 2.0 | 3.2 |
| 21 | 5.6 | 7.5 | 61 | 90 | 90 | 100 | 35 | 42 | 14 | 5.6 | 1.8 | 3.2 |
| 22 | 5.6 | 7.2 | 62 | | | | 35 | 48 | 14 | 5.3 | 1.8 | 3.0 |
| 23 | 5.4 | 7.0 | 69 | | | | 34 | 49 | 13 | 5.1 | 1.8 | 3.0 |
| 24 | 5.4 | 7.0 | 78 | | | | 33 | 49 | 12 | 4.8 | 1.8 | 2.5 |
| 25 | 5.4 | 7.5 | 81 | | | | 32 | 47 | 12 | 4.6 | 1.8 | 2.0 |
| 26 | 5.4 | 8.1 | 78 | 20 | 23 | 28 | 32 | 44 | 12 | 4.3 | 1.8 | 2.0 |
| 27 | 5.6 | 8.4 | 76 | | | | 32 | 42 | 12 | 4.1 | 1.8 | 2.5 |
| 28 | 5.4 | 8.4 | 72 | | | | 33 | 39 | 14 | 4.1 | 1.8 | 3.0 |
| 29 | 5.6 | 8.4 | 65 | | | | 35 | 38 | 14 | 4.1 | 1.6 | 2.7 |
| 30 | 5.6 | 8.4 | 63 | | | | 35 | 36 | 14 | 3.9 | 1.6 | 2.5 |
| 31 | 5.6 | | 62 | 28 | | | | 35 | | 3.6 | 1.6 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 6.7 | 5.2 | 5.88 | 362 |
| November | 9.5 | 5.6 | 7.76 | 462 |
| December | 81 | 8.1 | 46.0 | 2,830 |
| January | 68 | | 36.4 | 2,240 |
| February | 186 | 46 | 125 | 6,940 |
| March | | | 69.0 | 4,240 |
| April | | 32 | 44.4 | 2,640 |
| May | 49 | 19 | 32.2 | 1,980 |
| June | 39 | 12 | 22.3 | 1,330 |
| July | 13 | 3.6 | 6.85 | 421 |
| August | 3.6 | 1.6 | 2.33 | 145 |
| September | 3.2 | 1.6 | 2.30 | 137 |
| The year | 186 | 1.6 | 32.8 | 23,700 |

CARBON RIVER NEAR FAIRFAX, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 22, T. 18 N., R. 6 E., $1\frac{1}{4}$ miles northwest of Fairfax.

DRAINAGE AREA.—82 square miles.

RECORDS AVAILABLE.—March, 1929, to September, 1930; November, 1910, to July, 1912, for station $1\frac{1}{4}$ miles above.

EXTREMES.—Maximum discharge during year, 1,770 second-feet Feb. 5 (gauge height, 5.13 feet); minimum, estimated at 40 second-feet Jan. 20, when stage-discharge relation was affected by ice.

1910-1912; 1929-30: Maximum discharge, 2,840 second-feet Nov. 19, 1911 (gauge height, 10.5 feet); minimum, that of Jan. 20, 1930.

REMARKS.—Records fair. Discharge estimated Jan. 12-17, 20, 21, 23-29 because of ice. Water diverted for use in lumber industry but returned to river above gauge.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. t. |
|-----|-------|-------|------|------|-------|-------|------|-------|------|------|-------|---------|
| 1 | 50 | 64 | 51 | 368 | 926 | 238 | 424 | 305 | 536 | 406 | 259 | 166 |
| 2 | 50 | 70 | 49 | 319 | 829 | 215 | 388 | 397 | 634 | 367 | 241 | 202 |
| 3 | 76 | 69 | 48 | 289 | 583 | 196 | 359 | 376 | 541 | 333 | 248 | 221 |
| 4 | 685 | 69 | 47 | 282 | 1,170 | 185 | 317 | 317 | 490 | 359 | 263 | 228 |
| 5 | 1,220 | 71 | 53 | 254 | 1,260 | 182 | 293 | 281 | 480 | 401 | 285 | 214 |
| 6 | 917 | 85 | 65 | 216 | 744 | 164 | 313 | 270 | 546 | 410 | 293 | 195 |
| 7 | 432 | 72 | 58 | 184 | 750 | 160 | 464 | 241 | 613 | 384 | 301 | 142 |
| 8 | 192 | 68 | 57 | 176 | 720 | 154 | 566 | 224 | 566 | 384 | 329 | 169 |
| 9 | 146 | 68 | 114 | 150 | 566 | 146 | 433 | 214 | 566 | 397 | 317 | 163 |
| 10 | 101 | 66 | 273 | 134 | 599 | 135 | 359 | 208 | 598 | 442 | 354 | 155 |
| 11 | 81 | 61 | 152 | 113 | 582 | 138 | 325 | 217 | 572 | 447 | 317 | 172 |
| 12 | 82 | 57 | 114 | 490 | 140 | 333 | 241 | 485 | 447 | 270 | 138 | 128 |
| 13 | 73 | 56 | 156 | 587 | 132 | 384 | 317 | 401 | 466 | 270 | 152 | 152 |
| 14 | 72 | 54 | 800 | 870 | 125 | 641 | 401 | 367 | 480 | 270 | 231 | 231 |
| 15 | 76 | 54 | 520 | 110 | 780 | 119 | 530 | 401 | 424 | 428 | 289 | 234 |
| 16 | 81 | 54 | 380 | 900 | 114 | 438 | 456 | 480 | 367 | 259 | 177 | 177 |
| 17 | 343 | 59 | 289 | 810 | 110 | 371 | 415 | 424 | 333 | 217 | 175 | 175 |
| 18 | 261 | 56 | 248 | 139 | 780 | 112 | 350 | 367 | 424 | 293 | 224 | 183 |
| 19 | 99 | 52 | 388 | 89 | 935 | 117 | 321 | 484 | 433 | 266 | 205 | 138 |
| 20 | 75 | 48 | 384 | 40 | 810 | 132 | 342 | 868 | 424 | 259 | 198 | 142 |
| 21 | 68 | 47 | 330 | 65 | 665 | 361 | 466 | 715 | 397 | 266 | 189 | 158 |
| 22 | 64 | 46 | 380 | 97 | 566 | 495 | 551 | 582 | 354 | 285 | 195 | 138 |
| 23 | 63 | 47 | 561 | 475 | 392 | 480 | 510 | 321 | 305 | 189 | 100 | 100 |
| 24 | 62 | 47 | 436 | 410 | 875 | 447 | 490 | 325 | 313 | 177 | 91 | 91 |
| 25 | 62 | 57 | 465 | 364 | 900 | 415 | 428 | 359 | 301 | 169 | 84 | 84 |
| 26 | 76 | 60 | 404 | 90 | 320 | 775 | 410 | 384 | 428 | 278 | 158 | 95 |
| 27 | 155 | 55 | 356 | 286 | 688 | 401 | 380 | 466 | 259 | 183 | 128 | 128 |
| 28 | 330 | 54 | 306 | 254 | 721 | 371 | 406 | 490 | 245 | 198 | 138 | 138 |
| 29 | 106 | 53 | 286 | 710 | 338 | 442 | 397 | 262 | 208 | 106 | 106 | 106 |
| 30 | 69 | 52 | 312 | 134 | 561 | 297 | 442 | 388 | 285 | 177 | 94 | 94 |
| 31 | 64 | ----- | 299 | 152 | 476 | ----- | 461 | ----- | 305 | 169 | ----- | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 1,220 | 50 | 201 | 2.45 | 2.82 | 12,400 |
| November | 85 | 46 | 59.0 | .720 | .80 | 3,510 |
| December | 800 | 47 | 270 | 3.29 | 3.79 | 16,600 |
| January | 368 | 40 | 145 | 1.77 | 2.04 | 8,920 |
| February | 1,260 | 254 | 680 | 8.29 | 8.63 | 37,800 |
| March | 900 | 110 | 322 | 3.93 | 4.53 | 19,800 |
| April | 566 | 293 | 401 | 4.89 | 5.46 | 23,900 |
| May | 868 | 208 | 395 | 4.82 | 5.66 | 24,300 |
| June | 634 | 321 | 464 | 5.66 | 6.32 | 27,600 |
| July | 480 | 245 | 347 | 4.23 | 4.88 | 21,300 |
| August | 354 | 158 | 239 | 2.91 | 3.36 | 14,700 |
| September | 234 | 84 | 158 | 1.93 | 2.15 | 9,400 |
| The year | 1,260 | 40 | 304 | 3.71 | 50.34 | 220,000 |

WHITE RIVER AT GREENWATER, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 10, T. 19 N., R. 9 E., three-fourths mile southeast of Greenwater and above mouth of Geenwater River.

DRAINAGE AREA.—216 square miles.

RECORDS AVAILABLE.—March, 1929, to September, 1930; September, 1911, to May, 1912, fragmentary, for station 2 miles above, published as "White River near Enumclaw, Wash."

EXTREMES.—Year's two extremes probably occurred during Jan. 10 to Feb. 21, a period of faulty gage-height record; neither extreme determined.

1911-12; 1929-30: Maximum discharge, 2,120 second-feet Jan. 14, 1912 (gage height, 5.7 feet); minimum probably less than 150 second-feet sometime during January, 1930.

REMARKS.—Records good except those for Jan. 10 to Feb. 21, which were estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 225 | 198 | 172 | 469 | | 432 | 975 | 770 | 867 | 778 | 614 | 478 |
| 2..... | 228 | 213 | 170 | 424 | | 393 | 921 | 867 | 840 | 718 | 590 | 533 |
| 3..... | 243 | 201 | 168 | 370 | | 383 | 876 | 813 | 778 | 693 | 615 | 552 |
| 4..... | 283 | 201 | 165 | 352 | 640 | 372 | 813 | 761 | 761 | 744 | 661 | 549 |
| 5..... | 330 | 204 | 168 | 330 | | 362 | 778 | 718 | 813 | 822 | 680 | 551 |
| 6..... | 272 | 216 | 168 | 290 | | 354 | 778 | 710 | 994 | 858 | 703 | 503 |
| 7..... | 258 | 190 | 168 | 246 | | 337 | 921 | 659 | 1,220 | 813 | 726 | 414 |
| 8..... | 290 | 185 | 178 | 255 | | 328 | 1,060 | 601 | 1,150 | 795 | 752 | 426 |
| 9..... | 302 | 185 | 204 | 216 | | 324 | 966 | 569 | 1,110 | 867 | 770 | 432 |
| 10..... | 246 | 178 | 281 | | | 316 | 885 | 569 | 1,200 | 930 | 795 | 420 |
| 11..... | 237 | 168 | 234 | | 830 | 324 | 831 | 601 | 1,210 | 912 | 748 | 444 |
| 12..... | 246 | 162 | 198 | | | 333 | 840 | 642 | 1,040 | 957 | 717 | 409 |
| 13..... | 237 | 160 | 261 | 190 | | 320 | 912 | 778 | 912 | 1,080 | 698 | 393 |
| 14..... | 252 | 160 | 982 | | | 313 | 1,020 | 990 | 849 | 975 | 740 | 438 |
| 15..... | 266 | 155 | 608 | | | 302 | 984 | 1,020 | 930 | 813 | 752 | 444 |
| 16..... | 268 | 155 | 465 | | | 296 | 912 | 1,130 | 1,050 | 744 | 642 | 452 |
| 17..... | 323 | 165 | 348 | | 1,360 | 296 | 858 | 1,040 | 921 | 659 | 582 | 475 |
| 18..... | 234 | 158 | 322 | | | 299 | 813 | 912 | 894 | 585 | 593 | 412 |
| 19..... | 213 | 150 | 380 | | | 306 | 761 | 930 | 912 | 622 | 562 | 378 |
| 20..... | 204 | 145 | 366 | | | 316 | 804 | 1,320 | 939 | 679 | 554 | 382 |
| 21..... | 198 | 139 | 330 | 180 | | 576 | 939 | 1,160 | 912 | 736 | 540 | 407 |
| 22..... | 192 | 148 | 364 | | 975 | 625 | 1,130 | 984 | 813 | 780 | 537 | 347 |
| 23..... | 192 | 152 | 660 | | 840 | 524 | 1,150 | 903 | 778 | 795 | 514 | 292 |
| 24..... | 198 | 152 | 486 | | 718 | 1,120 | 1,100 | 885 | 778 | 710 | 512 | 264 |
| 25..... | 198 | 178 | 532 | | 642 | 1,470 | 1,050 | 822 | 840 | 625 | 463 | 252 |
| 26..... | 219 | 178 | 465 | | 569 | 1,370 | 1,050 | 786 | 894 | 601 | 474 | 270 |
| 27..... | 225 | 172 | 397 | | 531 | 1,270 | 1,030 | 804 | 912 | 591 | 509 | 318 |
| 28..... | 198 | 172 | 348 | 200 | 475 | 1,370 | 930 | 858 | 831 | 645 | 529 | 290 |
| 29..... | 204 | 170 | 326 | | | 1,420 | 831 | 912 | 736 | 727 | 536 | 258 |
| 30..... | 201 | 170 | 354 | | | 1,230 | 778 | 921 | 770 | 699 | 500 | 244 |
| 31..... | 182 | | 326 | | | 1,060 | | 885 | | 658 | 470 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 330 | 182 | 238 | 1.10 | 1.27 | 14,600 |
| November..... | 216 | 139 | 173 | .801 | .89 | 10,300 |
| December..... | 982 | 165 | 341 | 1.58 | 1.82 | 21,000 |
| January..... | 469 | | 230 | 1.06 | 1.22 | 14,100 |
| February..... | | | 877 | 4.06 | 4.23 | 48,700 |
| March..... | 1,470 | 296 | 605 | 2.80 | 3.23 | 37,200 |
| April..... | 1,150 | 761 | 923 | 4.27 | 4.76 | 54,900 |
| May..... | 1,320 | 569 | 847 | 3.92 | 4.52 | 52,100 |
| June..... | 1,220 | 736 | 922 | 4.27 | 4.76 | 54,900 |
| July..... | 1,080 | 585 | 762 | 3.53 | 4.07 | 46,900 |
| August..... | 795 | 463 | 615 | 2.85 | 3.29 | 37,800 |
| September..... | 552 | 244 | 401 | 1.86 | 2.08 | 23,900 |
| The year..... | | | 575 | 2.66 | 36.14 | 416,000 |

WHITE RIVER NEAR BUCKLEY, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 9, T. 19 N., R. 7 E., 5 miles east of Buckley.

DRAINAGE AREA.—400 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 4,870 second-feet Mar. 25 (gage height, 9.43 feet); minimum, 213 second-feet Nov. 21 (gage height, 1.78 feet); discharge may have been less during period Jan. 15–30, when stage-discharge relation was affected by ice.

1928–1930: Maximum discharge, that of Mar. 25, 1930; minimum, that of Nov. 21, 1929.

REMARKS.—Records excellent except those for Oct. 1–14, estimated because of no gage-height record, and those for Jan. 11 to Feb. 2, estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 400 | 292 | 256 | 1,190 | 500 | 888 | 1,810 | 1,310 | 1,600 | 1,080 | 819 | 573 |
| 2..... | | 328 | 244 | 1,150 | 530 | 836 | 1,650 | 1,390 | 1,750 | 1,010 | 768 | 621 |
| 3..... | | 292 | 237 | 1,040 | 558 | 819 | 1,510 | 1,390 | 1,550 | 975 | 802 | 653 |
| 4..... | | 285 | 230 | 975 | 605 | 785 | 1,430 | 1,270 | 1,470 | 1,010 | 836 | 669 |
| 5..... | | 294 | 235 | 888 | 2,910 | 768 | 1,310 | 1,230 | 1,430 | 1,080 | 870 | 669 |
| 6..... | 390 | 357 | 250 | 768 | 1,960 | 735 | 1,310 | 1,190 | 1,550 | 1,120 | 870 | 653 |
| 7..... | | 296 | 241 | 653 | 1,900 | 718 | 1,470 | 1,150 | 1,870 | 1,040 | 888 | 573 |
| 8..... | | 278 | 248 | 637 | 1,900 | 702 | 1,750 | 1,080 | 1,750 | 1,040 | 940 | 511 |
| 9..... | | 283 | 464 | 558 | 1,470 | 686 | 1,550 | 1,040 | 1,650 | 1,080 | 905 | 542 |
| 10..... | | 272 | 749 | 526 | 1,530 | 653 | 1,430 | 975 | 1,750 | 1,150 | 940 | 526 |
| 11..... | 371 | 260 | 584 | 430 | 1,650 | 653 | 1,350 | 1,010 | 1,750 | 1,150 | 905 | 542 |
| 12..... | | 250 | 419 | | 1,390 | 669 | 1,310 | 1,040 | 1,550 | 1,150 | 853 | 542 |
| 13..... | | 250 | 498 | | 1,350 | 653 | 1,390 | 1,150 | 1,430 | 1,100 | 853 | 496 |
| 14..... | | 250 | 2,000 | | 1,810 | 621 | 1,600 | 1,310 | 1,270 | 1,190 | 870 | 526 |
| 15..... | | 371 | 1,350 | | 1,870 | 605 | 1,650 | 1,390 | 1,310 | 1,040 | 905 | 542 |
| 16..... | 320 | 398 | 246 | 1,040 | 330 | 2,290 | 589 | 1,510 | 1,550 | 1,470 | 975 | 752 |
| 17..... | | 509 | 254 | 819 | | 2,290 | 589 | 1,430 | 1,550 | 1,310 | 905 | 702 |
| 18..... | | 383 | 244 | 702 | | 2,640 | 589 | 1,350 | 1,390 | 1,270 | 819 | 702 |
| 19..... | | 343 | 230 | 836 | | 3,600 | 605 | 1,270 | 1,430 | 1,270 | 836 | 718 |
| 20..... | | 320 | 226 | 819 | | 3,170 | 637 | 1,270 | 2,350 | 1,270 | 888 | 669 |
| 21..... | 318 | 320 | 221 | 735 | 380 | 2,380 | 768 | 1,470 | 2,290 | 1,230 | 940 | 637 |
| 22..... | | 306 | 222 | 804 | | 1,930 | 1,510 | 1,810 | 1,990 | 1,120 | 975 | 653 |
| 23..... | | 310 | 224 | 1,550 | | 1,600 | 1,230 | 1,810 | 1,700 | 1,080 | 975 | 637 |
| 24..... | | 318 | 222 | 1,230 | | 1,390 | 3,410 | 1,750 | 1,600 | 1,040 | 905 | 621 |
| 25..... | | 318 | 283 | 1,190 | | 1,230 | 4,100 | 1,700 | 1,470 | 1,120 | 819 | 605 |
| 26..... | 285 | 366 | 283 | 1,120 | 380 | 1,120 | 3,270 | 1,650 | 1,350 | 1,190 | 785 | 573 |
| 27..... | | 401 | 258 | 1,010 | | 1,040 | 2,870 | 1,650 | 1,350 | 1,270 | 768 | 621 |
| 28..... | | 341 | 252 | 870 | | 940 | 2,870 | 1,550 | 1,390 | 1,270 | 819 | 637 |
| 29..... | | 303 | 254 | 785 | | 2,970 | 1,430 | 1,430 | 1,120 | 888 | 653 | 306 |
| 30..... | | 289 | 270 | 836 | | 2,400 | 1,350 | 1,470 | 1,080 | 905 | 637 | 280 |
| 31..... | | 285 | 819 | | | 2,050 | | 1,550 | | 853 | 589 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 509 | 285 | 368 | 0.920 | 1.06 | 22,600 |
| November..... | 357 | 221 | 264 | 0.660 | 0.74 | 15,700 |
| December..... | 2,000 | 230 | 747 | 1.87 | 2.16 | 45,900 |
| January..... | 1,190 | | 528 | 1.32 | 1.52 | 32,500 |
| February..... | 3,600 | 500 | 1,700 | 4.25 | 4.43 | 94,400 |
| March..... | 4,100 | 589 | 1,330 | 3.32 | 3.83 | 81,800 |
| April..... | 1,810 | 1,270 | 1,520 | 3.80 | 4.24 | 90,400 |
| May..... | 2,350 | 975 | 1,410 | 3.52 | 4.06 | 86,700 |
| June..... | 1,870 | 1,040 | 1,390 | 3.48 | 3.88 | 82,700 |
| July..... | 1,310 | 768 | 983 | 2.46 | 2.84 | 60,400 |
| August..... | 940 | 573 | 756 | 1.89 | 2.18 | 46,500 |
| September..... | 669 | 280 | 492 | 1.23 | 1.37 | 29,300 |
| The year..... | 4,100 | 221 | 952 | 2.38 | 32.31 | 689,000 |

GREENWATER RIVER AT GREENWATER, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 11, T. 19 N., R. 9 E., 1 mile above mouth and east of Greenwater.

DRAINAGE AREA.—75 square miles.

RECORDS AVAILABLE.—September, 1911, to August, 1912, fragmentary; May, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 753 second-feet Mar. 25 (gage height, 4.16 feet); minimum, probably less than 25 second-feet sometime Jan. 15-25, when stage-discharge relation was affected by ice.

1911-12; 1929-30: Maximum discharge (estimated), 2,800 second-feet Nov. 19, 1911 (gage height, 5.0 feet); minimum occurred Jan. 15-25, 1930.

REMARKS.—Records good except those for Jan. 11-29, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 34 | 30 | 29 | 120 | 86 | 125 | 381 | 280 | 268 | 120 | 50 | 33 |
| 2 | 34 | 30 | 29 | 113 | 120 | 115 | 350 | 286 | 27 | 115 | 50 | 32 |
| 3 | 33 | 30 | 28 | 97 | 108 | 111 | 317 | 283 | 268 | 110 | 49 | 32 |
| 4 | 34 | 30 | 28 | 90 | 145 | 108 | 292 | 268 | 262 | 107 | 48 | 32 |
| 5 | 40 | 31 | 29 | 82 | 254 | 103 | 265 | 257 | 257 | 102 | 48 | 32 |
| 6 | 37 | 35 | 29 | 71 | 222 | 99 | 265 | 245 | 259 | 101 | 47 | 31 |
| 7 | 35 | 33 | 29 | 62 | 199 | 96 | 292 | 237 | 267 | 96 | 46 | 30 |
| 8 | 34 | 31 | 30 | 58 | 194 | 93 | 330 | 221 | 262 | 95 | 45 | 31 |
| 9 | 40 | 30 | 40 | 54 | 168 | 89 | 327 | 211 | 257 | 92 | 45 | 31 |
| 10 | 39 | 30 | 75 | 48 | 166 | 86 | 301 | 204 | 243 | 89 | 45 | 32 |
| 11 | 35 | 30 | 56 | | 170 | 86 | 286 | 199 | 240 | 88 | 44 | 36 |
| 12 | 35 | 30 | 43 | | 160 | 87 | 283 | 194 | 237 | 84 | 43 | 33 |
| 13 | 34 | 30 | 42 | | 149 | 86 | 292 | 204 | 232 | 80 | 42 | 33 |
| 14 | 33 | 30 | 123 | | 155 | 83 | 311 | 219 | 214 | 79 | 41 | 37 |
| 15 | 32 | 29 | 102 | | 182 | 80 | 321 | 237 | 190 | 76 | 41 | 35 |
| 16 | 32 | 29 | 79 | | 266 | 79 | 311 | 257 | 192 | 73 | 41 | 32 |
| 17 | 35 | 30 | 64 | | 326 | 78 | 289 | 265 | 187 | 73 | 41 | 32 |
| 18 | 35 | 30 | 52 | | 372 | 79 | 280 | 262 | 176 | 73 | 40 | 31 |
| 19 | 34 | 29 | 57 | | 422 | 83 | 262 | 268 | 167 | 72 | 40 | 30 |
| 20 | 32 | 29 | 62 | 30 | 425 | 84 | 262 | 305 | 167 | 70 | 39 | 30 |
| 21 | 31 | 28 | 57 | | 358 | 139 | 289 | 321 | 157 | 69 | 38 | 30 |
| 22 | 31 | 28 | 68 | | 304 | 212 | 340 | 308 | 157 | 62 | 38 | 30 |
| 23 | 30 | 28 | 130 | | 252 | 182 | 360 | 295 | 147 | 61 | 37 | 30 |
| 24 | 30 | 28 | 108 | | 212 | 489 | 364 | 286 | 147 | 60 | 37 | 30 |
| 25 | 30 | 32 | 105 | | 184 | 687 | 357 | 277 | 133 | 59 | 36 | 30 |
| 26 | 31 | 35 | 105 | | 166 | 555 | 350 | 262 | 134 | 58 | 35 | 30 |
| 27 | 32 | 32 | 94 | | 145 | 508 | 350 | 251 | 132 | 56 | 35 | 30 |
| 28 | 34 | 31 | 82 | | 134 | 521 | 340 | 248 | 140 | 55 | 34 | 31 |
| 29 | 33 | 30 | 74 | | | 577 | 314 | 248 | 129 | 54 | 34 | 30 |
| 30 | 31 | 30 | 73 | 34 | | 487 | 295 | 257 | 127 | 52 | 34 | 29 |
| 31 | 31 | | 74 | 37 | | 417 | | 274 | | 51 | 34 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 40 | 30 | 33.6 | 0.448 | 0.52 | 2,070 |
| November | 35 | 28 | 30.3 | .404 | .45 | 1,800 |
| December | 130 | 28 | 64.4 | .859 | .99 | 3,960 |
| January | 120 | | 46.3 | .617 | .71 | 2,850 |
| February | 425 | 86 | 216 | 2.88 | 3.00 | 12,000 |
| March | 687 | 78 | 214 | 2.85 | 3.29 | 13,200 |
| April | 381 | 262 | 313 | 4.17 | 4.65 | 18,600 |
| May | 321 | 194 | 256 | 3.41 | 3.93 | 15,700 |
| June | 271 | 124 | 200 | 2.67 | 2.98 | 11,900 |
| July | 120 | 51 | 78.5 | 1.05 | 1.21 | 4,830 |
| August | 50 | 34 | 41.2 | .549 | .63 | 2,530 |
| September | 37 | 29 | 31.5 | .420 | .47 | 1,870 |
| The year | 687 | | 126 | 1.68 | 22.83 | 91,300 |

LAKE WASHINGTON BASIN

CEDAR RIVER AT CEDAR FALLS, WASH.

LOCATION.—Water-stage recorder in sec. 4, T. 22 N., R. 8 E., three-fourths mile below Seattle municipal power plant at Cedar Falls.

DRAINAGE AREA.—83 square miles.

RECORDS AVAILABLE.—April, 1914, to September, 1930.

EXTREMES.—Maximum discharge during year, 985 second-feet May 4 (gage height, 6.56 feet); minimum, 7.8 second-feet Nov. 13 (gage height, 4.02 feet). 1914-1930: Maximum discharge, 6,290 second-feet Dec. 19, 1917 (gage height, 11.4 feet); no flow Nov. 25, 1917, Aug. 18, 1923.

REMARKS.—Records excellent. Discharge estimated by city officials from power plant load Jan. 12 to Feb. 2, Feb. 23-25, Mar. 24-26, June 12-16. All diversions returned to river above station. Flow partly controlled by storage and release of water in Cedar Lake Reservoir for use of power plant. Some discharge measurements furnished by city of Seattle.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | 37 | 125 | 74 | 197 | 87 | 336 | 228 | 206 | 168 | 109 | 56 | 33 |
| 2..... | 50 | 106 | 80 | 372 | 131 | 294 | 238 | 249 | 128 | 104 | 44 | 34 |
| 3..... | 24 | 57 | 108 | 504 | 152 | 258 | 252 | 207 | 131 | 100 | 39 | 34 |
| 4..... | 28 | 61 | 124 | 506 | 262 | 276 | 236 | 463 | 127 | 100 | 38 | 38 |
| 5..... | 23 | 109 | 132 | 413 | 286 | 306 | 140 | 186 | 120 | 98 | 40 | 35 |
| 6..... | 80 | 86 | 130 | 262 | 288 | 334 | 102 | 208 | 102 | 141 | 36 | 35 |
| 7..... | 36 | 108 | 74 | 308 | 362 | 558 | 252 | 188 | 130 | 106 | 37 | 57 |
| 8..... | 30 | 160 | 63 | 253 | 330 | 472 | 166 | 228 | 172 | 106 | 45 | 39 |
| 9..... | 35 | 105 | 124 | 260 | 202 | 560 | 192 | 258 | 171 | 101 | 38 | 33 |
| 10..... | 42 | 72 | 135 | 157 | 338 | 630 | 199 | 131 | 158 | 108 | 82 | 32 |
| 11..... | 32 | 52 | 160 | 146 | 373 | 710 | 176 | 120 | 115 | 99 | 34 | 32 |
| 12..... | 29 | 100 | 156 | 55 | 248 | 687 | 154 | 160 | 161 | 95 | 34 | 31 |
| 13..... | 36 | 120 | 187 | 32 | 418 | 598 | 127 | 133 | 166 | 96 | 34 | 31 |
| 14..... | 30 | 118 | 105 | 49 | 426 | 536 | 219 | 148 | 185 | 105 | 32 | 45 |
| 15..... | 27 | 153 | 106 | 219 | 318 | 522 | 228 | 146 | 377 | 104 | 36 | 31 |
| 16..... | 28 | 129 | 98 | 298 | 299 | 662 | 210 | 173 | 134 | 108 | 32 | 68 |
| 17..... | 24 | 47 | 131 | 321 | 186 | 485 | 235 | 135 | 115 | 99 | 73 | 40 |
| 18..... | 25 | 99 | 177 | 288 | 154 | 436 | 226 | 116 | 112 | 132 | 34 | 38 |
| 19..... | 24 | 140 | 185 | 166 | 170 | 344 | 188 | 169 | 115 | 63 | 35 | 36 |
| 20..... | 23 | 131 | 161 | 212 | 250 | 166 | 150 | 150 | 123 | 60 | 35 | 37 |
| 21..... | 23 | 133 | 159 | 289 | 178 | 252 | 215 | 146 | 108 | 57 | 36 | 39 |
| 22..... | 21 | 133 | 108 | 216 | 114 | 204 | 196 | 162 | 190 | 57 | 63 | 40 |
| 23..... | 30 | 93 | 106 | 230 | 126 | 224 | 232 | 144 | 110 | 66 | 164 | 36 |
| 24..... | 32 | 82 | 125 | 222 | 171 | 288 | 256 | 125 | 109 | 54 | 89 | 35 |
| 25..... | 28 | 132 | 86 | 201 | 181 | 205 | 196 | 126 | 110 | 54 | 199 | 49 |
| 26..... | 37 | 130 | 84 | 214 | 222 | 192 | 178 | 150 | 119 | 50 | 36 | 41 |
| 27..... | 35 | 150 | 168 | 189 | 256 | 184 | 151 | 121 | 112 | 55 | 35 | 30 |
| 28..... | 34 | 66 | 199 | 237 | 340 | 182 | 224 | 123 | 114 | 55 | 94 | 33 |
| 29..... | 72 | 56 | 50 | 144 | ----- | 118 | 212 | 122 | 106 | 50 | 102 | 30 |
| 30..... | 97 | 78 | 52 | 162 | ----- | 115 | 184 | 138 | 110 | 59 | 27 | 31 |
| 31..... | 110 | ----- | 92 | 148 | ----- | 166 | ----- | 117 | ----- | 51 | 28 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 110 | 21 | 38.1 | ----- | ----- | 2,340 |
| November..... | 160 | 47 | 104 | ----- | ----- | 6,190 |
| December..... | 199 | 50 | 121 | ----- | ----- | 7,440 |
| January..... | 506 | 32 | 235 | ----- | ----- | 14,400 |
| February..... | 426 | 87 | 245 | ----- | ----- | 13,600 |
| March..... | 710 | 115 | 365 | ----- | ----- | 22,400 |
| April..... | 256 | 102 | 199 | ----- | ----- | 11,800 |
| May..... | 463 | 116 | 169 | ----- | ----- | 10,400 |
| June..... | 377 | 102 | 140 | ----- | ----- | 8,330 |
| July..... | 141 | 50 | 85.2 | ----- | ----- | 5,240 |
| August..... | 199 | 27 | 55.2 | ----- | ----- | 3,390 |
| September..... | 68 | 30 | 37.4 | ----- | ----- | 2,230 |
| The year..... | 710 | 21 | 149 | 1.80 | 24.43 | 108,000 |

NOTE.—Monthly discharge in second-feet per square mile and run-off in inches not computed, owing to regulation. Yearly figures closely represent the natural flow.

CEDAR RIVER NEAR LANDSBERG, WASH.

LOCATION.—Water-stage recorder in sec. 17, T. 22 N., R. 7 E., $1\frac{1}{4}$ miles above intake of Seattle water-supply system at Landsberg.

DRAINAGE AREA.—136 square miles.

RECORDS AVAILABLE.—April, 1914, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,350 second-feet Jan. 4 (gauge height, 3.16 feet); minimum, 170 second-feet Dec. 1, 7 (gauge height, 0.82 foot).

1914-1930: Maximum discharge, 7,500 second-feet Dec. 29, 1917 (gauge height, 13.55 feet); minimum, 162 second-feet Oct. 15, 1914. Discharge may have been lower some time during Oct. 15-26, 1925, when water was below intake to stilling well.

REMARKS.—Records good Oct. 1 to Jan. 24; excellent thereafter. Discharge estimated because of ice Jan. 12-20. All diversions returned to river above station. Flow partly controlled by storage and release of water at Cedar Lake Reservoir.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|-------|------|-----|------|------|------|-------|
| 1 | 242 | 290 | 219 | 474 | 438 | 639 | 662 | 566 | 582 | 442 | 352 | 282 |
| 2 | 258 | 254 | 222 | 678 | 448 | 594 | 666 | 595 | 596 | 432 | 362 | 280 |
| 3 | 231 | 226 | 254 | 811 | 440 | 584 | 675 | 576 | 586 | 428 | 347 | 280 |
| 4 | 231 | 215 | 264 | 809 | 604 | 572 | 667 | 792 | 584 | 428 | 338 | 279 |
| 5 | 239 | 262 | 279 | 770 | 741 | 620 | 586 | 556 | 530 | 422 | 345 | 278 |
| 6 | 252 | 248 | 280 | 570 | 647 | 633 | 540 | 574 | 496 | 464 | 350 | 276 |
| 7 | 260 | 262 | 231 | 570 | 768 | 854 | 652 | 554 | 504 | 428 | 340 | 292 |
| 8 | 228 | 302 | 230 | 523 | 800 | 748 | 640 | 578 | 546 | 428 | 342 | 278 |
| 9 | 236 | 262 | 337 | 492 | 593 | 835 | 622 | 648 | 544 | 420 | 334 | 278 |
| 10 | 234 | 232 | 414 | 427 | 740 | 897 | 622 | 501 | 533 | 424 | 364 | 270 |
| 11 | 224 | 208 | 376 | 389 | 777 | 986 | 589 | 484 | 489 | 416 | 332 | 270 |
| 12 | 215 | 246 | 358 | | 680 | 968 | 550 | 514 | 541 | 412 | 321 | 268 |
| 13 | 218 | 266 | 406 | | 774 | 904 | 526 | 484 | 564 | 410 | 318 | 265 |
| 14 | 209 | 268 | 669 | | 825 | 852 | 610 | 492 | 582 | 420 | 314 | 274 |
| 15 | 205 | 294 | 490 | | 784 | 796 | 684 | 492 | 718 | 417 | 313 | 264 |
| 16 | 206 | 305 | 396 | 400 | 824 | 945 | 644 | 514 | 490 | 428 | 310 | 288 |
| 17 | 210 | 220 | 389 | | 774 | 802 | 646 | 496 | 484 | 408 | 332 | 270 |
| 18 | 200 | 230 | 380 | | 662 | 769 | 618 | 470 | 476 | 456 | 318 | 264 |
| 19 | 198 | 299 | 406 | | 720 | 664 | 571 | 528 | 473 | 378 | 304 | 261 |
| 20 | 195 | 277 | 386 | | 733 | 524 | 536 | 589 | 476 | 372 | 302 | 258 |
| 21 | 196 | 279 | 376 | 495 | 627 | 706 | 578 | 613 | 468 | 367 | 301 | 258 |
| 22 | 195 | 288 | 398 | 432 | 536 | 772 | 574 | 608 | 533 | 366 | 302 | 259 |
| 23 | 190 | 248 | 534 | 446 | 533 | 703 | 601 | 566 | 460 | 393 | 396 | 256 |
| 24 | 199 | 246 | 486 | 443 | 550 | 1,060 | 615 | 532 | 454 | 398 | 352 | 248 |
| 25 | 198 | 294 | 384 | 410 | 548 | 926 | 560 | 544 | 454 | 392 | 469 | 260 |
| 26 | 200 | 280 | 350 | 418 | 536 | 806 | 542 | 548 | 461 | 372 | 302 | 256 |
| 27 | 211 | 301 | 416 | 426 | 578 | 732 | 530 | 518 | 461 | 358 | 294 | 248 |
| 28 | 200 | 241 | 529 | 473 | 619 | 686 | 598 | 514 | 464 | 361 | 311 | 250 |
| 29 | 214 | 203 | 294 | 370 | | 623 | 583 | 514 | 446 | 351 | 385 | 240 |
| 30 | 254 | 225 | 322 | 402 | | 588 | 553 | 527 | 442 | 356 | 292 | 238 |
| 31 | 288 | | 346 | 389 | | 620 | | 506 | | 348 | 278 | |

| Month | Maximum | Minimum | Means | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 288 | 190 | 221 | | | 13,600 |
| November | 305 | 203 | 259 | | | 15,400 |
| December | 669 | 219 | 368 | | | 22,600 |
| January | 811 | | 478 | | | 29,400 |
| February | 825 | 438 | 654 | | | 36,300 |
| March | 1,060 | 524 | 755 | | | 46,400 |
| April | 684 | 526 | 601 | | | 35,800 |
| May | 792 | 470 | 548 | | | 33,700 |
| June | 718 | 442 | 514 | | | 30,600 |
| July | 464 | 348 | 403 | | | 24,800 |
| August | 409 | 278 | 333 | | | 20,500 |
| September | 292 | 238 | 266 | | | 15,900 |
| The year | 1,060 | 190 | 449 | 3.30 | 44.80 | 325,000 |

NOTE.—Monthly discharge in second-feet per square mile and run-off in inches not computed, owing to regulation. Yearly figures closely represent natural flow.

SNOHOMISH RIVER BASIN

TYE RIVER NEAR SKYKOMISH, WASH.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 29, T. 26 N., R. 12 E., one-fourth mile above Foss River and 3 miles east of Skykomish.

DRAINAGE AREA.—80 square miles.

RECORDS AVAILABLE.—August, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,270 second-feet Feb. 19 (gage height, 6.16 feet); minimum probably occurred during period Jan. 8–30, when stage-discharge relation was affected by ice; not determined.

1929–30: Maximum discharge, that of Feb. 19, 1930; minimum, that of January, 1930.

REMARKS.—Records good except those for Jan. 8–30, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|-------|-------|-------|-------|-------|------|------|-------|
| 1----- | 64 | 71 | 71 | 248 | 925 | 277 | 700 | 655 | 615 | 345 | 112 | 66 |
| 2----- | 62 | 87 | 66 | 208 | 380 | * 254 | 535 | 745 | 655 | 310 | 112 | 65 |
| 3----- | 66 | 80 | 68 | 217 | 232 | 232 | 475 | 700 | 575 | 310 | 112 | 64 |
| 4----- | 139 | 74 | 62 | 217 | 575 | 217 | 575 | 615 | 535 | 294 | 104 | 62 |
| 5----- | 122 | 87 | 68 | 199 | 925 | 232 | 575 | 575 | 535 | 294 | 104 | 61 |
| 6----- | 84 | 90 | 71 | 173 | 575 | * 214 | 615 | 575 | 655 | 294 | 104 | 61 |
| 7----- | 71 | 74 | 74 | 148 | 495 | 197 | 790 | 515 | 835 | 247 | 97 | 60 |
| 8----- | 68 | 90 | 77 | | 455 | 197 | 1,020 | 455 | 745 | 232 | 97 | 59 |
| 9----- | 68 | 96 | 84 | | 380 | 197 | 835 | 435 | 700 | 247 | 97 | 64 |
| 10----- | 68 | 87 | 90 | | 398 | 197 | 700 | 475 | 700 | 247 | 97 | 61 |
| 11----- | 74 | 77 | 90 | 70 | 415 | 217 | 655 | 515 | 700 | 232 | 96 | 72 |
| 12----- | 71 | 71 | 84 | | 345 | 217 | 655 | 615 | 615 | 217 | 94 | 66 |
| 13----- | 71 | 59 | 98 | | 310 | 207 | 790 | 655 | 575 | 217 | 89 | 75 |
| 14----- | 68 | 62 | 880 | | 294 | 207 | 790 | 1,020 | 495 | 207 | 83 | 127 |
| 15----- | 66 | 74 | 615 | | 475 | 197 | 745 | 835 | 495 | 197 | 83 | 91 |
| 16----- | 60 | 74 | 208 | | 615 | 178 | 700 | 925 | 475 | 188 | 83 | 72 |
| 17----- | 156 | 93 | 173 | | 655 | 178 | 615 | 745 | 475 | 178 | 83 | 66 |
| 18----- | 87 | 90 | 156 | | 790 | 207 | 615 | 700 | 415 | 188 | 82 | 61 |
| 19----- | 62 | 77 | 148 | 50 | 1,270 | * 207 | 615 | 655 | 415 | 160 | 76 | 61 |
| 20----- | 77 | 53 | 148 | | 1,070 | 207 | 655 | 880 | 455 | 160 | 82 | 61 |
| 21----- | 62 | 64 | 139 | | 790 | 362 | 880 | 745 | 495 | 160 | 80 | 59 |
| 22----- | 68 | 71 | 156 | | 475 | 380 | 1,070 | 655 | 415 | 152 | 77 | 57 |
| 23----- | 68 | 68 | 294 | | * 475 | * 608 | 970 | 615 | * 398 | 152 | 75 | * 56 |
| 24----- | 66 | 65 | 310 | | 475 | 835 | 970 | 615 | 380 | 152 | 73 | 56 |
| 25----- | 62 | 85 | 208 | | 415 | 880 | 880 | 535 | 380 | 143 | 72 | 59 |
| 26----- | 80 | 85 | 226 | 70 | 362 | 745 | 925 | 515 | 398 | 127 | 72 | 75 |
| 27----- | 130 | 76 | 248 | | 328 | 745 | 880 | 535 | 415 | 127 | 69 | * 76 |
| 28----- | 114 | 80 | 217 | | 310 | 880 | 790 | 655 | 455 | 127 | 68 | 77 |
| 29----- | 96 | 74 | 208 | | | 970 | 655 | 655 | 380 | 120 | 66 | 75 |
| 30----- | 76 | 72 | 248 | | | 835 | 615 | 655 | 362 | 120 | 66 | 61 |
| 31----- | 71 | | 217 | 114 | | 745 | | 655 | | 112 | 66 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October----- | 156 | 60 | 80.5 | 1.01 | 1.16 | 4,950 |
| November----- | 96 | 53 | 76.9 | .961 | 1.07 | 4,580 |
| December----- | 880 | 62 | 187 | 2.34 | 2.70 | 11,500 |
| January----- | 248 | | 96.6 | 1.21 | 1.40 | 5,940 |
| February----- | 1,270 | 232 | 543 | 6.79 | 7.07 | 30,200 |
| March----- | 970 | 178 | 394 | 4.92 | 5.67 | 24,200 |
| April----- | 1,070 | 475 | 743 | 9.29 | 10.30 | 44,200 |
| May----- | 1,020 | 435 | 649 | 8.11 | 9.35 | 39,900 |
| June----- | 835 | 362 | 525 | 6.56 | 7.32 | 31,200 |
| July----- | 345 | 112 | 202 | 2.52 | 2.90 | 12,400 |
| August----- | 112 | 66 | 86.2 | 1.08 | 1.24 | 5,300 |
| September----- | 127 | 56 | 67.5 | .844 | .94 | 4,020 |
| The year----- | 1,270 | | 302 | 3.78 | 51.18 | 218,000 |

* Interpolated.

SOUTH FORK OF SKYKOMISH RIVER NEAR SKYKOMISH, WASH.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 30, T. 26 N., R. 12 E., one-fourth mile below Foss River and 2 miles east of Skykomish.

DRAINAGE AREA.—137 square miles.

RECORDS AVAILABLE.—August, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,140 second-feet Feb. 19 (gage height, 7.45 feet); minimum occurred during period Jan. 10–31, when stage-discharge relation was affected by ice, not determined.

1929–30: Maximum discharge, that of Feb. 19, 1930; minimum occurred during period Jan. 10–31, 1930.

REMARKS.—Records good except those for Jan. 10–31, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|------|---------|-------|-------|-------|-------|------|------|-------|
| 1 | 136 | 150 | 136 | 550 | 960 | 460 | 1,160 | 960 | 1,040 | 760 | 306 | 202 |
| 2 | 130 | 171 | 130 | 460 | 840 | * 445 | 1,080 | 1,120 | 1,040 | 725 | 306 | 202 |
| 3 | 143 | 150 | 130 | 460 | 550 | 430 | 1,000 | 1,120 | 920 | 655 | 288 | 202 |
| 4 | 202 | 150 | 124 | 430 | 1,200 | 405 | 960 | 960 | 800 | 620 | 288 | 194 |
| 5 | 270 | 164 | 130 | 383 | 1,940 | 405 | 960 | 880 | 920 | 655 | 288 | 202 |
| 6 | 218 | 164 | 143 | 344 | 1,200 | * 384 | 960 | 880 | 1,120 | 655 | 288 | 202 |
| 7 | 186 | 157 | 164 | 288 | 1,000 | 363 | 1,200 | 800 | 1,380 | 655 | 288 | 194 |
| 8 | 171 | 150 | 164 | 306 | 1,000 | 363 | 1,700 | 690 | 1,290 | 585 | 288 | 194 |
| 9 | 171 | 178 | 164 | 270 | 800 | 363 | 1,340 | 655 | 1,200 | 585 | 288 | 186 |
| 10 | 171 | 171 | 194 | | 800 | 363 | 1,120 | 690 | 1,240 | 655 | 288 | 178 |
| 11 | 171 | 157 | 194 | | 960 | 383 | 1,080 | 725 | 1,200 | 620 | 288 | 202 |
| 12 | 171 | 143 | 171 | | 725 | 405 | 1,000 | 800 | 1,120 | 620 | 288 | 194 |
| 13 | 171 | 130 | 171 | 140 | 620 | 383 | 1,200 | 1,000 | 1,000 | 655 | 270 | 202 |
| 14 | 178 | 136 | 1,240 | | 585 | 383 | 1,240 | 1,650 | 880 | 655 | 288 | 270 |
| 15 | 178 | 143 | 1,080 | | 1,240 | 363 | 1,160 | 1,290 | 840 | 550 | 270 | 252 |
| 16 | 164 | 143 | 880 | | 1,160 | 325 | 1,080 | 1,420 | 1,080 | 520 | 270 | 218 |
| 17 | 270 | 171 | 620 | | 1,200 | 363 | 960 | 1,200 | 1,240 | 460 | 262 | 218 |
| 18 | 202 | 171 | 344 | | 1,470 | 363 | 960 | 1,120 | 760 | 430 | 235 | 218 |
| 19 | 194 | 164 | 344 | | 2,140 | * 378 | 960 | 1,080 | 760 | 405 | 235 | 194 |
| 20 | 178 | 157 | 306 | 130 | 1,890 | 383 | 1,240 | 1,470 | 800 | 405 | 235 | 178 |
| 21 | 171 | 143 | 288 | | 1,380 | 460 | 1,290 | 1,200 | 880 | 405 | 218 | 178 |
| 22 | 171 | 143 | 325 | | 1,200 | 800 | 1,650 | 1,120 | 800 | 405 | 218 | 178 |
| 23 | 164 | 157 | 725 | | * 1,000 | * 600 | 1,560 | 1,000 | * 780 | 405 | 218 | * 160 |
| 24 | 157 | 136 | 620 | | 800 | 1,240 | 1,470 | 960 | 760 | 405 | 218 | 143 |
| 25 | 157 | 157 | 880 | | 725 | 1,290 | 1,380 | 880 | 720 | 383 | 218 | 143 |
| 26 | 194 | 171 | 620 | 150 | 620 | 1,200 | 1,380 | 840 | 760 | 344 | 202 | 202 |
| 27 | 235 | 150 | 585 | | 550 | 1,240 | 1,380 | 840 | 800 | 344 | 202 | * 198 |
| 28 | 235 | 150 | 460 | | 520 | 1,420 | 1,200 | 1,000 | 800 | 325 | 202 | 194 |
| 29 | 186 | 143 | 430 | | | 1,560 | 1,040 | 1,040 | 760 | 325 | 202 | 186 |
| 30 | 164 | 136 | 520 | | | 1,290 | 960 | 1,000 | 725 | 325 | 202 | 157 |
| 31 | 157 | | 460 | | | 1,200 | | 1,080 | | 325 | 202 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 270 | 130 | 183 | 1.34 | 1.54 | 11,300 |
| November | 178 | 130 | 154 | 1.12 | 1.25 | 9,160 |
| December | 1,240 | 124 | 411 | 3.00 | 3.46 | 25,300 |
| January | 550 | | 212 | 1.55 | 1.79 | 13,000 |
| February | 2,140 | 520 | 1,040 | 7.59 | 7.90 | 57,800 |
| March | 1,560 | 325 | 645 | 4.71 | 5.43 | 39,700 |
| April | 1,700 | 960 | 1,190 | 8.69 | 9.70 | 70,800 |
| May | 1,650 | 655 | 1,020 | 7.45 | 8.59 | 62,700 |
| June | 1,380 | 725 | 947 | 6.91 | 7.71 | 56,400 |
| July | 760 | 325 | 512 | 3.74 | 4.31 | 31,500 |
| August | 306 | 202 | 253 | 1.85 | 2.13 | 15,600 |
| September | 270 | 143 | 195 | 1.42 | 1.58 | 11,600 |
| The year | 2,140 | | 558 | 4.07 | 55.39 | 405,000 |

* Interpolated.

SOUTH FORK OF SKYKOMISH RIVER NEAR INDEX, WASH.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 29, T. 27 N., R. 10 E.; 300 feet above Sunset Falls, 2 miles above North Fork, and 2 miles southeast of Index.

DRAINAGE AREA.—355 square miles.

RECORDS AVAILABLE.—October, 1902, to September, 1905; April, 1911, to September, 1930.

EXTREMES.—Maximum discharge during year, 10,900 second-feet Feb. 5 (gage height, 10.40 feet); minimum, 271 second-feet Oct. 1-3.

1902-1905; 1911-1930: Maximum discharge, 47,000 second-feet Dec. 18, 1917 (gage height, 22.6 feet); minimum discharge, 214 second-feet Oct. 15-21, 23, 1925.

REMARKS.—Records good except those for Jan. 11 to Feb. 1, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 271 | 399 | 374 | 2,760 | 4,500 | 1,280 | 3,370 | 2,390 | 2,960 | 1,640 | 510 | 327 |
| 2..... | 271 | 452 | 350 | 2,040 | 3,810 | 1,160 | 3,060 | 2,210 | 2,960 | 1,490 | 480 | 327 |
| 3..... | 271 | 399 | 327 | 2,390 | 2,570 | 1,100 | 2,860 | 2,960 | 2,390 | 1,420 | 480 | 327 |
| 4..... | 690 | 374 | 327 | 1,960 | 5,910 | 1,040 | 2,760 | 2,390 | 2,210 | 1,280 | 480 | 327 |
| 5..... | 980 | 350 | 327 | 1,560 | 9,690 | 980 | 2,570 | 2,210 | 2,570 | 1,420 | 490 | 327 |
| 6..... | 540 | 425 | 399 | 1,350 | 4,410 | 980 | 2,960 | 2,210 | 2,960 | 1,420 | 452 | 327 |
| 7..... | 452 | 399 | 575 | 1,100 | 4,290 | 980 | 4,290 | 1,960 | 3,810 | 1,220 | 452 | 304 |
| 8..... | 399 | 399 | 452 | 980 | 3,810 | 930 | 5,910 | 1,720 | 3,160 | 1,220 | 452 | 327 |
| 9..... | 425 | 374 | 575 | 880 | 2,760 | 1,040 | 4,050 | 1,720 | 2,960 | 1,160 | 452 | 350 |
| 10..... | 510 | 452 | 690 | 735 | 3,160 | 980 | 3,160 | 1,720 | 3,160 | 1,220 | 452 | 350 |
| 11..... | 425 | 425 | 650 | 400 | 3,370 | 1,040 | 2,760 | 1,880 | 3,160 | 1,160 | 452 | 350 |
| 12..... | 399 | 399 | 575 | | 2,570 | 1,160 | 2,760 | 2,120 | 2,960 | 1,160 | 425 | 327 |
| 13..... | 374 | 374 | 575 | | 2,210 | 1,100 | 3,160 | 2,960 | 2,390 | 1,220 | 425 | 350 |
| 14..... | 350 | 350 | 6,210 | | 1,880 | 980 | 3,590 | 3,450 | 2,040 | 1,100 | 425 | 780 |
| 15..... | 350 | 350 | 3,480 | | 3,370 | 930 | 3,480 | 3,370 | 2,210 | 980 | 425 | 540 |
| 16..... | 327 | 452 | 2,480 | 380 | 4,930 | 830 | 2,960 | 3,700 | 2,390 | 880 | 425 | 425 |
| 17..... | 452 | 930 | 1,960 | | 4,800 | 830 | 2,570 | 2,960 | 2,040 | 830 | 399 | 399 |
| 18..... | 610 | 610 | 1,420 | | 5,910 | 880 | 2,480 | 2,570 | 1,800 | 780 | 374 | 374 |
| 19..... | 610 | 510 | 1,220 | | 9,690 | 1,040 | 2,570 | 2,760 | 1,880 | 735 | 399 | 399 |
| 20..... | 575 | 452 | 1,100 | | 6,830 | 1,040 | 2,960 | 4,540 | 2,040 | 690 | 399 | 327 |
| 21..... | 510 | 399 | 1,040 | | 4,800 | 3,700 | 3,810 | 3,810 | 2,040 | 735 | 374 | 327 |
| 22..... | 452 | 399 | 1,420 | | 3,810 | 3,370 | 4,930 | 3,260 | 1,800 | 690 | 374 | 304 |
| 23..... | 425 | 374 | 3,590 | | 2,960 | 2,210 | 4,290 | 2,860 | 1,720 | 690 | 350 | 304 |
| 24..... | 399 | 350 | 2,760 | | 2,390 | 4,050 | 4,050 | 2,760 | 1,560 | 650 | 350 | 304 |
| 25..... | 374 | 399 | 4,050 | | 2,040 | 5,620 | 3,810 | 2,390 | 1,640 | 650 | 350 | 282 |
| 26..... | 399 | 425 | 2,960 | 380 | 1,720 | 4,170 | 3,590 | 2,210 | 1,720 | 610 | 327 | 540 |
| 27..... | 575 | 399 | 2,660 | | 1,560 | 3,810 | 3,590 | 2,210 | 1,880 | 575 | 327 | 510 |
| 28..... | 540 | 399 | 1,960 | | 1,420 | 4,640 | 3,260 | 2,390 | 2,210 | 575 | 327 | 510 |
| 29..... | 480 | 374 | 1,560 | | ----- | 5,480 | 2,760 | 2,570 | 1,720 | 540 | 327 | 425 |
| 30..... | 452 | 374 | 1,960 | | ----- | 3,810 | 2,390 | 2,760 | 1,720 | 540 | 327 | 374 |
| 31..... | 399 | ----- | 1,960 | | ----- | 3,590 | ----- | 2,960 | ----- | 540 | 327 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 980 | 271 | 461 | 1.30 | 1.50 | 28,300 |
| November..... | 930 | 350 | 426 | 1.20 | 1.34 | 25,300 |
| December..... | 6,210 | 327 | 1,610 | 4.54 | 5.23 | 99,000 |
| January..... | 2,760 | ----- | 770 | 2.17 | 2.50 | 47,800 |
| February..... | 9,690 | 1,420 | 3,970 | 11.2 | 11.66 | 220,000 |
| March..... | 5,620 | 830 | 2,090 | 5.89 | 6.79 | 129,000 |
| April..... | 5,910 | 2,390 | 3,360 | 9.46 | 10.56 | 200,000 |
| May..... | 4,540 | 1,720 | 2,650 | 7.46 | 8.60 | 163,000 |
| June..... | 3,810 | 1,660 | 2,340 | 6.59 | 7.35 | 139,000 |
| July..... | 1,640 | 540 | 962 | 2.71 | 3.12 | 59,200 |
| August..... | 510 | 327 | 406 | 1.14 | 1.31 | 26,600 |
| September..... | 780 | 282 | 380 | 1.07 | 1.19 | 22,600 |
| The year..... | 9,690 | 271 | 1,600 | 4.51 | 61.16 | 1,160,000 |

SKYROMISH RIVER NEAR GOLD BAR, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 9, T. 27 N., R. 9 E., 2 miles southeast of Gold Bar.

DRAINAGE AREA.—535 square miles.

RECORDS AVAILABLE.—September, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 15,800 second-feet Feb. 5 (gage height, 10.44 feet); minimum, 392 second-feet Oct. 2, 3 (gage height, 2.76 feet).

1928-1930: Maximum discharge, 18,800 second-feet Oct. 9, 1928 (gage height, 10.55 feet); minimum, that of Oct. 2, 3, 1929.

REMARKS.—Records good through December, excellent thereafter except those for Jan. 12-27, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|--------|-------|--------|-------|-------|-------|------|-------|
| 1 | 410 | 678 | 517 | 3,710 | 6,140 | 2,210 | 5,160 | 3,800 | 4,960 | 2,850 | 960 | 524 |
| 2 | 398 | 750 | 496 | 3,460 | 6,650 | 2,030 | 4,750 | 4,850 | 4,960 | 2,580 | 910 | 510 |
| 3 | 398 | 705 | 463 | 3,620 | 4,650 | 1,910 | 4,450 | 4,850 | 4,160 | 2,390 | 890 | 524 |
| 4 | 842 | 628 | 454 | 3,140 | 9,390 | 1,790 | 4,360 | 3,980 | 3,800 | 2,270 | 880 | 517 |
| 5 | 1,340 | 588 | 454 | 2,720 | 13,400 | 1,790 | 4,260 | 3,710 | 4,070 | 2,330 | 880 | 517 |
| 6 | 1,040 | 660 | 573 | 2,330 | 7,610 | 1,740 | 4,550 | 3,540 | 5,160 | 2,330 | 860 | 538 |
| 7 | 768 | 644 | 588 | 2,030 | 6,650 | 1,680 | 7,010 | 3,210 | 6,410 | 2,210 | 822 | 545 |
| 8 | 644 | 596 | 636 | 1,850 | 6,650 | 1,680 | 10,200 | 2,850 | 5,880 | 2,150 | 831 | 510 |
| 9 | 750 | 588 | 960 | 1,620 | 4,550 | 1,790 | 6,650 | 2,780 | 4,960 | 2,150 | 822 | 573 |
| 10 | 880 | 705 | 1,160 | 1,460 | 4,990 | 1,680 | 5,160 | 2,850 | 5,160 | 2,210 | 813 | 538 |
| 11 | 705 | 669 | 1,190 | 1,350 | 5,710 | 1,790 | 4,450 | 3,210 | 5,160 | 2,150 | 804 | 573 |
| 12 | 628 | 604 | 1,020 | | 4,070 | 1,970 | 4,450 | 3,540 | 5,880 | 2,090 | 813 | 573 |
| 13 | 558 | 573 | 1,100 | | 3,370 | 1,850 | 5,270 | 4,550 | 4,360 | 2,150 | 768 | 559 |
| 14 | 552 | 545 | 7,720 | | 2,820 | 1,740 | 5,490 | 5,600 | 3,620 | 2,090 | 768 | 1,270 |
| 15 | 524 | 531 | 6,260 | | 3,940 | 1,620 | 5,600 | 5,520 | 3,620 | 1,850 | 768 | 1,140 |
| 16 | 517 | 573 | 4,260 | 850 | 7,130 | 1,570 | 4,960 | 6,410 | 4,360 | 1,680 | 759 | 840 |
| 17 | 1,150 | 1,000 | 3,470 | | 7,850 | 1,570 | 4,260 | 4,960 | 3,370 | 1,570 | 723 | 705 |
| 18 | 1,260 | 1,160 | 2,650 | | 8,740 | 1,570 | 4,160 | 4,360 | 2,920 | 1,440 | 687 | 652 |
| 19 | 1,270 | 910 | 2,270 | | 12,900 | 1,740 | 4,070 | 4,260 | 3,660 | 1,360 | 696 | 604 |
| 20 | 1,150 | 768 | 2,090 | | 10,700 | 1,790 | 4,750 | 6,590 | 3,290 | 1,330 | 687 | 559 |
| 21 | 950 | 660 | 1,970 | | 7,610 | 3,920 | 6,170 | 6,170 | 3,460 | 1,330 | 620 | 524 |
| 22 | 822 | 604 | 2,710 | | 5,710 | 5,820 | 7,850 | 5,490 | 3,660 | 1,310 | 612 | 503 |
| 23 | 714 | 573 | 5,710 | 650 | 4,550 | 3,980 | 7,130 | 4,650 | 2,780 | 1,300 | 604 | 468 |
| 24 | 652 | 558 | 4,550 | | 3,800 | 5,760 | 6,650 | 4,450 | 2,720 | 1,270 | 558 | 446 |
| 25 | 604 | 573 | 5,900 | | 3,210 | 5,850 | 5,820 | 3,980 | 2,650 | 1,200 | 573 | 428 |
| 26 | 566 | 628 | 5,130 | | 2,850 | 7,370 | 5,820 | 3,540 | 2,650 | 1,110 | 559 | 1,049 |
| 27 | 1,080 | 612 | 4,260 | | 2,580 | 6,410 | 5,820 | 3,620 | 3,140 | 1,060 | 545 | 980 |
| 28 | 1,210 | 580 | 3,290 | 723 | 2,390 | 7,130 | 5,380 | 4,160 | 3,620 | 1,020 | 545 | 1,130 |
| 29 | 960 | 552 | 2,780 | 750 | | 8,350 | 4,450 | 4,260 | 3,140 | 1,010 | 538 | 870 |
| 30 | 813 | 531 | 3,060 | 795 | | 6,650 | 3,800 | 4,070 | 2,850 | 1,020 | 545 | 732 |
| 31 | 723 | | 3,290 | 1,100 | | 5,600 | | 4,550 | | 1,000 | 524 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 1,340 | 398 | 803 | 1.50 | 1.73 | 49,400 |
| November | 1,600 | 531 | 678 | 1.27 | 1.42 | 40,300 |
| December | 7,720 | 454 | 2,610 | 4.83 | 5.63 | 160,000 |
| January | 3,710 | | 1,580 | 2.58 | 2.97 | 84,800 |
| February | 13,400 | 2,390 | 6,100 | 11.4 | 11.57 | 339,000 |
| March | 8,850 | 1,570 | 3,400 | 6.36 | 7.33 | 209,000 |
| April | 10,200 | 3,800 | 5,430 | 10.1 | 11.27 | 323,000 |
| May | 6,890 | 2,780 | 4,350 | 8.13 | 9.57 | 267,000 |
| June | 6,410 | 2,650 | 3,940 | 7.36 | 8.21 | 234,000 |
| July | 2,850 | 1,000 | 1,740 | 3.25 | 3.75 | 107,000 |
| August | 960 | 524 | 722 | 1.35 | 1.56 | 44,400 |
| September | 1,270 | 428 | 662 | 1.24 | 1.38 | 39,400 |
| The year | 13,400 | 398 | 2,620 | 4.90 | 66.49 | 1,900,000 |

BECKLER RIVER NEAR SKYKOMISH, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 18, T. 26 N., R. 12 E., 4 miles northeast of Skykomish.

DRAINAGE AREA.—95 square miles.

RECORDS AVAILABLE.—September, 1929, to September, 1930.

EXTREMES.—Maximum discharge during period Sept. 19, 1929, to Sept. 30, 1930, 2,380 second-feet Feb. 5 (gage height, 5.71 feet); minimum probably occurred during period Jan. 9–29, when stage-discharge relation was affected by ice.

REMARKS.—Records excellent except those for period Jan. 9–29, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|------|------|------|------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | | 51 | 68 | 66 | 434 | 607 | 384 | 980 | 816 | 795 | 396 | 98 | 57 |
| 2 | | 51 | 78 | 64 | 395 | 666 | 356 | 916 | 948 | 774 | 376 | 98 | 57 |
| 3 | | 55 | 72 | 63 | 368 | 515 | 340 | 865 | 886 | 672 | 352 | 96 | 56 |
| 4 | | 98 | 67 | 60 | 342 | 1,260 | 320 | 823 | 788 | 666 | 340 | 94 | 56 |
| 5 | | 128 | 67 | 64 | 308 | 1,940 | 308 | 781 | 753 | 739 | 336 | 92 | 57 |
| 6 | | 82 | 81 | 72 | 271 | 1,140 | 289 | 851 | 697 | 908 | 324 | 90 | 58 |
| 7 | | 68 | 73 | 67 | 229 | 988 | 281 | 1,220 | 608 | 1,000 | 308 | 90 | 59 |
| 8 | | 66 | 67 | 73 | 210 | 858 | 270 | 1,640 | 564 | 886 | 283 | 90 | 59 |
| 9 | | 93 | 72 | 84 | | 672 | 270 | 1,180 | 553 | 865 | 285 | 88 | 71 |
| 10 | | 94 | 76 | 98 | | 732 | 262 | 972 | 586 | 865 | 277 | 87 | 63 |
| 11 | | 76 | 70 | 96 | | 718 | 277 | 858 | 642 | 837 | 262 | 85 | 70 |
| 12 | | 73 | 64 | 84 | 90 | 580 | 300 | 886 | 704 | 823 | 248 | 81 | 63 |
| 13 | | 68 | 64 | 82 | | 500 | 281 | 1,000 | 886 | 660 | 237 | 73 | 73 |
| 14 | | 64 | 61 | 703 | | 448 | 266 | 1,040 | 1,020 | 597 | 220 | 76 | 115 |
| 15 | | 61 | 61 | 479 | | 636 | 255 | 1,040 | 1,140 | 636 | 206 | 74 | 87 |
| 16 | | 60 | 74 | 333 | | 932 | 248 | 924 | 1,140 | 642 | 192 | 74 | 70 |
| 17 | | 150 | 185 | 271 | | 1,140 | 248 | 830 | 916 | 542 | 183 | 73 | 64 |
| 18 | | 89 | 100 | 218 | | 1,370 | 255 | 837 | 816 | 510 | 173 | 70 | 63 |
| 19 | 51 | 106 | 84 | 186 | | 2,130 | 277 | 830 | 837 | 515 | 164 | 70 | 60 |
| 20 | * 66 | 89 | 74 | 170 | 60 | 1,730 | 281 | 932 | 1,060 | 520 | 156 | 70 | 59 |
| 21 | * 60 | 81 | 67 | 161 | | 1,280 | 470 | 1,230 | 940 | 515 | 148 | 68 | 58 |
| 22 | * 65 | 74 | 67 | 242 | | 1,000 | 597 | 1,500 | 816 | 466 | 145 | 66 | 58 |
| 23 | 70 | 72 | 66 | 488 | | 809 | 490 | 1,360 | 780 | 425 | 137 | 66 | 58 |
| 24 | 67 | 66 | 64 | 482 | | 672 | 710 | 1,280 | 760 | 417 | 130 | 64 | 57 |
| 25 | 61 | 63 | 76 | 733 | | 575 | 1,040 | 1,140 | 678 | 404 | 127 | 64 | 58 |
| 26 | 59 | 60 | 78 | 607 | 80 | 505 | 940 | 1,140 | 648 | 421 | 123 | 63 | 92 |
| 27 | 56 | 120 | 74 | 510 | | 456 | 940 | 1,140 | 678 | 461 | 115 | 61 | 76 |
| 28 | 56 | 102 | 72 | 395 | | 413 | 1,180 | 1,040 | 774 | 480 | 113 | 60 | 87 |
| 29 | 54 | 82 | 68 | 342 | | | 1,460 | 872 | 739 | 413 | 109 | 58 | 70 |
| 30 | 52 | 74 | 68 | 395 | 98 | | 1,140 | 795 | 725 | 400 | 105 | 58 | 64 |
| 31 | | 70 | | 386 | 130 | | 1,040 | | 795 | | 100 | 58 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| 1929 | | | | | | |
| September 19-30..... | 70 | 51 | 58.8 | 0.619 | 0.28 | 1,400 |
| 1929-30 | | | | | | |
| October..... | 150 | 51 | 80.2 | .844 | .97 | 4,930 |
| November..... | 185 | 61 | 75.3 | .793 | .88 | 4,480 |
| December..... | 733 | 60 | 260 | 2.74 | 3.16 | 16,000 |
| January..... | 434 | 142 | 1.49 | 1.72 | 8,730 | |
| February..... | 2,130 | 413 | 903 | 9.51 | 9.99 | 50,200 |
| March..... | 1,460 | 248 | 509 | 5.36 | 6.18 | 31,300 |
| April..... | 1,640 | 781 | 1,030 | 10.8 | 12.05 | 61,300 |
| May..... | 1,140 | 553 | 796 | 8.38 | 9.66 | 48,900 |
| June..... | 1,000 | 400 | 628 | 6.61 | 7.38 | 37,400 |
| July..... | 396 | 100 | 215 | 2.26 | 2.61 | 13,200 |
| August..... | 98 | 58 | 76.1 | .801 | .92 | 4,680 |
| September..... | 115 | 56 | 66.5 | .700 | .78 | 3,960 |
| The year..... | 2,130 | | 394 | 4.15 | 56.21 | 285,000 |

* Interpolated.

MILLER CREEK AT MILLER RIVER, WASH.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 28, T. 26 N., R. 11 E., five-eighths mile south of mouth and Miller River.

DRAINAGE AREA.—44.2 square miles.

RECORDS AVAILABLE.—May, 1911, to June, 1919; December, 1918, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,900 second-feet Feb. 1 (gage height, 5.30 feet); minimum, 18 second-feet Sept. 3 (gage height, 0.70 foot). 1911-1919; 1928-1930: Maximum stage occurred during flood of Dec. 18, 1917, which destroyed gage; estimated by observer at 7 or 8 feet (discharge not estimated); minimum discharge, that of Sept. 3, 1930.

REMARKS.—Records good. Discharge Dec. 21, 22, 25, Jan. 12-30, Feb. 13, Apr. 2, May 6, Sept. 10, estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|-------|-------|------|-------|-----|-------|------|------|-------|
| 1 | 23 | 61 | 47 | 465 | 1,900 | 118 | 191 | 263 | 505 | 263 | 42 | 22 |
| 2 | 23 | 66 | 46 | 321 | 930 | 104 | 289 | 465 | 445 | 237 | 39 | 20 |
| 3 | 25 | 55 | 44 | 353 | 465 | 104 | 387 | 353 | 387 | 225 | 36 | 18 |
| 4 | 149 | 57 | 40 | 291 | 1,260 | 104 | 370 | 291 | 425 | 213 | 33 | 20 |
| 5 | 209 | 61 | 44 | 213 | 1,710 | 104 | 406 | 263 | 485 | 213 | 33 | 20 |
| 6 | 109 | 66 | 69 | 171 | 700 | 91 | 465 | 250 | 750 | 202 | 33 | 21 |
| 7 | 69 | 57 | 67 | 143 | 700 | 98 | 600 | 237 | 650 | 191 | 34 | 20 |
| 8 | 55 | 51 | 71 | 118 | 625 | 104 | 930 | 191 | 465 | 191 | 34 | 20 |
| 9 | 99 | 59 | 140 | 111 | 387 | 104 | 505 | 171 | 465 | 191 | 32 | 24 |
| 10 | 82 | 82 | 188 | 91 | 425 | 111 | 387 | 181 | 485 | 181 | 34 | 25 |
| 11 | 59 | 71 | 149 | 79 | 550 | 118 | 353 | 250 | 465 | 171 | 29 | 26 |
| 12 | 51 | 59 | 109 | 79 | 505 | 171 | 370 | 321 | 465 | 162 | 29 | 33 |
| 13 | 46 | 55 | 112 | 485 | 134 | 505 | 465 | 353 | 353 | 162 | 29 | 74 |
| 14 | 40 | 51 | 1,710 | 465 | 111 | 505 | 528 | 291 | 152 | 26 | 181 | |
| 15 | 37 | 47 | 700 | 485 | 104 | 425 | 625 | 250 | 118 | 29 | 134 | |
| 16 | 34 | 59 | 465 | 30 | 810 | 98 | 387 | 505 | 263 | 104 | 29 | 57 |
| 17 | 268 | 220 | 387 | 30 | 930 | 104 | 321 | 387 | 263 | 98 | 29 | 48 |
| 18 | 112 | 131 | 237 | 990 | 111 | 321 | 321 | 237 | 91 | 29 | 39 | |
| 19 | 209 | 93 | 191 | 1,800 | 118 | 353 | 291 | 250 | 91 | 29 | 33 | |
| 20 | 115 | 74 | 191 | 990 | 171 | 425 | 810 | 263 | 85 | 29 | 31 | |
| 21 | 98 | 61 | 180 | 625 | 930 | 750 | 750 | 250 | 79 | 26 | 27 | |
| 22 | 71 | 57 | 500 | 321 | 600 | 810 | 505 | 250 | 78 | 26 | 26 | |
| 23 | 57 | 51 | 810 | 263 | 321 | 600 | 465 | 237 | 79 | 26 | 26 | |
| 24 | 49 | 57 | 505 | 250 | 600 | 505 | 425 | 237 | 68 | 24 | 25 | |
| 25 | 44 | 66 | 495 | 191 | 1,120 | 465 | 353 | 250 | 66 | 24 | 29 | |
| 26 | 41 | 71 | 485 | 35 | 171 | 750 | 445 | 321 | 263 | 60 | 24 | 48 |
| 27 | 115 | 64 | 387 | 35 | 152 | 750 | 425 | 353 | 277 | 55 | 24 | 91 |
| 28 | 96 | 59 | 306 | 35 | 134 | 810 | 425 | 425 | 29 | 57 | 24 | 72 |
| 29 | 71 | 57 | 237 | 35 | 700 | 321 | 425 | 32 | 54 | 24 | 66 | |
| 30 | 59 | 53 | 321 | 79 | 575 | 263 | 425 | 29 | 53 | 20 | 50 | |
| 31 | 57 | ----- | 387 | 79 | ----- | 291 | ----- | 528 | ----- | 47 | 20 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 268 | 23 | 83.0 | 1.88 | 2.17 | 5,100 |
| November | 220 | 47 | 69.0 | 1.56 | 1.74 | 4,110 |
| December | 1,710 | 40 | 310 | 7.01 | 8.08 | 19,100 |
| January | 465 | ----- | 98.4 | 2.23 | 2.57 | 6,050 |
| February | 1,900 | 134 | 686 | 15.5 | 16.14 | 38,100 |
| March | 1,120 | 91 | 314 | 7.10 | 8.19 | 19,300 |
| April | 930 | 191 | 450 | 10.2 | 11.38 | 26,800 |
| May | 810 | 171 | 392 | 8.87 | 10.23 | 24,100 |
| June | 750 | 237 | 361 | 8.17 | 9.12 | 21,500 |
| July | 263 | 47 | 130 | 2.94 | 3.39 | 7,900 |
| August | 42 | 20 | 29.0 | .656 | .76 | 1,780 |
| September | 181 | 18 | 44.2 | 1.00 | 1.12 | 2,630 |
| The year | 1,900 | 18 | 244 | 5.52 | 74.89 | 177,000 |

NORTH FORK OF SKYKOMISH RIVER AT INDEX, WASH.

LOCATION.—Chain gage in SE. $\frac{1}{4}$ sec. 17, T. 27 N., R. 10 E., on highway bridge at Index, $1\frac{1}{2}$ miles above mouth.

DRAINAGE AREA.—149 square miles.

RECORDS AVAILABLE.—August, 1910, to September, 1922; February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 5,160 second-feet Feb. 5 (gage height, 6.20 feet); minimum, 78 second-feet Sept. 25 (gage height, 2.40 feet). 1910-1922; 1929-30: Maximum discharge, 17,000 second-feet Dec. 29, 1917 (gage height, 13 feet; discharge probably greater Dec. 12, 1921); minimum, that of Sept. 25, 1930.

REMARKS.—Records good except those for Jan. 13-27, which were estimated because of ice. Records also estimated Nov. 4, Apr. 7, July 27, Aug. 17, 22, 24, 27. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 97 | 225 | 175 | 1,280 | 3,190 | 600 | 1,470 | 1,170 | 1,540 | 895 | 235 | 124 |
| 2 | 91 | 225 | 160 | 985 | 2,260 | 480 | 1,400 | 1,610 | 1,610 | 850 | 217 | 110 |
| 3 | 97 | 225 | 153 | 1,030 | 1,340 | 480 | 1,340 | 1,610 | 1,220 | 720 | 217 | 110 |
| 4 | 354 | 212 | 145 | 895 | 4,250 | 455 | 1,220 | 1,220 | 1,220 | 720 | 217 | 117 |
| 5 | 525 | 200 | 163 | 760 | 5,160 | 480 | 1,340 | 1,170 | 1,470 | 720 | 217 | 117 |
| 6 | 244 | 217 | 153 | 562 | 2,090 | 429 | 1,340 | 1,120 | 1,680 | 760 | 217 | 131 |
| 7 | 183 | 191 | 200 | 480 | 2,090 | 416 | 2,070 | 1,120 | 2,090 | 680 | 217 | 145 |
| 8 | 175 | 183 | 200 | 455 | 1,680 | 403 | 2,800 | 895 | 1,610 | 600 | 217 | 138 |
| 9 | 273 | 183 | 284 | 390 | 1,220 | 429 | 1,840 | 850 | 1,470 | 640 | 183 | 168 |
| 10 | 225 | 217 | 354 | 342 | 1,470 | 403 | 1,400 | 940 | 2,000 | 680 | 217 | 160 |
| 11 | 183 | 191 | 354 | 330 | 1,340 | 442 | 1,340 | 985 | 1,760 | 680 | 208 | 183 |
| 12 | 175 | 175 | 319 | 244 | 1,080 | 480 | 1,340 | 1,400 | 2,090 | 680 | 208 | 104 |
| 13 | 153 | 175 | 307 | | 895 | 442 | 1,610 | 1,540 | 1,280 | 680 | 200 | 191 |
| 14 | 145 | 160 | 4,030 | | 760 | 390 | 1,680 | 1,760 | 1,170 | 600 | 200 | 680 |
| 15 | 131 | 153 | 1,760 | | 1,170 | 366 | 1,760 | 1,680 | 1,170 | 525 | 200 | 390 |
| 16 | 131 | 191 | 1,220 | 200 | 2,260 | 330 | 1,470 | 1,840 | 1,170 | 455 | 200 | 225 |
| 17 | 985 | 640 | 805 | | 2,800 | 390 | 1,280 | 1,540 | 1,080 | 378 | 188 | 183 |
| 18 | 366 | 366 | 760 | | 2,800 | 429 | 1,280 | 1,400 | 940 | 330 | 175 | 131 |
| 19 | 525 | 296 | 640 | | 4,470 | 525 | 1,340 | 1,470 | 1,120 | 342 | 160 | 131 |
| 20 | 330 | 244 | 600 | | 2,990 | 455 | 1,540 | 2,260 | 1,120 | 366 | 153 | 131 |
| 21 | 284 | 217 | 600 | | 2,090 | 1,540 | 2,180 | 1,920 | 1,470 | 366 | 145 | 131 |
| 22 | 235 | 208 | 640 | | 1,540 | 1,470 | 2,620 | 1,540 | 1,120 | 366 | 138 | 120 |
| 23 | 183 | 200 | 1,470 | | 1,220 | 1,080 | 2,180 | 1,470 | 940 | 330 | 131 | 110 |
| 24 | 183 | 191 | 1,280 | 150 | 1,030 | 2,180 | 2,000 | 1,340 | 940 | 342 | 134 | 107 |
| 25 | 175 | 225 | 2,260 | | 895 | 2,620 | 1,760 | 1,120 | 850 | 330 | 138 | 78 |
| 26 | 168 | 225 | 1,470 | | 805 | 2,180 | 1,840 | 1,030 | 895 | 273 | 131 | 600 |
| 27 | 680 | 208 | 1,220 | | 720 | 1,920 | 1,760 | 1,120 | 1,080 | 268 | 131 | 330 |
| 28 | 455 | 200 | 940 | 168 | 640 | 2,440 | 1,680 | 1,280 | 1,220 | 263 | 131 | 360 |
| 29 | 307 | 191 | 805 | 175 | | 2,620 | 1,280 | 1,280 | 1,030 | 254 | 131 | 239 |
| 30 | 254 | 183 | 985 | 175 | | 1,840 | 1,280 | 1,400 | 940 | 235 | 131 | 183 |
| 31 | 235 | | 2,260 | 330 | | 1,610 | | 1,540 | | 235 | 131 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 985 | 91 | 276 | 1.85 | 2.13 | 17,000 |
| November | 640 | 153 | 224 | 1.50 | 1.67 | 13,300 |
| December | 4,030 | 145 | 861 | 5.78 | 6.66 | 52,900 |
| January | 1,280 | | 363 | 2.44 | 2.81 | 22,300 |
| February | 5,160 | 640 | 1,940 | 13.0 | 13.54 | 108,000 |
| March | 2,620 | 330 | 977 | 6.66 | 7.56 | 69,168 |
| April | 2,800 | 1,220 | 1,650 | 11.1 | 12.38 | 98,200 |
| May | 2,260 | 850 | 1,370 | 9.19 | 10.60 | 84,200 |
| June | 2,090 | 850 | 1,310 | 8.79 | 9.81 | 78,000 |
| July | 895 | 235 | 502 | 3.37 | 3.88 | 30,900 |
| August | 235 | 131 | 178 | 1.19 | 1.37 | 10,900 |
| September | 680 | 78 | 198 | 1.23 | 1.48 | 11,800 |
| The year | 5,160 | 78 | 811 | 5.44 | 73.89 | 588,000 |

TROUBLESOME CREEK NEAR INDEX, WASH.

LOCATION.—Water-stage recorder in NE. ¼ sec. 21, T. 28 N., R. 11 E. (unsurveyed), one-fourth mile above mouth and 9 miles northeast of Index.

DRAINAGE AREA.—10.4 square miles.

RECORDS AVAILABLE.—July, 1929, to September, 1930.

EXTREMES.—Maximum discharge during period, 632 second-feet (gage height, 3.95 feet); minimum, 11 second-feet Jan. 30 (gage height, 1.44 feet).

REMARKS.—Records good. Discharge, July 28, 1929, Aug. 8-19, 1930, estimated. No diversions or regulation.

Daily discharge, in second-feet, 1929-30

| Day | July | Aug. | Sept. | Day | July | Aug. | Sept. | Day | July | Aug. | Sept. |
|---------|------|------|-------|---------|------|------|-------|---------|------|------|-------|
| 1929 | | | | 1929 | | | | 1929 | | | |
| 1..... | | 86 | 39 | 11..... | | 59 | 32 | 21..... | 80 | 41 | 28 |
| 2..... | | 81 | 38 | 12..... | | 56 | 34 | 22..... | 72 | 38 | 27 |
| 3..... | | 74 | 35 | 13..... | | 51 | 36 | 23..... | 68 | 43 | 25 |
| 4..... | | 65 | 34 | 14..... | | 51 | 40 | 24..... | 71 | 53 | 22 |
| 5..... | | 60 | 34 | 15..... | | 50 | 39 | 25..... | 68 | 46 | 21 |
| 6..... | | 55 | 32 | 16..... | 100 | 49 | 36 | 26..... | 77 | 43 | 20 |
| 7..... | | 57 | 28 | 17..... | 89 | 48 | 37 | 27..... | 74 | 48 | 17 |
| 8..... | | 61 | 27 | 18..... | 96 | 48 | 32 | 28..... | 73 | 54 | 16 |
| 9..... | | 64 | 27 | 19..... | 95 | 53 | 30 | 29..... | 72 | 48 | 15 |
| 10..... | | 64 | 29 | 20..... | 86 | 45 | 29 | 30..... | 80 | 44 | 14 |
| | | | | | | | | 31..... | 85 | 43 | |

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1929-30 | | | | | | | | | | | | |
| 1..... | 14 | 26 | 16 | 71 | 67 | 37 | 127 | 91 | 149 | 116 | 54 | 30 |
| 2..... | 13 | 27 | 15 | 67 | 120 | 33 | 119 | 126 | 144 | 107 | 48 | 32 |
| 3..... | 13 | 28 | 15 | 64 | 127 | 29 | 111 | 134 | 144 | 91 | 49 | 34 |
| 4..... | 14 | 26 | 14 | 60 | 362 | 27 | 111 | 114 | 147 | 86 | 52 | 34 |
| 5..... | 31 | 24 | 14 | 54 | 504 | 25 | 107 | 98 | 116 | 101 | 56 | 34 |
| 6..... | 36 | 22 | 14 | 46 | 261 | 23 | 119 | 89 | 143 | 107 | 55 | 38 |
| 7..... | 31 | 22 | 14 | 41 | 173 | 23 | 212 | 81 | 208 | 98 | 55 | 35 |
| 8..... | 27 | 21 | 15 | 36 | 148 | 23 | 300 | 74 | 180 | 92 | 53 | 35 |
| 9..... | 27 | 20 | 16 | 32 | 113 | 23 | 196 | 66 | 144 | 99 | 52 | 38 |
| 10..... | 27 | 18 | 19 | 30 | 107 | 22 | 140 | 66 | 178 | 120 | 50 | 36 |
| 11..... | 25 | 17 | 21 | 28 | 115 | 24 | 115 | 76 | 185 | 130 | 49 | 36 |
| 12..... | 22 | 17 | 21 | 25 | 95 | 27 | 115 | 96 | 176 | 128 | 47 | 34 |
| 13..... | 22 | 16 | 22 | 22 | 78 | 27 | 131 | 132 | 147 | 142 | 46 | 35 |
| 14..... | 22 | 16 | 194 | 21 | 65 | 25 | 133 | 160 | 118 | 134 | 44 | 66 |
| 15..... | 21 | 14 | 164 | 19 | 77 | 24 | 133 | 171 | 122 | 110 | 43 | 65 |
| 16..... | 22 | 14 | 125 | 18 | 152 | 23 | 121 | 192 | 151 | 92 | 41 | 53 |
| 17..... | 40 | 18 | 98 | 17 | 229 | 23 | 105 | 160 | 140 | 75 | 40 | 48 |
| 18..... | 45 | 25 | 77 | 16 | 270 | 25 | 100 | 138 | 96 | 66 | 38 | 47 |
| 19..... | 50 | 31 | 60 | 15 | 369 | 28 | 100 | 130 | 98 | 65 | 37 | 41 |
| 20..... | 50 | 29 | 51 | 14 | 300 | 31 | 115 | 178 | 112 | 66 | 35 | 36 |
| 21..... | 47 | 27 | 45 | 15 | 186 | 72 | 154 | 169 | 134 | 72 | 34 | 35 |
| 22..... | 44 | 23 | 53 | 15 | 131 | 123 | 213 | 142 | 122 | 78 | 34 | 31 |
| 23..... | 39 | 22 | 111 | 15 | 102 | 100 | 198 | 126 | 107 | 82 | 35 | 27 |
| 24..... | 35 | 20 | 123 | 15 | 80 | 110 | 171 | 112 | 105 | 84 | 34 | 24 |
| 25..... | 31 | 19 | 178 | 15 | 64 | 187 | 153 | 98 | 103 | 70 | 32 | 22 |
| 26..... | 28 | 18 | 148 | 15 | 54 | 178 | 151 | 86 | 98 | 59 | 30 | 38 |
| 27..... | 38 | 17 | 115 | 14 | 46 | 175 | 149 | 87 | 122 | 54 | 30 | 47 |
| 28..... | 43 | 16 | 88 | 13 | 41 | 215 | 138 | 110 | 153 | 53 | 32 | 46 |
| 29..... | 40 | 16 | 72 | 12 | | 226 | 116 | 120 | 130 | 55 | 33 | 40 |
| 30..... | 35 | 16 | 72 | 11 | | 162 | 96 | 130 | 116 | 62 | 35 | 36 |
| 31..... | 30 | | 69 | 12 | | 140 | | 151 | | 59 | 31 | |

Monthly discharge of Troublesome Creek near Index, Wash., 1929-30

| Month | Discharge in second-feet | | | | Run-off | |
|-----------------|--------------------------|---------|------|-----------------|---------|-----------|
| | Maximum | Minimum | Mean | Per square mile | Inches | Acre-feet |
| 1929 | | | | | | |
| July 16-31..... | 100 | 68 | 80.4 | 7.73 | 4.60 | 2,550 |
| August..... | 86 | 38 | 54.1 | 5.20 | 6.00 | 3,330 |
| September..... | 40 | 14 | 29.1 | 2.80 | 3.12 | 1,730 |
| The period..... | | | | | | 7,610 |
| 1929-30 | | | | | | |
| October..... | 50 | 13 | 31.0 | 2.98 | 3.44 | 1,910 |
| November..... | 31 | 14 | 20.8 | 2.00 | 2.23 | 1,240 |
| December..... | 194 | 14 | 66.4 | 6.38 | 7.36 | 4,080 |
| January..... | 71 | 11 | 27.4 | 2.63 | 3.03 | 1,680 |
| February..... | 504 | 41 | 158. | 15.2 | 15.83 | 8,780 |
| March..... | 226 | 22 | 71.3 | 6.86 | 7.91 | 4,390 |
| April..... | 300 | 96 | 142. | 13.7 | 15.29 | 8,450 |
| May..... | 192 | 66 | 119. | 11.4 | 13.14 | 7,320 |
| June..... | 208 | 96 | 135. | 13.0 | 14.50 | 8,030 |
| July..... | 142 | 53 | 88.8 | 8.54 | 9.85 | 5,460 |
| August..... | 56 | 30 | 42.1 | 4.05 | 4.67 | 2,590 |
| September..... | 66 | 22 | 38.4 | 3.69 | 4.12 | 2,280 |
| The year..... | 504 | 11 | 77.7 | 7.47 | 101.37 | 56,200 |

WALLACE RIVER AT GOLD BAR, WASH.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 6, T. 27 N., R. 9 E., at highway bridge in Gold Bar.

DRAINAGE AREA.—18.7 square miles.

RECORDS AVAILABLE.—December, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,630 second-feet Feb. 1 (gage height, 6.64 feet); minimum, 9.6 second-feet Aug. 27, Sept. 3-5 (gage height, 0.32 foot).

1928-1930: Maximum discharge, that of Feb. 1, 1930; minimum, that of Aug. 27, Sept. 3-5, 1930.

REMARKS.—Records good. Discharge estimated Oct. 4. No diversions above station. Results of many discharge measurements furnished by Cascade Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|-------|-------|-----|-------|------|------|-------|
| 1..... | 14 | 38 | 25 | 213 | 1,140 | 68 | 155 | 105 | 258 | 68 | 16 | 10 |
| 2..... | 13 | 42 | 24 | 157 | 385 | 62 | 136 | 176 | 233 | 61 | 15 | 10 |
| 3..... | 14 | 35 | 21 | 271 | 184 | 60 | 165 | 128 | 186 | 57 | 15 | 9.6 |
| 4..... | 66 | 31 | 21 | 194 | 577 | 57 | 145 | 104 | 145 | 53 | 15 | 9.6 |
| 5..... | 118 | 28 | 21 | 148 | 477 | 57 | 145 | 94 | 145 | 52 | 14 | 9.6 |
| 6..... | 31 | 37 | 53 | 122 | 420 | 53 | 145 | 100 | 165 | 50 | 14 | 10 |
| 7..... | 185 | 33 | 48 | 105 | 392 | 52 | 506 | 90 | 136 | 49 | 14 | 16 |
| 8..... | 175 | 25 | 43 | 94 | 284 | 52 | 233 | 85 | 128 | 41 | 14 | 14 |
| 9..... | 70 | 31 | 218 | 84 | 176 | 56 | 136 | 82 | 111 | 41 | 14 | 16 |
| 10..... | 47 | 36 | 110 | 75 | 155 | 53 | 120 | 82 | 111 | 40 | 13 | 13 |
| 11..... | 43 | 30 | 78 | 70 | 198 | 62 | 108 | 86 | 111 | 38 | 13 | 12 |
| 12..... | 25 | 28 | 53 | 61 | 155 | 74 | 128 | 110 | 209 | 38 | 13 | 13 |
| 13..... | 21 | 25 | 136 | 57 | 128 | 59 | 136 | 120 | 145 | 35 | 12 | 18 |
| 14..... | 29 | 25 | 570 | 52 | 111 | 53 | 145 | 108 | 111 | 32 | 12 | 258 |
| 15..... | 18 | 25 | 213 | 55 | 233 | 47 | 258 | 120 | 111 | 30 | 12 | 95 |
| 16..... | 18 | 25 | 194 | 44 | 392 | 47 | 186 | 102 | 96 | 28 | 12 | 46 |
| 17..... | 480 | 66 | 139 | 42 | 311 | 47 | 136 | 96 | 86 | 27 | 12 | 36 |
| 18..... | 78 | 46 | 110 | 39 | 365 | 53 | 136 | 108 | 77 | 26 | 11 | 34 |
| 19..... | 136 | 37 | 107 | 37 | 448 | 71 | 136 | 198 | 77 | 25 | 11 | 30 |
| 20..... | 57 | 32 | 97 | 33 | 338 | 61 | 155 | 338 | 71 | 24 | 11 | 26 |
| 21..... | 45 | 29 | 91 | 32 | 198 | 284 | 186 | 186 | 88 | 23 | 11 | 23 |
| 22..... | 35 | 26 | 259 | 30 | 155 | 145 | 186 | 198 | 70 | 22 | 11 | 21 |
| 23..... | 32 | 25 | 175 | 30 | 128 | 101 | 155 | 176 | 72 | 21 | 11 | 20 |
| 24..... | 28 | 24 | 166 | 29 | 111 | 1,040 | 145 | 165 | 64 | 20 | 10 | 18 |
| 25..... | 25 | 43 | 296 | 29 | 98 | 690 | 120 | 128 | 60 | 20 | 10 | 18 |
| 26..... | 28 | 39 | 259 | 28 | 89 | 365 | 128 | 111 | 64 | 18 | 10 | 176 |
| 27..... | 165 | 33 | 157 | 27 | 81 | 298 | 198 | 111 | 96 | 18 | 9.9 | 165 |
| 28..... | 75 | 30 | 130 | 26 | 76 | 324 | 145 | 120 | 128 | 18 | 9.9 | 110 |
| 29..... | 52 | 29 | 112 | 30 | ----- | 284 | 110 | 111 | 88 | 17 | 9.9 | 68 |
| 30..... | 47 | 25 | 204 | 32 | ----- | 198 | 104 | 111 | 72 | 16 | 11 | 57 |
| 31..... | 43 | ----- | 139 | 122 | ----- | 165 | ----- | 165 | ----- | 16 | 10 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 480 | 13 | 71.4 | 3.82 | 4.40 | 4,390 |
| November..... | 66 | 24 | 32.6 | 1.74 | 1.94 | 1,940 |
| December..... | 570 | 21 | 138 | 7.38 | 8.51 | 8,480 |
| January..... | 271 | 26 | 76.4 | 4.09 | 4.72 | 4,700 |
| February..... | 1,140 | 76 | 279 | 14.9 | 15.52 | 15,500 |
| March..... | 1,040 | 47 | 163 | 8.72 | 10.05 | 10,000 |
| April..... | 506 | 104 | 163 | 8.72 | 9.73 | 9,700 |
| May..... | 338 | 82 | 129 | 6.90 | 7.96 | 7,930 |
| June..... | 258 | 60 | 117 | 6.26 | 6.98 | 6,960 |
| July..... | 66 | 16 | 33.0 | 1.76 | 2.03 | 2,030 |
| August..... | 16 | 9.9 | 12.2 | 0.652 | .75 | 750 |
| September..... | 258 | 9.6 | 45.4 | 2.43 | 2.71 | 2,700 |
| The year..... | 1,140 | 9.6 | 104 | 5.56 | 75.30 | 75,100 |

OLNEY CREEK NEAR STARTUP, WASH.

LOCATION.—Water-stage recorder in SE. ¼ sec. 12, T. 28 N., R. 8 E., 1½ miles above Stickney Bridge 5 miles northeast of Startup.

DRAINAGE AREA.—10 square miles.

RECORDS AVAILABLE.—October, 1922, to October, 1926; February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,730 second-feet Feb. 1 (gauge height, 6.36 feet); minimum, 6.2 second-feet Sept. 5 (gauge height, 0.72 foot).

1922-1926; 1929-30: Maximum discharge, that of Feb. 1, 1930; minimum, 3.8 second-feet Oct. 16, 1925 (gauge height, 0.67 foot).

REMARKS.—Records fair. Discharge estimated for periods represented by braced figures and July 3-20. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|-----|------|-------|------|------|-------|------|------|-------|------|-------|------|-------|-------|
| 1 | 30 | 23 | 13 | 192 | 898 | 30 | 58 | 50 | 181 | 29 | 7.4 | 6.5 | |
| 2 | | 24 | 12 | 114 | 354 | 29 | 50 | | 160 | 27 | 7.3 | 6.4 | |
| 3 | | 20 | 12 | 192 | 165 | 28 | 58 | | 94 | 26 | 7.3 | 6.3 | |
| 4 | | 18 | 11 | 140 | 441 | 26 | 61 | | 42 | 72 | 25 | 7.2 | 6.3 |
| 5 | | 17 | 24 | 92 | 304 | 27 | 61 | | 39 | 64 | 24 | 7.2 | 6.2 |
| 6 | 12 | 19 | 29 | 67 | 122 | 24 | 200 | 45 | 62 | 23 | 7.2 | 19 | |
| 7 | 10 | 17 | 32 | 53 | 253 | 26 | | 42 | 59 | 22 | 7.1 | 11 | |
| 8 | 10 | 16 | 48 | 46 | 155 | 28 | | 39 | 49 | 21 | 7.1 | 7.4 | |
| 9 | 52 | 21 | 78 | 39 | 90 | 35 | | 37 | 44 | 20 | 7.1 | 7.8 | |
| 10 | 24 | 27 | 91 | 36 | 158 | 32 | | 38 | 43 | 19 | 7.0 | 7.1 | |
| 11 | 15 | 22 | 60 | 31 | 119 | 39 | 100 | 39 | 69 | 18 | 7.0 | 7.0 | |
| 12 | 13 | 18 | 45 | 29 | 78 | 39 | | 42 | 106 | 17 | 6.9 | 7.1 | |
| 13 | 11 | 17 | 175 | 27 | 63 | 31 | | 48 | 56 | 16 | 6.8 | 7.3 | |
| 14 | 10 | 16 | 350 | 25 | 58 | 28 | | 50 | 46 | 15 | 6.8 | 206 | |
| 15 | 9.5 | 16 | 131 | 23 | 152 | 25 | | | 42 | 14 | 6.7 | 46 | |
| 16 | 8.9 | 28 | 163 | 21 | 199 | 23 | | | 63 | 36 | 13 | 6.9 | 25 |
| 17 | 208 | 49 | 107 | 20 | 152 | 21 | | | | 32 | 12 | 6.8 | 18 |
| 18 | 61 | 24 | 74 | 19 | 142 | 21 | 45 | 30 | | 11 | 6.7 | 16 | |
| 19 | 63 | 19 | 76 | 19 | 238 | 27 | 67 | 68 | 28 | 10 | 6.6 | 14 | |
| 20 | 37 | 17 | 61 | 17 | 148 | 30 | | 195 | 28 | 9.3 | 6.6 | 12 | |
| 21 | 30 | 16 | 69 | 16 | 92 | 179 | | 80 | 189 | 41 | 8.3 | 6.6 | 10 |
| 22 | 23 | 14 | 228 | 16 | 73 | 134 | | | 120 | 32 | 8.3 | 6.6 | 9.5 |
| 23 | 20 | 14 | 191 | 17 | 62 | 87 | | | 87 | 28 | 7.9 | 6.5 | 9.2 |
| 24 | 17 | 14 | 121 | 16 | 51 | 759 | 76 | | 26 | 7.9 | 6.5 | 8.6 | |
| 25 | 16 | 25 | 168 | 16 | 45 | 522 | 59 | | 23 | 7.9 | 6.5 | 8.6 | |
| 26 | 17 | 23 | 111 | 16 | 40 | 199 | 61 | | 50 | 24 | 7.8 | 6.5 | 71 |
| 27 | 77 | 19 | 142 | 16 | 35 | 136 | | 49 | 20 | 7.7 | 6.4 | 105 | |
| 28 | 50 | 17 | 81 | 16 | 32 | 131 | | 55 | 74 | 7.6 | 6.3 | 69 | |
| 29 | 33 | 15 | 72 | 17 | ----- | 107 | | 54 | 47 | 7.6 | 6.3 | 37 | |
| 30 | 28 | 14 | 140 | 41 | ----- | .76 | | 61 | 35 | 7.5 | 6.4 | 27 | |
| 31 | 23 | ----- | 101 | 139 | ----- | 65 | | ----- | 71 | ----- | 7.4 | 6.5 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 208 | 8.9 | 33.2 | 3.32 | 3.83 | 2,040 |
| November | 49 | 14 | 20.0 | 2.00 | 2.23 | 1,190 |
| December | 350 | 11 | 97.3 | 9.73 | 11.22 | 5,980 |
| January | 192 | 16 | 49.3 | 4.93 | 5.68 | 3,030 |
| February | 898 | 32 | 169 | 16.9 | 17.60 | 9,390 |
| March | 759 | 21 | 95.6 | 9.56 | 11.02 | 5,880 |
| April | | | 108 | 10.8 | 12.05 | 6,430 |
| May | 195 | | | 62.6 | 7.22 | 3,850 |
| June | 181 | 20 | 55.0 | 5.50 | 6.14 | 3,270 |
| July | 29 | 7.4 | 14.7 | 1.47 | 1.70 | 904 |
| August | | | 6.3 | 6.80 | .7 | 418 |
| September | 206 | 6.2 | 28.8 | 2.88 | 3.21 | 1,710 |
| The year | 898 | 6.2 | 60.9 | 6.09 | 82.68 | 44,100 |

MAY CREEK NEAR GOLD BAR, WASH.

LOCATION.—Staff gage in sec. 2, T. 27 N., R. 9 E., three-fourths mile below Lake Isabel and 3½ miles east of Gold Bar.

DRAINAGE AREA.—4.3 square miles.

RECORDS AVAILABLE.—September, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 98 second-feet June 12; maximum gage height, 2.33 feet Feb. 20; minimum, 1.1 second-feet Sept. 5, 6 (gage height, 0.27 foot).

1928-1930: Maximum discharge, 138 second-feet Oct. 9, 1928 (gage height, 2.83 feet); minimum, that of Sept. 5, 6, 1930.

REMARKS.—Records good; discharge estimated Oct. 5, 23, July 20-23, Sept. 20, 21. No diversions or regulation. Gage-height record and many discharge measurements furnished by Cascade Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 2.3 | 11 | 6.5 | 32 | 62 | 22 | 52 | 34 | 55 | 29 | 2.6 | 1.2 |
| 2 | 2.2 | 11 | 6.5 | 35 | 79 | 20 | 46 | 36 | 68 | 26 | 2.4 | 1.2 |
| 3 | 2.2 | 10 | 6.3 | 33 | 65 | 18 | 43 | 38 | 58 | 24 | 2.3 | 1.2 |
| 4 | 2.5 | 8.4 | 6.0 | 32 | 82 | 16 | 40 | 34 | 55 | 22 | 2.2 | 1.2 |
| 5 | 3.2 | 7.8 | 6.3 | 29 | 72 | 15 | 43 | 32 | 46 | 21 | 2.2 | 1.1 |
| 6 | 3.9 | 12 | 7.1 | 24 | 68 | 14 | 40 | 30 | 46 | 20 | 2.1 | 1.1 |
| 7 | 3.4 | 9.7 | 8.4 | 22 | 76 | 14 | 43 | 28 | 46 | 18 | 2.0 | 1.8 |
| 8 | 3.1 | 8.4 | 9.7 | 19 | 68 | 14 | 68 | 26 | 43 | 17 | 2.0 | 1.2 |
| 9 | 4.1 | 8.4 | 13 | 17 | 65 | 13 | 62 | 24 | 43 | 16 | 2.0 | 1.8 |
| 10 | 3.9 | 8.1 | 16 | 16 | 58 | 13 | 52 | 22 | 43 | 16 | 1.8 | 1.7 |
| 11 | 4.1 | 8.1 | 14 | 14 | 55 | 13 | 43 | 22 | 43 | 15 | 1.8 | 1.6 |
| 12 | 3.8 | 8.7 | 12 | 13 | 43 | 13 | 40 | 24 | 98 | 15 | 1.8 | 1.8 |
| 13 | 3.6 | 7.8 | 14 | 12 | 38 | 13 | 40 | 25 | 86 | 14 | 1.8 | 2.8 |
| 14 | 3.5 | 6.5 | 82 | 11 | 35 | 12 | 40 | 28 | 70 | 12 | 1.8 | 6.6 |
| 15 | 3.2 | 6.3 | 72 | 10 | 32 | 10 | 58 | 27 | 60 | 12 | 1.7 | 15 |
| 16 | 2.9 | 6.8 | 58 | 8.1 | 52 | 10 | 49 | 31 | 56 | 11 | 1.7 | 14 |
| 17 | 4.2 | 12 | 49 | 6.8 | 65 | 9.7 | 46 | 34 | 50 | 9.6 | 1.6 | 12 |
| 18 | 4.7 | 10 | 46 | 5.8 | 79 | 9.4 | 40 | 34 | 43 | 8.8 | 1.6 | 11 |
| 19 | 4.2 | 9.0 | 40 | 5.2 | 90 | 10 | 39 | 35 | 39 | 8.1 | 1.6 | 10 |
| 20 | 3.9 | 8.4 | 30 | 5.0 | 93 | 10 | 37 | 49 | 38 | 7.6 | 1.6 | 9.0 |
| 21 | 3.5 | 8.1 | 27 | 4.7 | 79 | 15 | 38 | 52 | 37 | 7.1 | 1.5 | 8.0 |
| 22 | 3.1 | 7.8 | 30 | 4.7 | 62 | 21 | 46 | 55 | 36 | 6.7 | 1.4 | 7.0 |
| 23 | 3.0 | 7.1 | 58 | 4.5 | 52 | 20 | 46 | 52 | 32 | 6.2 | 1.4 | 6.0 |
| 24 | 2.9 | 6.3 | 46 | 4.2 | 43 | 49 | 46 | 49 | 29 | 5.7 | 1.4 | 5.4 |
| 25 | 5.2 | 8.1 | 43 | 4.1 | 38 | 90 | 43 | 43 | 26 | 5.1 | 1.8 | 4.8 |
| 26 | 4.7 | 7.8 | 40 | 4.1 | 32 | 86 | 40 | 40 | 25 | 4.8 | 1.2 | 7.0 |
| 27 | 10 | 7.4 | 40 | 3.9 | 27 | 76 | 43 | 39 | 28 | 3.9 | 1.2 | 8.5 |
| 28 | 12 | 7.1 | 34 | 3.8 | 24 | 76 | 46 | 33 | 36 | 3.6 | 1.2 | 12 |
| 29 | 14 | 6.8 | 32 | 4.7 | 76 | 76 | 46 | 36 | 33 | 3.4 | 1.2 | 11 |
| 30 | 13 | 6.5 | 35 | 5.8 | 65 | 65 | 38 | 36 | 30 | 3.2 | 1.2 | 11 |
| 31 | 12 | 33 | 6.3 | 6.3 | 58 | 58 | 46 | 40 | 2.8 | 1.2 | 1.2 | --- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 14 | 2.2 | 4.91 | 1.14 | 1.31 | 302 |
| November | 12 | 6.3 | 8.38 | 1.95 | 2.18 | 499 |
| December | 82 | 6.0 | 29.7 | 6.91 | 7.97 | 1,830 |
| January | 35 | 3.8 | 12.9 | 3.00 | 3.46 | 793 |
| February | 93 | 24 | 58.4 | 13.6 | 14.16 | 3,240 |
| March | 90 | 9.4 | 29.1 | 6.77 | 7.80 | 1,790 |
| April | 68 | 37 | 45.1 | 10.5 | 11.71 | 2,680 |
| May | 55 | 22 | 35.1 | 8.16 | 9.41 | 2,160 |
| June | 98 | 25 | 46.6 | 10.8 | 12.05 | 2,770 |
| July | 29 | 2.8 | 12.1 | 2.81 | 3.24 | 744 |
| August | 2.6 | 1.2 | 1.70 | .395 | .46 | 105 |
| September | 15 | 1.1 | 5.92 | 1.38 | 1.54 | 352 |
| The year | 98 | 1.1 | 23.8 | 5.53 | 75.29 | 17,300 |

SULTAN RIVER NEAR SULTAN, WASH.

LOCATION.—Water-stage recorder in sec. 8, T. 28 N., R. 8 E., at Horseshoe Bend, 4½ miles north of Sultan and mouth.

DRAINAGE AREA.—88 square miles.

RECORDS AVAILABLE.—August, 1911, to October, 1926; February, 1929, to September, 1930.

EXTREMES.—Maximum stage recorded during year, 7,190 second-feet Feb. 1 (gage height, 9.9 feet); minimum, 39 second-feet Sept. 4 (gage height, 0.20 foot).

1911–1926, 1929–30: Maximum discharge, 24,600 second-feet Dec. 12, 1921 (gage height, 18.5 feet, from high-water mark in well); minimum, 31 second-feet Oct. 23, 1925 (gage height, –0.05 foot).

REMARKS.—Records excellent. City of Everett diverts water above station for municipal use.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 53 | 192 | 139 | 1,080 | 4,420 | 331 | 840 | 499 | 1,170 | 513 | 111 | 46 |
| 2 | 49 | 231 | 127 | 840 | 2,790 | 309 | 740 | 715 | 1,200 | 444 | 105 | 44 |
| 3 | 47 | 201 | 120 | 1,320 | 1,590 | 287 | 740 | 695 | 915 | 390 | 102 | 42 |
| 4 | 162 | 173 | 112 | 965 | 4,310 | 267 | 865 | 541 | 740 | 354 | 98 | 41 |
| 5 | 335 | 156 | 137 | 695 | 3,830 | 267 | 965 | 485 | 695 | 366 | 95 | 41 |
| 6 | 208 | 162 | 182 | 541 | 1,620 | 259 | 965 | 499 | 815 | 354 | 93 | 68 |
| 7 | 143 | 150 | 224 | 457 | 2,220 | 265 | 1,830 | 457 | 940 | 309 | 91 | 92 |
| 8 | 117 | 138 | 296 | 390 | 1,800 | 287 | 1,900 | 416 | 740 | 298 | 89 | 69 |
| 9 | 280 | 145 | 450 | 342 | 1,110 | 354 | 1,080 | 378 | 655 | 298 | 89 | 82 |
| 10 | 244 | 195 | 568 | 309 | 1,510 | 309 | 765 | 378 | 715 | 298 | 88 | 70 |
| 11 | 174 | 187 | 444 | 277 | 1,440 | 320 | 635 | 403 | 740 | 287 | 87 | 64 |
| 12 | 146 | 161 | 312 | 251 | 915 | 366 | 655 | 457 | 992 | 277 | 85 | 62 |
| 13 | 128 | 145 | 626 | 238 | 675 | 320 | 790 | 585 | 715 | 287 | 84 | 142 |
| 14 | 113 | 136 | 3,790 | 238 | 570 | 287 | 815 | 655 | 585 | 263 | 81 | 478 |
| 15 | 102 | 128 | 1,560 | 209 | 1,120 | 259 | 1,200 | 585 | 585 | 229 | 78 | 321 |
| 16 | 94 | 165 | 1,350 | 189 | 2,040 | 245 | 992 | 655 | 618 | 209 | 81 | 205 |
| 17 | 778 | 656 | 992 | 181 | 2,080 | 242 | 715 | 556 | 485 | 190 | 79 | 156 |
| 18 | 484 | 326 | 655 | 200 | 2,060 | 253 | 655 | 556 | 416 | 176 | 76 | 135 |
| 19 | 578 | 245 | 570 | 189 | 2,790 | 320 | 635 | 671 | 430 | 167 | 71 | 121 |
| 20 | 381 | 201 | 513 | 167 | 2,120 | 331 | 715 | 1,650 | 471 | 161 | 69 | 107 |
| 21 | 287 | 173 | 496 | 174 | 1,410 | 1,710 | 940 | 1,590 | 578 | 161 | 64 | 95 |
| 22 | 240 | 155 | 1,360 | 162 | 992 | 1,660 | 1,110 | 1,230 | 514 | 158 | 60 | 88 |
| 23 | 200 | 142 | 1,740 | 154 | 765 | 992 | 865 | 940 | 430 | 158 | 58 | 82 |
| 24 | 173 | 134 | 1,290 | 149 | 618 | 2,900 | 790 | 815 | 403 | 155 | 54 | 76 |
| 25 | 162 | 168 | 2,000 | 143 | 527 | 2,980 | 695 | 655 | 378 | 146 | 53 | 73 |
| 26 | 143 | 173 | 1,290 | 145 | 471 | 1,880 | 675 | 541 | 386 | 136 | 51 | 673 |
| 27 | 421 | 167 | 1,200 | 141 | 416 | 1,560 | 790 | 527 | 600 | 128 | 49 | 674 |
| 28 | 402 | 156 | 740 | 136 | 366 | 1,660 | 840 | 600 | 1,020 | 121 | 48 | 728 |
| 29 | 287 | 149 | 618 | 179 | ----- | 1,590 | 618 | 600 | 740 | 118 | 46 | 392 |
| 30 | 242 | 145 | 965 | 225 | ----- | 1,110 | 527 | 600 | 570 | 118 | 48 | 277 |
| 31 | 216 | ----- | 865 | 630 | ----- | 940 | ----- | 765 | ----- | 116 | 48 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|----------------------|
| October | 778 | 47 | 238 | 14,600 |
| November | 656 | 128 | 188 | 11,200 |
| December | 3,790 | 112 | 830 | 51,000 |
| January | 1,320 | 136 | 365 | 22,400 |
| February | 4,420 | 366 | 1,660 | 92,200 |
| March | 2,980 | 242 | 802 | 49,300 |
| April | 1,900 | 527 | 878 | 52,200 |
| May | 1,650 | 378 | 668 | 41,100 |
| June | 1,200 | 378 | 675 | 40,200 |
| July | 513 | 116 | 238 | 14,600 |
| August | 111 | 46 | 75.2 | 4,620 |
| September | 728 | 41 | 185 | 11,000 |
| The year | 4,420 | 41 | 559 | 404,000 |

MIDDLE FORK OF SNOQUALMIE RIVER NEAR NORTH BEND, WASH.

LOCATION.—Staff gage in sec. 34, T. 24 N., R. 8 E., at highway bridge 1½ miles north of North Bend.

DRAINAGE AREA.—173 square miles.

RECORDS AVAILABLE.—August, 1907, to September, 1926; February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 5,490 second-feet Feb. 1 (gage height, 7.3 feet); minimum, 132 second-feet Oct. 2, 3 (gage height, 1.40 feet). 1907–1926, 1929–30: Maximum discharge, 18,300 second-feet Dec. 18, 1917 (gage height, 12.2 feet); discharge may have been greater during floods of November, 1909, and November, 1910. Minimum discharge, 102 second-feet Oct. 24, 1925 (gage height, 1.15 feet).

REMARKS.—Records good. Discharge Mar. 15 estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 137 | 213 | 228 | 3,340 | 5,490 | 720 | 1,350 | 980 | 2,190 | 780 | 237 | 144 |
| 2 | 132 | 244 | 213 | 1,720 | 2,930 | 570 | 1,270 | 1,430 | 2,290 | 750 | 237 | 147 |
| 3 | 132 | 244 | 213 | 1,630 | 1,790 | 540 | 1,270 | 1,430 | 1,700 | 720 | 237 | 147 |
| 4 | 157 | 213 | 198 | 1,310 | 3,150 | 480 | 1,190 | 1,050 | 1,430 | 720 | 221 | 150 |
| 5 | 335 | 244 | 198 | 1,080 | 4,840 | 480 | 1,120 | 980 | 1,350 | 720 | 221 | 147 |
| 6 | 244 | 315 | 450 | 870 | 2,490 | 480 | 1,190 | 980 | 1,610 | 720 | 221 | 153 |
| 7 | 228 | 213 | 355 | 740 | 2,930 | 480 | 1,610 | 910 | 1,190 | 660 | 221 | 144 |
| 8 | 213 | 213 | 355 | 620 | 2,390 | 510 | 1,700 | 840 | 1,190 | 630 | 221 | 142 |
| 9 | 244 | 228 | 870 | 560 | 2,090 | 540 | 1,700 | 780 | 1,430 | 600 | 221 | 142 |
| 10 | 315 | 244 | 1,310 | 505 | 1,520 | 455 | 1,350 | 750 | 1,430 | 660 | 221 | 153 |
| 11 | 244 | 244 | 940 | 355 | 1,700 | 540 | 1,190 | 910 | 1,350 | 660 | 221 | 172 |
| 12 | 228 | 213 | 425 | 315 | 1,120 | 600 | 1,270 | 980 | 1,270 | 660 | 205 | 137 |
| 13 | 213 | 213 | 532 | 315 | 1,350 | 780 | 1,350 | 1,350 | 1,190 | 660 | 205 | 660 |
| 14 | 184 | 198 | 5,210 | 315 | 1,430 | 660 | 1,610 | 1,610 | 980 | 540 | 202 | 600 |
| 15 | 179 | 198 | 4,060 | 315 | 1,990 | 534 | 2,090 | 1,790 | 980 | 480 | 202 | 408 |
| 16 | 173 | 198 | 1,990 | 315 | 3,040 | 408 | 1,520 | 1,610 | 980 | 430 | 199 | 271 |
| 17 | 198 | 478 | 1,470 | 315 | 2,930 | 430 | 1,270 | 1,270 | 980 | 385 | 199 | 237 |
| 18 | 425 | 355 | 1,010 | 450 | 3,850 | 455 | 1,120 | 1,270 | 980 | 385 | 193 | 205 |
| 19 | 315 | 278 | 1,080 | 315 | 3,850 | 480 | 1,050 | 1,270 | 980 | 345 | 187 | 205 |
| 20 | 400 | 244 | 870 | 278 | 3,370 | 540 | 1,270 | 2,600 | 1,050 | 326 | 181 | 175 |
| 21 | 278 | 228 | 835 | 278 | 1,990 | 2,090 | 1,700 | 2,290 | 1,050 | 345 | 175 | 172 |
| 22 | 244 | 213 | 1,010 | 244 | 1,610 | 1,430 | 2,290 | 2,290 | 910 | 345 | 169 | 164 |
| 23 | 213 | 198 | 2,790 | 244 | 1,990 | 1,270 | 1,790 | 1,790 | 780 | 345 | 167 | 147 |
| 24 | 198 | 198 | 1,900 | 244 | 1,890 | 4,090 | 1,700 | 1,700 | 750 | 326 | 169 | 147 |
| 25 | 184 | 213 | 1,810 | 244 | 1,610 | 3,260 | 1,520 | 1,520 | 780 | 307 | 169 | 142 |
| 26 | 184 | 315 | 1,630 | 244 | 810 | 2,490 | 1,520 | 1,350 | 780 | 326 | 169 | 147 |
| 27 | 198 | 315 | 1,810 | 244 | 750 | 2,390 | 1,610 | 1,190 | 910 | 271 | 164 | 161 |
| 28 | 355 | 244 | 1,230 | 278 | 720 | 2,290 | 1,610 | 1,270 | 1,050 | 271 | 153 | 254 |
| 29 | 296 | 228 | 1,230 | 278 | 2,320 | 1,190 | 1,190 | 1,700 | 1,190 | 254 | 147 | 237 |
| 30 | 278 | 213 | 1,230 | 296 | 1,890 | 980 | 1,430 | 910 | 271 | 147 | 205 | 205 |
| 31 | 228 | ----- | 1,310 | 478 | ----- | 1,610 | ----- | 2,090 | ----- | 271 | 147 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 425 | 132 | 237 | 1.37 | 1.58 | 14,600 |
| November | 478 | 198 | 245 | 1.42 | 1.58 | 14,600 |
| December | 5,210 | 198 | 1,250 | 7.23 | 8.34 | 76,900 |
| January | 3,340 | 244 | 604 | 3.49 | 4.02 | 37,100 |
| February | 5,490 | 720 | 2,340 | 13.50 | 14.06 | 130,000 |
| March | 4,090 | 408 | 1,160 | 6.71 | 7.74 | 71,300 |
| April | 2,290 | 980 | 1,450 | 8.38 | 9.35 | 86,300 |
| May | 2,600 | 750 | 1,400 | 8.09 | 9.33 | 86,100 |
| June | 2,290 | 750 | 1,190 | 6.88 | 7.68 | 70,800 |
| July | 780 | 254 | 489 | 2.83 | 3.26 | 30,100 |
| August | 237 | 147 | 194 | 1.12 | 1.29 | 11,900 |
| September | 660 | 137 | 210 | 1.21 | 1.35 | 12,500 |
| The year | 5,490 | 132 | 887 | 5.12 | 69.58 | 642,000 |

SNOQUALMIE RIVER NEAR TOLT, WASH.

LOCATION.—Chain gage in sec. 9, T. 25 N., R. 7 E., at highway bridge 1 mile northwest of Tolt.

DRAINAGE AREA.—605 square miles.

RECORDS AVAILABLE.—February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 14,800 second-feet Dec. 14, Feb. 5 (gage height, 7.62 feet); minimum, 357 second-feet Sept. 11 (gage height, 0.34 foot).

1929-30: Maximum discharge, that of Dec. 14, 1929, Feb. 5, 1930; minimum, that of Sept. 11, 1930.

REMARKS.—Records good. Low-water flow diverted for power purposes at Snoqualmie Falls but returned to river above gage. Some regulation of flow caused by operation of power plant.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|--------|-------|--------|--------|-------|-------|-------|-------|------|-------|
| 1..... | 516 | 620 | 800 | 4,540 | 3,120 | 2,350 | 3,980 | 2,650 | 4,350 | 2,070 | 535 | 462 |
| 2..... | 497 | 598 | 645 | 6,500 | 11,600 | 2,210 | 3,800 | 2,800 | 5,790 | 1,800 | 535 | 446 |
| 3..... | 480 | 800 | 670 | 5,140 | 6,020 | 1,930 | 3,620 | 3,620 | 5,350 | 1,070 | 535 | 430 |
| 4..... | 446 | 670 | 730 | 5,350 | 6,020 | 1,930 | 3,620 | 3,120 | 4,350 | 1,550 | 535 | 462 |
| 5..... | 800 | 670 | 670 | 4,540 | 13,000 | 1,930 | 3,800 | 3,280 | 3,620 | 1,670 | 555 | 462 |
| 6..... | 1,550 | 700 | 765 | 3,800 | 7,840 | 2,070 | 3,620 | 2,650 | 3,800 | 1,440 | 535 | 462 |
| 7..... | 645 | 700 | 950 | 3,120 | 6,020 | 1,800 | 3,800 | 2,800 | 4,350 | 1,040 | 535 | 516 |
| 8..... | 700 | 870 | 1,040 | 2,650 | 11,600 | 1,930 | 8,700 | 2,500 | 3,980 | 1,080 | 535 | 497 |
| 9..... | 670 | 800 | 1,550 | 1,440 | 6,020 | 1,800 | 5,350 | 2,210 | 3,450 | 1,080 | 516 | 480 |
| 10..... | 700 | 835 | 2,960 | 1,440 | 4,740 | 1,800 | 4,160 | 2,350 | 3,280 | 995 | 555 | 480 |
| 11..... | 700 | 835 | 3,620 | 1,230 | 8,700 | 1,800 | 3,450 | 2,210 | 3,280 | 1,040 | 497 | 446 |
| 12..... | 645 | 730 | 2,650 | 1,330 | 5,570 | 1,930 | 3,280 | 2,210 | 3,450 | 995 | 497 | 480 |
| 13..... | 730 | 765 | 1,930 | 1,230 | 4,540 | 1,930 | 3,620 | 2,900 | 3,620 | 995 | 446 | 497 |
| 14..... | 575 | 700 | 12,800 | 1,230 | 4,940 | 1,800 | 4,160 | 3,450 | 2,960 | 910 | 480 | 645 |
| 15..... | 555 | 700 | 11,600 | 1,130 | 5,140 | 1,550 | 4,540 | 3,120 | 2,500 | 870 | 480 | 1,130 |
| 16..... | 516 | 730 | 6,760 | 1,040 | 9,300 | 1,550 | 4,540 | 3,280 | 2,650 | 870 | 462 | 598 |
| 17..... | 620 | 950 | 7,020 | 1,440 | 9,300 | 1,440 | 3,620 | 3,280 | 2,650 | 800 | 497 | 555 |
| 18..... | 1,440 | 1,080 | 3,980 | 950 | 9,300 | 1,670 | 3,280 | 2,800 | 2,210 | 730 | 497 | 516 |
| 19..... | 910 | 800 | 3,620 | 1,130 | 11,900 | 1,330 | 3,120 | 2,500 | 2,070 | 765 | 480 | 598 |
| 20..... | 1,280 | 800 | 3,450 | 1,130 | 11,900 | 1,550 | 3,280 | 2,650 | 2,070 | 645 | 497 | 516 |
| 21..... | 1,040 | 870 | 2,800 | 1,130 | 7,560 | 2,070 | 3,800 | 5,140 | 2,070 | 645 | 480 | 535 |
| 22..... | 730 | 730 | 3,280 | 800 | 5,140 | 7,840 | 4,940 | 5,400 | 1,930 | 645 | 430 | 415 |
| 23..... | 730 | 670 | 10,600 | 800 | 4,740 | 4,940 | 4,940 | 5,140 | 1,930 | 670 | 462 | 415 |
| 24..... | 645 | 765 | 6,020 | 870 | 3,980 | 4,740 | 4,160 | 5,350 | 1,800 | 670 | 462 | 516 |
| 25..... | 620 | 765 | 5,140 | 730 | 3,450 | 13,000 | 3,800 | 4,740 | 1,670 | 620 | 480 | 430 |
| 26..... | 670 | 1,080 | 5,570 | 800 | 3,120 | 9,300 | 3,620 | 3,980 | 1,670 | 645 | 430 | 446 |
| 27..... | 620 | 1,040 | 4,940 | 670 | 2,800 | 6,760 | 3,800 | 3,450 | 1,930 | 620 | 480 | 870 |
| 28..... | 1,130 | 950 | 4,350 | 730 | 2,500 | 6,260 | 4,350 | 3,450 | 2,500 | 620 | 430 | 835 |
| 29..... | 995 | 870 | 3,280 | 800 | ----- | 7,020 | 3,620 | 3,450 | 2,650 | 555 | 462 | 645 |
| 30..... | 730 | 670 | 3,450 | 800 | ----- | 5,790 | 2,960 | 3,280 | 2,070 | 516 | 446 | 620 |
| 31..... | 700 | ----- | 4,540 | 1,130 | ----- | 4,740 | ----- | 3,620 | ----- | 620 | 480 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 1,550 | 446 | 761 | 1.26 | 1.45 | 46,800 |
| November..... | 1,080 | 598 | 792 | 1.31 | 1.46 | 47,100 |
| December..... | 12,800 | 645 | 3,930 | 6.50 | 7.49 | 242,000 |
| January..... | 6,500 | 670 | 1,920 | 3.17 | 3.66 | 118,000 |
| February..... | 13,000 | 2,500 | 6,780 | 11.2 | 11.66 | 377,000 |
| March..... | 13,000 | 1,330 | 3,510 | 5.80 | 6.69 | 216,000 |
| April..... | 8,700 | 2,960 | 4,040 | 6.68 | 7.45 | 240,000 |
| May..... | 8,400 | 2,210 | 3,430 | 5.67 | 6.54 | 211,000 |
| June..... | 5,790 | 1,670 | 3,000 | 4.96 | 5.53 | 179,000 |
| July..... | 2,070 | 516 | 963 | 1.59 | 1.83 | 59,200 |
| August..... | 555 | 430 | 492 | .813 | .94 | 30,300 |
| September..... | 1,130 | 415 | 547 | .904 | 1.01 | 32,500 |
| The year..... | 13,000 | 415 | 2,480 | 4.10 | 55.71 | 1,800,000 |

NORTH FORK OF SNOQUALMIE RIVER NEAR SNOQUALMIE FALLS, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 30, T. 25 N., R. 9 E., 1 mile above Calligan Creek and 8 miles northeast of Snoqualmie Falls.

DRAINAGE AREA.—65 square miles.

RECORDS AVAILABLE.—August, 1929, to September, 1930.

EXTREMES.—Maximum discharge during period, 4,190 second-feet Feb. 1 (gage height, 11.27 feet); minimum, 30 second-feet Sept. 17-19, 1929 (gage height, 1.91 feet).

REMARKS.—Records excellent except those for Jan. 11-28, which were estimated because of ice. Discharge Sept. 1, 8, 15, 22, 23, 29, Oct. 4, 5, 1929, also estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1----- | 44 | 40 | 91 | 108 | 1,120 | 2,640 | 217 | 505 | 327 | 660 | 248 | 58 | 37 |
| 2----- | 44 | 39 | 106 | 98 | 740 | 1,200 | 206 | 457 | 505 | 840 | 221 | 56 | 36 |
| 3----- | 42 | 39 | 92 | 91 | 654 | 700 | 194 | 426 | 489 | 605 | 187 | 55 | 35 |
| 4----- | 39 | 115 | 84 | 85 | 571 | 1,720 | 185 | 457 | 359 | 489 | 171 | 54 | 34 |
| 5----- | 38 | 260 | 87 | 104 | 473 | 2,290 | 187 | 505 | 296 | 473 | 172 | 53 | 34 |
| 6----- | 37 | 136 | 138 | 161 | 365 | 940 | 178 | 505 | 336 | 565 | 166 | 53 | 40 |
| 7----- | 36 | 105 | 111 | 144 | 288 | 1,360 | 178 | 1,110 | 296 | 588 | 150 | 52 | 41 |
| 8----- | 35 | 86 | 100 | 163 | 250 | 1,170 | 189 | 1,120 | 255 | 489 | 143 | 51 | 42 |
| 9----- | 34 | 124 | 116 | 285 | 213 | 660 | 194 | 622 | 236 | 457 | 137 | 49 | 56 |
| 10----- | 33 | 120 | 149 | 469 | 196 | 897 | 185 | 457 | 234 | 457 | 136 | 49 | 51 |
| 11----- | 32 | 94 | 131 | 380 | | 885 | 202 | 410 | 272 | 457 | 126 | 47 | 48 |
| 12----- | 32 | 84 | 117 | 248 | | 571 | 253 | 457 | 315 | 473 | 121 | 47 | 51 |
| 13----- | 32 | 79 | 109 | 415 | | 457 | 208 | 505 | 441 | 426 | 117 | 45 | 76 |
| 14----- | 32 | 73 | 101 | 2,490 | | 555 | 185 | 571 | 489 | 327 | 113 | 44 | 276 |
| 15----- | 32 | 68 | 98 | 1,080 | 130 | 1,100 | 169 | 660 | 426 | 362 | 106 | 44 | 142 |
| 16----- | 31 | 67 | 130 | 820 | | 1,400 | 158 | 473 | 489 | 362 | 100 | 44 | 96 |
| 17----- | 30 | 236 | 389 | 571 | | 1,200 | 156 | 395 | 380 | 257 | 98 | 45 | 83 |
| 18----- | 30 | 177 | 223 | 410 | | 1,330 | 156 | 380 | 327 | 234 | 93 | 44 | 74 |
| 19----- | 30 | 253 | 155 | 395 | | 1,730 | 176 | 410 | 386 | 267 | 90 | 43 | 68 |
| 20----- | 34 | 198 | 130 | 371 | | 1,260 | 187 | 505 | 1,030 | 288 | 87 | 41 | 64 |
| 21----- | 42 | 150 | 115 | 321 | | 802 | 862 | 700 | 980 | 296 | 86 | 41 | 60 |
| 22----- | 80 | 121 | 105 | 555 | | 605 | 845 | 720 | 1,030 | 250 | 83 | 41 | 57 |
| 23----- | 90 | 104 | 97 | 1,170 | | 489 | 457 | 554 | 740 | 223 | 80 | 40 | 55 |
| 24----- | 78 | 91 | 91 | 680 | 110 | 395 | 1,520 | 522 | 660 | 213 | 77 | 39 | 52 |
| 25----- | 69 | 82 | 144 | 885 | | 333 | 1,590 | 473 | 554 | 204 | 74 | 39 | 51 |
| 26----- | 57 | 83 | 162 | 627 | | 285 | 1,030 | 489 | 441 | 223 | 70 | 38 | 130 |
| 27----- | 53 | 164 | 148 | 634 | | 250 | 820 | 554 | 441 | 377 | 66 | 37 | 112 |
| 28----- | 50 | 158 | 134 | 457 | | 225 | 930 | 522 | 489 | 489 | 64 | 37 | 186 |
| 29----- | 46 | 124 | 121 | 380 | 119 | ----- | 908 | 395 | 457 | 327 | 62 | 36 | 114 |
| 30----- | 43 | 110 | 115 | 677 | 117 | ----- | 640 | 318 | 457 | 267 | 61 | 36 | 97 |
| 31----- | 99 | ----- | ----- | 576 | 259 | ----- | 554 | ----- | 538 | ----- | 59 | 37 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| 1929 | | | | | | |
| September | 90 | 30 | 43.5 | 0.669 | 0.75 | 2,590 |
| 1929-30 | | | | | | |
| October | 260 | 39 | 119 | 1.83 | 2.11 | 7,320 |
| November | 389 | 84 | 130 | 2.00 | 2.23 | 7,740 |
| December | 2,490 | 85 | 511 | 7.86 | 9.06 | 31,400 |
| January | 1,120 | | 243 | 3.74 | 4.31 | 14,900 |
| February | 2,640 | 225 | 980 | 15.1 | 15.72 | 54,400 |
| March | 1,590 | 156 | 449 | 6.91 | 7.97 | 27,600 |
| April | 1,120 | 318 | 539 | 8.29 | 9.25 | 32,100 |
| May | 1,030 | 234 | 473 | 7.28 | 8.39 | 29,100 |
| June | 840 | 204 | 398 | 6.12 | 6.83 | 23,700 |
| July | 248 | 59 | 115 | 1.77 | 2.04 | 7,070 |
| August | 58 | 36 | 45.0 | .692 | .80 | 2,770 |
| September | 276 | 34 | 76.6 | 1.18 | 1.32 | 4,560 |
| The year | 2,640 | 34 | 335 | 5.15 | 70.03 | 243,000 |

NOTE.—Discharge Aug. 31, 1929, 43 second-feet (gage height 2.13).

NORTH FORK OF SNOQUALMIE RIVER NEAR NORTH BEND, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 26, T. 24 N., R. 8 E., 2 miles above mouth and $3\frac{1}{2}$ miles northeast of North Bend.

DRAINAGE AREA.—105 square miles.

RECORDS AVAILABLE.—July, 1907, to September, 1926; February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 4,610 second-feet Feb. 1 (gage height, 6.47 feet); minimum, 54 second-feet Aug. 31, Sept. 1.

1907–1926, 1929–30: Maximum discharge, 11,100 second-feet Nov. 18, 1911 (gage height by leveling to high-water mark, 14.5 feet); water above gage Nov. 18, 19, 23, 24, 29, 30, 1909; stage and discharge may have exceeded those of 1911. Minimum, that of Aug. 31, Sept. 1, 1930.

REMARKS.—Records good except those of Jan. 11–23, which were estimated because of ice. Discharge Aug. 19–31 also estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 71 | 154 | 172 | 1,350 | 2,560 | 318 | 753 | 464 | 893 | 354 | 90 | 54 |
| 2..... | 70 | 152 | 160 | 1,020 | 1,580 | 287 | 649 | 628 | 1,280 | 322 | 90 | 55 |
| 3..... | 68 | 138 | 152 | 928 | 955 | 278 | 600 | 663 | 964 | 284 | 89 | 55 |
| 4..... | 133 | 127 | 144 | 817 | 1,920 | 263 | 656 | 505 | 769 | 266 | 89 | 55 |
| 5..... | 267 | 129 | 166 | 685 | 2,640 | 263 | 700 | 431 | 715 | 260 | 86 | 55 |
| 6..... | 192 | 190 | 263 | 561 | 2,510 | 254 | 730 | 470 | 793 | 248 | 80 | 60 |
| 7..... | 150 | 170 | 245 | 464 | 1,570 | 248 | 1,140 | 431 | 825 | 233 | 81 | 64 |
| 8..... | 129 | 154 | 260 | 410 | 1,600 | 257 | 1,740 | 385 | 700 | 221 | 78 | 60 |
| 9..... | 158 | 160 | 390 | 358 | 973 | 260 | 982 | 362 | 635 | 209 | 76 | 71 |
| 10..... | 170 | 200 | 614 | 330 | 1,050 | 254 | 730 | 346 | 628 | 203 | 76 | 71 |
| 11..... | 136 | 186 | 547 | 200 | 1,220 | 266 | 614 | 375 | 621 | 194 | 75 | 70 |
| 12..... | 124 | 168 | 385 | | 785 | 318 | 600 | 400 | 635 | 186 | 72 | 70 |
| 13..... | 115 | 160 | 570 | | 670 | 281 | 700 | 511 | 628 | 182 | 68 | 75 |
| 14..... | 106 | 152 | 2,740 | | 730 | 254 | 730 | 600 | 493 | 176 | 67 | 272 |
| 15..... | 101 | 146 | 1,430 | | 1,210 | 236 | 955 | 499 | 481 | 168 | 66 | 199 |
| 16..... | 97 | 164 | 1,070 | 190 | 1,700 | 221 | 785 | 580 | 548 | 160 | 66 | 135 |
| 17..... | 224 | 377 | 809 | | 1,530 | 218 | 614 | 481 | 405 | 162 | 67 | 118 |
| 18..... | 244 | 278 | 607 | | 1,480 | 218 | 580 | 426 | 362 | 160 | 66 | 106 |
| 19..... | 252 | 218 | 561 | | 1,940 | 230 | 548 | 466 | 366 | 156 | 66 | 99 |
| 20..... | 248 | 186 | 529 | | 1,530 | 248 | 628 | 1,210 | 410 | 152 | 65 | 90 |
| 21..... | 194 | 170 | 470 | 182 | 1,030 | 817 | 809 | 1,330 | 395 | 148 | 64 | 87 |
| 22..... | 172 | 158 | 653 | | 785 | 958 | 973 | 1,480 | 358 | 144 | 63 | 82 |
| 23..... | 150 | 148 | 1,320 | | 656 | 568 | 777 | 1,110 | 318 | 138 | 62 | 80 |
| 24..... | 135 | 144 | 825 | | 548 | 1,530 | 722 | 1,010 | 298 | 120 | 61 | 75 |
| 25..... | 129 | 218 | 1,010 | | 475 | 1,820 | 649 | 876 | 290 | 117 | 60 | 72 |
| 26..... | 140 | 251 | 785 | 160 | 420 | 1,350 | 621 | 692 | 298 | 111 | 59 | 133 |
| 27..... | 156 | 230 | 761 | 158 | 375 | 1,170 | 722 | 656 | 453 | 108 | 58 | 152 |
| 28..... | 172 | 212 | 594 | 154 | 342 | 1,260 | 753 | 685 | 600 | 102 | 57 | 217 |
| 29..... | 184 | 194 | 505 | 168 | ----- | 1,300 | 594 | 656 | 470 | 99 | 56 | 154 |
| 30..... | 190 | 180 | 751 | 172 | ----- | 937 | 487 | 649 | 385 | 96 | 55 | 135 |
| 31..... | 172 | ----- | 700 | 279 | ----- | 785 | ----- | 745 | ----- | 94 | 54 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 267 | 68 | 157 | 1.50 | 1.73 | 9,650 |
| November..... | 377 | 127 | 184 | 1.75 | 1.95 | 10,900 |
| December..... | 2,740 | 144 | 651 | 6.20 | 7.15 | 40,000 |
| January..... | 1,350 | ----- | 351 | 3.34 | 3.85 | 21,600 |
| February..... | 2,640 | 342 | 1,240 | 11.8 | 12.29 | 68,900 |
| March..... | 1,820 | 218 | 570 | 5.43 | 6.26 | 35,000 |
| April..... | 1,740 | 487 | 751 | 7.15 | 7.98 | 44,700 |
| May..... | 1,480 | 346 | 649 | 6.16 | 7.12 | 39,900 |
| June..... | 1,260 | 290 | 567 | 5.40 | 6.02 | 33,700 |
| July..... | 354 | 94 | 180 | 1.71 | 1.97 | 11,100 |
| August..... | 90 | 54 | 69.7 | .664 | .77 | 4,290 |
| September..... | 272 | 54 | 101 | .962 | 1.07 | 6,010 |
| The year..... | 2,740 | 54 | 450 | 4.29 | 58.16 | 326,000 |

SOUTH FORK OF SNOQUALMIE RIVER AT NORTH BEND, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 9, T. 23 N., R. 8 E., half a mile south of North Bend and $3\frac{1}{2}$ miles above mouth.

DRAINAGE AREA.—84 square miles.

RECORDS AVAILABLE.—July, 1907, to September, 1926; February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,900 second-feet Feb. 19 (gage height, 5.77 feet); minimum, 73 second-feet Sept. 23, 24 (gage height, 1.23 feet).

1907-1926, 1929-30: Water over gage Nov. 3, 4, 19, 23, 29, 1909 (gage height and discharge not determined); minimum discharge, 63 second-feet Oct. 22, 1925 (gage height, 1.14 feet).

REMARKS.—Records excellent. Discharge Jan. 9-11, July 1-15, estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|------|-------|-------|-------|-----|-------|------|------|-------|
| 1 | 81 | 95 | 88 | 808 | 442 | 388 | 715 | 530 | 657 | 330 | 133 | 82 |
| 2 | 83 | 91 | 91 | 762 | 828 | 364 | 670 | 610 | 767 | 322 | 131 | 79 |
| 3 | 83 | 93 | 91 | 645 | 590 | 357 | 630 | 630 | 677 | 315 | 129 | 78 |
| 4 | 91 | 87 | 89 | 550 | 751 | 350 | 610 | 530 | 590 | 307 | 125 | 79 |
| 5 | 129 | 89 | 97 | 460 | 1,430 | 350 | 570 | 494 | 577 | 300 | 124 | 79 |
| 6 | 123 | 101 | 117 | 388 | 962 | 341 | 610 | 486 | 617 | 292 | 122 | 79 |
| 7 | 105 | 99 | 115 | 330 | 895 | 334 | 760 | 462 | 657 | 284 | 120 | 78 |
| 8 | 99 | 91 | 127 | 290 | 895 | 334 | 1,060 | 420 | 570 | 277 | 116 | 77 |
| 9 | 107 | 89 | 236 | 271 | 650 | 325 | 805 | 398 | 557 | 269 | 116 | 76 |
| 10 | 113 | 91 | 377 | 252 | 675 | 316 | 650 | 392 | 537 | 262 | 112 | 77 |
| 11 | 99 | 89 | 316 | 233 | 805 | 319 | 590 | 430 | 506 | 254 | 109 | 82 |
| 12 | 95 | 87 | 236 | 215 | 630 | 341 | 610 | 454 | 502 | 246 | 106 | 81 |
| 13 | 89 | 87 | 234 | 209 | 570 | 328 | 692 | 530 | 577 | 239 | 102 | 79 |
| 14 | 87 | 83 | 901 | 193 | 570 | 315 | 738 | 610 | 482 | 231 | 100 | 92 |
| 15 | 85 | 83 | 1,000 | 182 | 742 | 300 | 805 | 570 | 452 | 223 | 100 | 111 |
| 16 | 85 | 89 | 700 | 163 | 1,100 | 291 | 692 | 610 | 490 | 215 | 100 | 92 |
| 17 | 97 | 101 | 532 | 129 | 1,100 | 291 | 590 | 530 | 426 | 215 | 99 | 85 |
| 18 | 107 | 102 | 392 | 169 | 1,160 | 291 | 570 | 482 | 395 | 208 | 94 | 81 |
| 19 | 109 | 94 | 348 | 166 | 1,730 | 303 | 550 | 510 | 395 | 202 | 86 | 79 |
| 20 | 119 | 88 | 340 | 153 | 1,480 | 322 | 610 | 771 | 402 | 197 | 86 | 77 |
| 21 | 101 | 86 | 322 | 144 | 1,060 | 687 | 760 | 872 | 389 | 188 | 85 | 76 |
| 22 | 95 | 84 | 448 | 144 | 828 | 962 | 918 | 940 | 364 | 179 | 84 | 74 |
| 23 | 87 | 84 | 1,000 | 142 | 692 | 670 | 828 | 760 | 347 | 175 | 84 | 73 |
| 24 | 85 | 82 | 775 | 138 | 590 | 1,000 | 738 | 715 | 338 | 171 | 84 | 73 |
| 25 | 81 | 101 | 775 | 136 | 530 | 1,260 | 670 | 670 | 331 | 164 | 84 | 74 |
| 26 | 81 | 112 | 725 | 136 | 470 | 1,100 | 550 | 590 | 331 | 158 | 84 | 81 |
| 27 | 119 | 107 | 675 | 134 | 434 | 962 | 692 | 570 | 354 | 154 | 84 | 92 |
| 28 | 143 | 99 | 550 | 132 | 406 | 1,010 | 692 | 590 | 378 | 148 | 82 | 92 |
| 29 | 123 | 96 | 444 | 134 | ----- | 1,130 | 590 | 570 | 354 | 144 | 82 | 86 |
| 30 | 107 | 91 | 541 | 142 | ----- | 918 | 530 | 570 | 338 | 139 | 82 | 81 |
| 31 | 99 | ----- | 580 | 162 | ----- | 805 | ----- | 590 | ----- | 135 | 82 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 143 | 81 | 100 | 1.19 | 1.37 | 6,150 |
| November | 112 | 82 | 92.4 | 1.10 | 1.23 | 5,500 |
| December | 1,000 | 88 | 428 | 5.10 | 5.88 | 26,300 |
| January | 808 | 129 | 262 | 3.12 | 3.60 | 16,100 |
| February | 1,730 | 406 | 822 | 9.79 | 10.20 | 45,700 |
| March | 1,260 | 291 | 550 | 6.55 | 7.55 | 33,800 |
| April | 1,060 | 530 | 686 | 8.17 | 9.12 | 40,800 |
| May | 940 | 392 | 577 | 6.87 | 7.92 | 35,500 |
| June | 760 | 331 | 477 | 5.68 | 6.34 | 28,400 |
| July | 330 | 135 | 224 | 2.67 | 3.08 | 13,800 |
| August | 133 | 82 | 101 | 1.20 | 1.38 | 6,210 |
| September | 111 | 73 | 81.5 | .970 | 1.08 | 4,850 |
| The year | 1,730 | 73 | 363 | 4.32 | 58.75 | 263,000 |

TOKUL CREEK NEAR SNOQUALMIE, WASH.

LOCATION.—Staff gage in sec. 19, T. 24 N., R. 8 E., 800 feet above mouth and 1½ miles north of Snoqualmie.

DRAINAGE AREA.—35.5 square miles.

RECORDS AVAILABLE.—March, 1929, to September, 1930; July, 1907, to October, 1914, for station 1½ miles above.

EXTREMES.—Maximum discharge during year, 343 second-feet Dec. 15 (gage height, 1.86 feet); minimum, 22 second-feet Aug. 30 to Sept. 6, Sept. 9, 13, 17-25, 27, 30 (gage height, 0.58 foot).

1907-1914, 1929-30: Maximum discharge not determined; minimum, 13 second-feet Sept. 16-20, 1909 (gage height, 1.5 feet on former gage).

REMARKS.—Records good except those for Jan. 13-28, which were estimated because of ice. Small diversion furnishes water for Snoqualmie Falls lumber mill and settlement.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 23 | 28 | 37 | 152 | 64 | 100 | 100 | 69 | 86 | 52 | 28 | 22 |
| 2 | 23 | 28 | 31 | 255 | 79 | 91 | 95 | 64 | 123 | 47 | 28 | 22 |
| 3 | 23 | 28 | 31 | 283 | 76 | 86 | 86 | 64 | 144 | 47 | 28 | 22 |
| 4 | 23 | 27 | 31 | 322 | 79 | 86 | 95 | 64 | 123 | 47 | 28 | 22 |
| 5 | 28 | 27 | 30 | 332 | 95 | 79 | 95 | 61 | 110 | 43 | 28 | 22 |
| 6 | 28 | 30 | 34 | 283 | 123 | 79 | 86 | 64 | 100 | 43 | 27 | 22 |
| 7 | 26 | 30 | 34 | 255 | 130 | 79 | 86 | 69 | 91 | 41 | 27 | 25 |
| 8 | 25 | 27 | 34 | 193 | 168 | 79 | 86 | 64 | 86 | 41 | 27 | 24 |
| 9 | 28 | 28 | 55 | 227 | 236 | 76 | 100 | 64 | 79 | 40 | 27 | 22 |
| 10 | 28 | 42 | 131 | 227 | 210 | 76 | 91 | 61 | 76 | 40 | 27 | 24 |
| 11 | 28 | 34 | 203 | 210 | 246 | 72 | 86 | 59 | 72 | 38 | 27 | 24 |
| 12 | 27 | 30 | 165 | 100 | 236 | 72 | 79 | 59 | 72 | 38 | 25 | 24 |
| 13 | 26 | 28 | 138 | 210 | 69 | 76 | 56 | 79 | 38 | 25 | 22 | 22 |
| 14 | 26 | 30 | 311 | 210 | 79 | 79 | 56 | 69 | 38 | 25 | 24 | 24 |
| 15 | 26 | 30 | 343 | 210 | 79 | 79 | 52 | 64 | 35 | 24 | 24 | 24 |
| 16 | 26 | 30 | 274 | 40 | 293 | 61 | 100 | 52 | 64 | 35 | 25 | 24 |
| 17 | 28 | 37 | 255 | | 302 | 59 | 91 | 52 | 61 | 35 | 27 | 22 |
| 18 | 26 | 34 | 184 | | 274 | 59 | 86 | 52 | 59 | 33 | 25 | 22 |
| 19 | 26 | 30 | 168 | | 274 | 56 | 79 | 52 | 56 | 33 | 24 | 22 |
| 20 | 28 | 30 | 160 | | 255 | 59 | 79 | 69 | 56 | 33 | 24 | 22 |
| 21 | 28 | 28 | 144 | | 227 | 69 | 76 | 91 | 52 | 32 | 24 | 22 |
| 22 | 28 | 28 | 144 | | 193 | 91 | 76 | 193 | 52 | 32 | 24 | 22 |
| 23 | 28 | 28 | 193 | | 184 | 91 | 72 | 152 | 52 | 32 | 24 | 22 |
| 24 | 28 | 28 | 193 | | 168 | 95 | 69 | 168 | 50 | 30 | 24 | 22 |
| 25 | 27 | 40 | 193 | 40 | 144 | 246 | 69 | 168 | 50 | 30 | 24 | 22 |
| 26 | 28 | 94 | 168 | | 130 | 227 | 69 | 144 | 50 | 30 | 24 | 24 |
| 27 | 30 | 40 | 152 | | 117 | 193 | 69 | 117 | 50 | 30 | 24 | 22 |
| 28 | 30 | 37 | 144 | | 110 | 160 | 76 | 110 | 50 | 30 | 24 | 30 |
| 29 | 30 | 37 | 144 | 52 | | 160 | 72 | 110 | 49 | 30 | 24 | 25 |
| 30 | 28 | 37 | 144 | 56 | | 123 | 69 | 95 | 47 | 30 | 22 | 22 |
| 31 | 28 | | 130 | 56 | | 110 | | 91 | | 28 | 22 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 30 | 23 | 26.9 | 1,650 |
| November | 94 | 27 | 33.5 | 1,990 |
| December | 343 | 30 | 142 | 8,730 |
| January | 332 | | 118 | 7,260 |
| February | 302 | 64 | 180 | 10,000 |
| March | 246 | 56 | 98.7 | 6,070 |
| April | 100 | 69 | 82.4 | 4,900 |
| May | 193 | 52 | 85.2 | 5,240 |
| June | 144 | 47 | 72.4 | 4,310 |
| July | 52 | 28 | 36.5 | 2,240 |
| August | 28 | 22 | 25.4 | 1,560 |
| September | 30 | 22 | 23.0 | 1,370 |
| The year | 343 | 22 | 76.4 | 55,300 |

TOLT RIVER NEAR TOLT, WASH.

LOCATION.—Water-stage recorder in sec. 31, T. 26 N., R. 8 E., 150 feet below forks and 6 miles northeast of Tolt.

DRAINAGE AREA.—80 square miles.

RECORDS AVAILABLE.—August, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year probably occurred Feb. 1, when recorder was not operating; stage and discharge not determined; minimum, 68 second-feet Sept. 5 (gage height, 0.82 foot).

1928-1930: Maximum discharge probably occurred Feb. 1, 1930; not determined; minimum, 65 second-feet Sept. 11, 1928 (gage height, 0.79 foot).

REMARKS.—Records good except those for periods of no gage-height record, Jan. 20 to Mar. 13, June 1-13, July 4-13, which were estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | Jun ^a | July | Aug. | Sept. |
|---------|------|------|-------|-------|-------|-------|-------|-------|------------------|------|------|-------|
| 1..... | 78 | 134 | 134 | 1,280 | 1,270 | | 609 | 395 | | 251 | 96 | 72 |
| 2..... | 76 | 136 | 127 | 870 | | | 552 | 514 | | 234 | 95 | 72 |
| 3..... | 75 | 129 | 120 | 945 | | | 552 | 533 | | 215 | 93 | 71 |
| 4..... | 100 | 118 | 114 | 845 | | 255 | 571 | 450 | 650 | 209 | 92 | 69 |
| 5..... | 299 | 119 | 137 | 708 | | | 648 | 395 | | 202 | 90 | 68 |
| 6..... | 162 | 187 | 180 | 590 | 280 | | 628 | 450 | | 196 | 89 | 74 |
| 7..... | 116 | 149 | 173 | 514 | | | 1,020 | 443 | | 190 | 88 | 90 |
| 8..... | 104 | 132 | 242 | 461 | | | 1,020 | 413 | | 183 | 89 | 83 |
| 9..... | 216 | 164 | 428 | 417 | | | 648 | 391 | | 177 | 88 | 96 |
| 10..... | 192 | 210 | 609 | 377 | | | 552 | 373 | | 170 | 87 | 90 |
| 11..... | 136 | 173 | 476 | 338 | 1,150 | 280 | 495 | 366 | 449 | 164 | 88 | 82 |
| 12..... | 113 | 149 | 359 | 314 | | | 514 | 366 | | 158 | 87 | 80 |
| 13..... | 104 | 136 | 807 | 295 | | | 552 | 409 | | 151 | 85 | 111 |
| 14..... | 97 | 130 | 1,940 | 280 | | 311 | 571 | 428 | 384 | 145 | 84 | 428 |
| 15..... | 93 | 120 | 1,000 | 265 | | 298 | 878 | 373 | 366 | 141 | 82 | 236 |
| 16..... | 90 | 132 | 945 | 245 | 590 | 283 | 668 | 388 | 366 | 132 | 81 | 134 |
| 17..... | 315 | 314 | 668 | 231 | | 274 | 533 | 370 | 314 | 130 | 81 | 110 |
| 18..... | 257 | 214 | 533 | 228 | | 271 | 495 | 352 | 292 | 127 | 81 | 100 |
| 19..... | 290 | 162 | 514 | 228 | | 289 | 476 | 380 | 280 | 122 | 81 | 95 |
| 20..... | 232 | 138 | 469 | | | 311 | 514 | 914 | 262 | 118 | 80 | 88 |
| 21..... | 192 | 125 | 476 | | 590 | 1,340 | 590 | 1,070 | 283 | 116 | 79 | 85 |
| 22..... | 166 | 114 | 978 | 225 | | 1,160 | 628 | 1,000 | 268 | 113 | 78 | 81 |
| 23..... | 139 | 109 | 1,170 | | | 688 | 533 | 750 | 248 | 112 | 78 | 79 |
| 24..... | 124 | 105 | 820 | | | 2,000 | 495 | 688 | 239 | 110 | 77 | 77 |
| 25..... | 114 | 190 | 920 | | | 1,860 | 446 | 609 | 231 | 107 | 76 | 76 |
| 26..... | 113 | 204 | 688 | | 290 | 1,210 | 446 | 514 | 259 | 106 | 76 | 173 |
| 27..... | 355 | 187 | 860 | | | 970 | 514 | 469 | 342 | 102 | 75 | 262 |
| 28..... | 298 | 169 | 609 | | | 995 | 590 | 476 | 351 | 101 | 75 | 302 |
| 29..... | 204 | 154 | 571 | 290 | | 920 | 472 | 476 | 351 | 98 | 74 | 170 |
| 30..... | 166 | 141 | 982 | | | 708 | 409 | 432 | 271 | 97 | 73 | 127 |
| 31..... | 145 | | 750 | | | 648 | | 580 | | 97 | 72 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 355 | 75 | 166 | 2.08 | 2.40 | 10,208 |
| November..... | 314 | | 155 | 1.94 | 2.16 | 9,220 |
| December..... | 1,940 | 114 | 606 | 7.58 | 8.74 | 37,300 |
| January..... | 1,280 | | 404 | 5.05 | 5.82 | 24,800 |
| February..... | | | 1,010 | 12.6 | 13.12 | 56,100 |
| March..... | 2,000 | | 581 | 7.26 | 8.37 | 35,700 |
| April..... | 1,020 | 409 | 587 | 7.34 | 8.19 | 34,900 |
| May..... | 1,070 | 352 | 509 | 6.36 | 7.33 | 31,300 |
| June..... | | 231 | 411 | 5.14 | 5.74 | 24,500 |
| July..... | 251 | 97 | 148 | 1.85 | 2.13 | 9,100 |
| August..... | 96 | 72 | 82.9 | 1.04 | 1.20 | 5,100 |
| September..... | 428 | 68 | 121 | 1.51 | 1.68 | 7,200 |
| The year..... | | 68 | 394 | 4.92 | 66.88 | 285,000 |

STILLAGUAMISH RIVER BASIN

SOUTH FORK OF STILLAGUAMISH RIVER NEAR SILVERTON, WASH.

LOCATION.—Staff gage in SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 24, T. 30 N., R. 9 E., three-fourths mile below Silverton.

DRAINAGE AREA.—38.4 square miles.

RECORDS AVAILABLE.—May, 1929, to September, 1930; September, 1910, to December, 1917, at station in SW. $\frac{1}{4}$ sec. 23, T. 30 N., R. 9 E., one-fourth mile below Martin Creek.

EXTREMES.—Maximum discharge during year not determined because of ice; mean for day estimated at 2,500 second-feet Feb. 1; minimum discharge, 24 second-feet Sept. 1, 2; minimum gage height, 0.85 foot Oct. 3.
1910-1917, 1929-30: Maximum discharge, 5,720 second-feet Nov. 20, 1910; minimum, that of Sept. 1, 2, 1930.

REMARKS.—Records good except those for Jan. 9 to Feb. 1, which were estimated because of ice and are poor. Discharge also estimated Aug. 3, 24. No diversions.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-------|------|-------|-------|-------|-----|------|------|------|-------|
| 1..... | 27 | 74 | 54 | 373 | 2,500 | 121 | 400 | 262 | 480 | 276 | 56 | 24 |
| 2..... | 27 | 83 | 50 | 257 | 1,260 | 114 | 352 | 425 | 249 | 51 | 24 | |
| 3..... | 26 | 76 | 48 | 318 | 510 | 112 | 375 | 375 | 352 | 211 | *50 | 26 |
| 4..... | 163 | 65 | 45 | 266 | 2,150 | 103 | 400 | 330 | 308 | 186 | 48 | 26 |
| 5..... | 160 | 62 | 59 | 216 | 1,740 | 105 | 610 | 258 | 308 | 192 | 48 | 26 |
| 6..... | 87 | 66 | 76 | 176 | 730 | 96 | 540 | 240 | 375 | 199 | 48 | 56 |
| 7..... | 65 | 60 | 91 | 149 | 860 | 92 | 1,100 | 215 | 480 | 176 | 47 | 29 |
| 8..... | 53 | 56 | 98 | 138 | 610 | 92 | 860 | 182 | 425 | 166 | 50 | 30 |
| 9..... | 133 | 56 | 109 | | 375 | 96 | 480 | 173 | 425 | 176 | 48 | 31 |
| 10..... | 102 | 66 | 114 | | 510 | 94 | 375 | 186 | 400 | 179 | 48 | 30 |
| 11..... | 76 | 64 | 105 | | 400 | 101 | 330 | 228 | 452 | 173 | 48 | 27 |
| 12..... | 68 | 58 | 87 | | 285 | 144 | 330 | 262 | 452 | 179 | 46 | 27 |
| 13..... | 56 | 50 | 128 | 80 | 224 | 119 | 425 | 330 | 375 | 176 | 43 | 62 |
| 14..... | 53 | 50 | 2,450 | | 186 | 105 | 425 | 400 | 308 | 160 | 43 | 276 |
| 15..... | 48 | 48 | 640 | | 176 | 99 | 480 | 400 | 330 | 133 | 43 | 119 |
| 16..... | 43 | 59 | 552 | | 1,400 | 92 | 425 | 425 | 352 | 121 | 43 | 72 |
| 17..... | 448 | 257 | 373 | | 1,200 | 92 | 330 | 330 | 267 | 101 | 39 | 52 |
| 18..... | 173 | 176 | 266 | | 1,200 | 96 | 330 | 285 | 249 | 92 | 36 | 50 |
| 19..... | 313 | 128 | 227 | | 2,010 | 114 | 330 | 375 | 249 | 88 | 35 | 41 |
| 20..... | 170 | 105 | 201 | | 1,100 | 110 | 375 | 860 | 276 | 90 | 32 | 35 |
| 21..... | 136 | 83 | 193 | | 610 | 650 | 510 | 540 | 375 | 92 | 30 | 32 |
| 22..... | 109 | 76 | 448 | | 425 | 510 | 650 | 425 | 308 | 90 | 30 | 30 |
| 23..... | 87 | 66 | 640 | 40 | 330 | 308 | 510 | 352 | 240 | 96 | 29 | 28 |
| 24..... | 76 | 62 | 675 | | 262 | 005 | 480 | 352 | 215 | 94 | *28 | 27 |
| 25..... | 68 | 68 | 1,100 | | 224 | 1,050 | 425 | 285 | 215 | 74 | 28 | 40 |
| 26..... | 62 | 68 | 552 | | 179 | 730 | 400 | 249 | 215 | 69 | 28 | 308 |
| 27..... | 193 | 65 | 448 | | 158 | 610 | 425 | 249 | 352 | 61 | 27 | 215 |
| 28..... | 133 | 64 | 323 | | 138 | 730 | 400 | 308 | 540 | 61 | 26 | 182 |
| 29..... | 107 | 62 | 266 | | | 690 | 330 | 330 | 375 | 64 | 26 | 138 |
| 30..... | 89 | 60 | 373 | 270 | | 510 | 267 | 285 | 308 | 61 | 26 | 103 |
| 31..... | 81 | | 304 | | | 425 | | 375 | | 56 | 25 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 448 | 26 | 111 | 2.89 | 3.33 | 6,820 |
| November..... | 257 | 48 | 77.8 | 2.03 | 2.26 | 4,630 |
| December..... | 2,450 | 45 | 358 | 9.32 | 10.74 | 22,000 |
| January..... | | | 125 | 3.26 | 3.76 | 7,690 |
| February..... | 2,500 | 138 | 780 | 20.3 | 21.14 | 43,800 |
| March..... | 1,050 | 92 | 297 | 7.73 | 8.91 | 18,800 |
| April..... | 1,100 | 267 | 456 | 11.9 | 13.23 | 27,100 |
| May..... | 860 | 173 | 332 | 8.65 | 9.97 | 20,400 |
| June..... | 540 | 215 | 348 | 9.06 | 10.11 | 20,700 |
| July..... | 276 | 56 | 134.9 | 3.49 | 4.02 | 8,240 |
| August..... | 56 | 25 | 38.9 | 1.01 | 1.16 | 2,390 |
| September..... | 308 | 24 | 72.2 | 1.88 | 2.10 | 4,300 |
| The year..... | 2,500 | 24 | 257 | 6.69 | 90.78 | 186,000 |

* Interpolated.

SOUTH FORK OF STILLAGUAMISH RIVER NEAR GRANITE FALLS, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 8, T. 30 N., R. 7 E., 2 miles northeast of Granite Falls.

DRAINAGE AREA.—119 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 9,040 second-feet Feb. 1 (gage height, 10.8 feet); minimum, 66 second-feet Sept. 4 (gage height, 3.05 feet).

1928-1930: Maximum discharge, 12,000 second-feet Oct. 9, 1928; minimum, that of Sept. 4, 1930.

REMARKS.—Records excellent except those for Jan. 11-31, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1----- | 74 | 192 | 146 | 1,320 | 5,680 | 428 | 940 | 624 | 1,640 | 553 | 127 | 71 |
| 2----- | 74 | 195 | 134 | 990 | 4,150 | 395 | 857 | 878 | 1,420 | 480 | 120 | 68 |
| 3----- | 72 | 181 | 127 | 1,820 | 1,980 | 364 | 956 | 912 | 1,010 | 464 | 113 | 68 |
| 4----- | 183 | 164 | 120 | 1,330 | 5,320 | 352 | 1,210 | 690 | 820 | 378 | 109 | 68 |
| 5----- | 290 | 152 | 132 | 940 | 5,220 | 340 | 1,650 | 589 | 776 | 378 | 109 | 68 |
| 6----- | 215 | 167 | 215 | 714 | 1,980 | 320 | 1,380 | 589 | 857 | 378 | 109 | 76 |
| 7----- | 152 | 156 | 336 | 507 | 2,860 | 320 | 2,230 | 536 | 1,050 | 336 | 107 | 107 |
| 8----- | 125 | 144 | 352 | 485 | 2,160 | 360 | 2,250 | 453 | 940 | 309 | 107 | 95 |
| 9----- | 332 | 146 | 513 | 395 | 1,250 | 428 | 1,380 | 414 | 788 | 305 | 107 | 88 |
| 10----- | 275 | 186 | 571 | 352 | 2,080 | 360 | 1,010 | 428 | 884 | 309 | 105 | 81 |
| 11----- | 189 | 181 | 424 | 250 | 1,740 | 400 | 832 | 485 | 940 | 305 | 101 | 77 |
| 12----- | 159 | 162 | 320 | | 1,070 | 475 | 813 | 548 | 1,050 | 290 | 99 | 74 |
| 13----- | 142 | 149 | 1,580 | | 832 | 395 | 940 | 684 | 898 | 286 | 95 | 106 |
| 14----- | 127 | 139 | 5,550 | | 714 | 340 | 975 | 807 | 702 | 268 | 93 | 663 |
| 15----- | 113 | 132 | 2,010 | | 1,510 | 316 | 804 | 751 | 642 | 234 | 89 | 389 |
| 16----- | 109 | 154 | 1,890 | 170 | 3,230 | 290 | 1,170 | 807 | 727 | 212 | 89 | 220 |
| 17----- | 750 | 843 | 1,440 | | 2,930 | 282 | 864 | 684 | 606 | 195 | 89 | 159 |
| 18----- | 519 | 419 | 870 | | 2,760 | 286 | 801 | 757 | 502 | 183 | 88 | 129 |
| 19----- | 624 | 293 | 807 | | 4,250 | 332 | 770 | 876 | 480 | 172 | 84 | 118 |
| 20----- | 409 | 234 | 696 | | 3,060 | 373 | 857 | 2,240 | 519 | 170 | 81 | 107 |
| 21----- | 320 | 198 | 720 | 500 | 2,010 | 2,580 | 1,090 | 2,000 | 748 | 167 | 81 | 95 |
| 22----- | 261 | 181 | 1,880 | | 1,380 | 2,020 | 1,290 | 1,340 | 654 | 167 | 77 | 91 |
| 23----- | 215 | 164 | 2,870 | | 1,090 | 1,170 | 1,090 | 1,010 | 502 | 170 | 76 | 93 |
| 24----- | 186 | 156 | 2,080 | | 884 | 3,950 | 975 | 898 | 496 | 164 | 76 | 88 |
| 25----- | 162 | 175 | 3,060 | | 751 | 3,680 | 870 | 776 | 428 | 156 | 74 | 82 |
| 26----- | 154 | 186 | 1,740 | 500 | 630 | 2,110 | 845 | 630 | 409 | 154 | 72 | 775 |
| 27----- | 494 | 172 | 1,560 | | 548 | 1,760 | 1,030 | 594 | 618 | 142 | 72 | 1,160 |
| 28----- | 485 | 162 | 975 | | 480 | 1,850 | 1,090 | 684 | 1,290 | 134 | 71 | 981 |
| 29----- | 297 | 152 | 795 | | ----- | 1,800 | 801 | 757 | 846 | 134 | 70 | 449 |
| 30----- | 238 | 146 | 1,180 | | ----- | 1,290 | 648 | 745 | 636 | 132 | 71 | 297 |
| 31----- | 206 | ----- | 1,010 | ----- | ----- | 1,050 | ----- | 849 | ----- | 132 | 71 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October----- | 750 | 72 | 256 | 2.15 | 2.48 | 15,700 |
| November----- | 843 | 132 | 203 | 1.71 | 1.91 | 12,100 |
| December----- | 5,650 | 120 | 1,170 | 9.83 | 11.33 | 71,900 |
| January----- | 1,820 | ----- | 458 | 3.85 | 4.44 | 28,200 |
| February----- | 5,680 | 480 | 2,230 | 18.7 | 19.47 | 124,000 |
| March----- | 3,950 | 282 | 980 | 8.24 | 9.50 | 60,300 |
| April----- | 2,250 | 648 | 1,080 | 9.08 | 10.13 | 64,300 |
| May----- | 2,240 | 414 | 808 | 6.79 | 7.83 | 49,700 |
| June----- | 1,640 | 409 | 796 | 6.69 | 7.46 | 47,400 |
| July----- | 553 | 132 | 253 | 2.13 | 2.46 | 15,600 |
| August----- | 127 | 70 | 91.4 | .768 | .89 | 5,620 |
| September----- | 1,160 | 68 | 231 | 1.94 | 2.16 | 13,700 |
| The year----- | 5,680 | 68 | 702 | 5.90 | 80.06 | 509,000 |

SOUTH FORK OF STILLAGUAMISH RIVER NEAR ARLINGTON, WASH.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 7, T. 31 N., R. 6 E., $1\frac{1}{2}$ miles east of Arlington.

DRAINAGE AREA.—254 square miles.

RECORDS AVAILABLE.—December, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 12,100 second-feet Dec. 14 (gage height, 9.32 feet); minimum, 108 second-feet Sept. 6 (gage height, 2.08 feet).

1928-1930: Maximum discharge, that of Dec. 14, 1929; minimum, that of Sept. 6, 1930.

REMARKS.—Records good except those for Jan. 17 to Feb. 1, which were estimated because of ice, and those for extremely high water. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|--------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1----- | 148 | 301 | 229 | 1,980 | 7,500 | 1,020 | 1,740 | 1,020 | 2,770 | 805 | 187 | 126 |
| 2----- | 145 | 278 | 222 | 1,980 | 6,440 | 980 | 1,490 | 1,120 | 2,300 | 690 | 184 | 124 |
| 3----- | 143 | 257 | 211 | 3,630 | 3,990 | 890 | 1,370 | 1,370 | 1,870 | 620 | 187 | 119 |
| 4----- | 152 | 270 | 205 | 3,110 | 7,120 | 848 | 2,160 | 1,120 | 1,370 | 585 | 184 | 114 |
| 5----- | 415 | 253 | 201 | 2,450 | 9,530 | 805 | 2,450 | 935 | 1,260 | 552 | 190 | 112 |
| 6----- | 445 | 261 | 360 | 1,760 | 3,990 | 765 | 2,450 | 1,020 | 1,320 | 520 | 184 | 108 |
| 7----- | 306 | 265 | 648 | 1,340 | 2,450 | 725 | 2,150 | 935 | 1,490 | 490 | 176 | 173 |
| 8----- | 222 | 241 | 540 | 1,100 | 4,360 | 848 | 3,810 | 765 | 1,490 | 460 | 173 | 165 |
| 9----- | 215 | 237 | 540 | 940 | 2,450 | 890 | 2,300 | 725 | 1,260 | 460 | 176 | 144 |
| 10----- | 540 | 274 | 850 | 850 | 1,870 | 890 | 1,610 | 690 | 1,160 | 430 | 173 | 126 |
| 11----- | 350 | 306 | 808 | 808 | 3,630 | 848 | 1,370 | 765 | 1,370 | 430 | 173 | 122 |
| 12----- | 270 | 278 | 685 | 648 | 2,150 | 1,120 | 1,260 | 805 | 1,610 | 460 | 170 | 117 |
| 13----- | 249 | 249 | 575 | 648 | 1,680 | 980 | 1,320 | 1,070 | 1,430 | 430 | 168 | 122 |
| 14----- | 218 | 233 | 10,000 | 610 | 1,370 | 805 | 1,370 | 1,210 | 1,160 | 373 | 168 | 1,370 |
| 15----- | 198 | 225 | 3,630 | 648 | 1,490 | 725 | 1,870 | 1,260 | 1,020 | 346 | 162 | 1,370 |
| 16----- | 185 | 222 | 2,130 | 508 | 4,360 | 655 | 2,150 | 1,160 | 1,120 | 312 | 159 | 805 |
| 17----- | 850 | 1,760 | 2,940 | | 5,160 | 620 | 1,490 | 1,070 | 935 | 294 | 157 | 490 |
| 18----- | 990 | 850 | 1,760 | | 3,630 | 585 | 1,320 | 980 | 805 | 277 | 154 | 217 |
| 19----- | 648 | 610 | 1,470 | | 6,890 | 655 | 1,260 | 1,020 | 725 | 269 | 154 | 193 |
| 20----- | 540 | 415 | 1,340 | 300 | 4,360 | 765 | 1,370 | 3,630 | 765 | 249 | 152 | 184 |
| 21----- | 475 | 340 | 1,150 | | 4,170 | 3,280 | 1,610 | 3,280 | 805 | 245 | 136 | 165 |
| 22----- | 415 | 306 | 3,280 | | 2,770 | 3,450 | 2,010 | 2,940 | 1,120 | 238 | 131 | 167 |
| 23----- | 350 | 278 | 7,360 | | 2,450 | 2,010 | 1,610 | 2,300 | 1,020 | 238 | 129 | 144 |
| 24----- | 292 | 257 | 3,630 | | 1,870 | 6,440 | 1,490 | 1,610 | 690 | 231 | 126 | 146 |
| 25----- | 257 | 274 | 4,760 | | 1,610 | 6,440 | 1,320 | 1,370 | 620 | 227 | 124 | 146 |
| 26----- | 233 | 340 | 3,110 | 330 | 1,370 | 3,990 | 1,260 | 1,120 | 620 | 224 | 122 | 136 |
| 27----- | 257 | 320 | 3,450 | | 1,260 | 2,940 | 1,370 | 1,020 | 725 | 217 | 122 | 2,010 |
| 28----- | 990 | 292 | 1,900 | | 1,120 | 3,110 | 1,870 | 1,070 | 1,160 | 214 | 119 | 2,010 |
| 29----- | 508 | 265 | 1,610 | | | 3,110 | 1,320 | 1,260 | 1,320 | 208 | 117 | 890 |
| 30----- | 415 | 249 | 1,610 | | | 2,300 | 1,020 | 1,120 | 935 | 202 | 117 | 655 |
| 31----- | 330 | | 1,980 | 1,680 | | 1,870 | | 1,210 | | 193 | 119 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October----- | 990 | 143 | 379 | 1.49 | 1.72 | 23,300 |
| November----- | 1,760 | 222 | 357 | 1.41 | 1.57 | 21,200 |
| December----- | 10,000 | 201 | 2,040 | 8.03 | 9.26 | 125,000 |
| January----- | 3,630 | | 939 | 3.70 | 4.27 | 57,700 |
| February----- | 9,530 | 1,120 | 3,610 | 14.2 | 14.77 | 200,000 |
| March----- | 6,440 | 585 | 1,790 | 7.05 | 8.17 | 110,000 |
| April----- | 3,810 | 1,020 | 1,710 | 6.73 | 7.51 | 103,000 |
| May----- | 3,630 | 690 | 1,320 | 5.20 | 6.06 | 81,200 |
| June----- | 2,770 | 620 | 1,210 | 4.76 | 5.31 | 72,000 |
| July----- | 805 | 193 | 371 | 1.46 | 1.68 | 22,800 |
| August----- | 190 | 117 | 155 | .610 | .70 | 9,530 |
| September----- | 2,010 | 108 | 425 | 1.67 | 1.86 | 25,300 |
| The year----- | 10,000 | 108 | 1,170 | 4.61 | 62.80 | 850,000 |

CANYON CREEK NEAR GRANITE FALLS, WASH.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 6, T. 30 N., R. 7 E., 3 miles north of Granite Falls.

DRAINAGE AREA.—59 square miles.

RECORDS AVAILABLE.—December, 1928, to September, 1930. Comparable records September, 1911, to March, 1913 (gage height only), at station about $\frac{1}{4}$ miles upstream.

EXTREMES.—Maximum discharge during year, 3,200 second-feet Feb. 1 (gage height, 6.95 feet); minimum, 32 second-feet Aug. 24 to Sept. 6 (gage height, 1.38 feet).

1928-1930: Maximum discharge, that of Feb. 1, 1930; minimum, that of Aug. 24 to Sept. 6, 1930.

REMARKS.—Records good. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 39 | 65 | 60 | 712 | 3,200 | 228 | 420 | 200 | 380 | 164 | 50 | 32 |
| 2..... | 39 | 63 | 57 | 510 | 1,820 | 188 | 342 | 380 | 685 | 152 | 48 | 32 |
| 3..... | 39 | 60 | 55 | 685 | 850 | 188 | 325 | 342 | 440 | 142 | 46 | 32 |
| 4..... | 125 | 57 | 53 | 970 | 1,820 | 188 | 342 | 325 | 380 | 132 | 45 | 32 |
| 5..... | 155 | 55 | 53 | 850 | 1,440 | 175 | 970 | 275 | 360 | 114 | 45 | 32 |
| 6..... | 145 | 63 | 63 | 740 | 535 | 175 | 585 | 200 | 342 | 114 | 43 | 32 |
| 7..... | 75 | 55 | 280 | 380 | 1,090 | 188 | 1,160 | 188 | 308 | 96 | 43 | 46 |
| 8..... | 49 | 55 | 295 | 259 | 685 | 200 | 535 | 175 | 360 | 92 | 43 | 40 |
| 9..... | 178 | 55 | 312 | 200 | 510 | 200 | 420 | 175 | 400 | 82 | 41 | 35 |
| 10..... | 105 | 60 | 280 | 188 | 850 | 200 | 308 | 175 | 462 | 85 | 41 | 35 |
| 11..... | 75 | 63 | 252 | 175 | 535 | 228 | 259 | 175 | 440 | 88 | 41 | 34 |
| 12..... | 57 | 60 | 190 | 164 | 485 | 275 | 308 | 175 | 360 | 85 | 40 | 34 |
| 13..... | 55 | 67 | 190 | 142 | 380 | 228 | 360 | 200 | 360 | 78 | 40 | 35 |
| 14..... | 52 | 55 | 1,980 | 132 | 360 | 175 | 325 | 200 | 325 | 77 | 38 | 585 |
| 15..... | 47 | 53 | 635 | 123 | 400 | 152 | 660 | 200 | 259 | 75 | 37 | 123 |
| 16..... | 47 | 53 | 850 | 114 | 1,370 | 152 | 360 | 188 | 214 | 70 | 36 | 72 |
| 17..... | 610 | 252 | 610 | 106 | 1,090 | 142 | 325 | 200 | 200 | 65 | 35 | 55 |
| 18..... | 155 | 117 | 510 | 99 | 1,510 | 132 | 360 | 228 | 188 | 62 | 34 | 50 |
| 19..... | 202 | 90 | 440 | 99 | 1,370 | 142 | 360 | 291 | 175 | 62 | 34 | 46 |
| 20..... | 155 | 84 | 360 | 99 | 1,300 | 164 | 380 | 1,090 | 164 | 60 | 34 | 43 |
| 21..... | 105 | 67 | 380 | 96 | 850 | 1,660 | 400 | 850 | 152 | 58 | 34 | 40 |
| 22..... | 70 | 70 | 1,280 | 92 | 685 | 712 | 400 | 740 | 152 | 56 | 34 | 35 |
| 23..... | 63 | 73 | 1,280 | 88 | 585 | 635 | 360 | 535 | 152 | 56 | 34 | 35 |
| 24..... | 57 | 75 | 850 | 85 | 485 | 1,820 | 308 | 420 | 152 | 58 | 32 | 35 |
| 25..... | 53 | 70 | 850 | 85 | 380 | 1,440 | 275 | 244 | 142 | 58 | 32 | 35 |
| 26..... | 49 | 73 | 585 | 85 | 325 | 850 | 291 | 214 | 132 | 58 | 32 | 535 |
| 27..... | 105 | 70 | 712 | 85 | 275 | 795 | 308 | 228 | 132 | 56 | 32 | 1,090 |
| 28..... | 87 | 67 | 462 | 82 | 259 | 740 | 275 | 228 | 510 | 55 | 32 | 380 |
| 29..... | 81 | 65 | 380 | 152 | ----- | 610 | 360 | 244 | 259 | 52 | 32 | 175 |
| 30..... | 75 | 63 | 420 | 132 | ----- | 485 | 291 | 250 | 200 | 52 | 32 | 123 |
| 31..... | 67 | ----- | 440 | 535 | ----- | 420 | ----- | 308 | ----- | 50 | 32 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 610 | 39 | 104 | 1.76 | 2.03 | 6,400 |
| November..... | 252 | 53 | 72.2 | 1.22 | 1.36 | 4,300 |
| December..... | 1,980 | 53 | 486 | 8.24 | 9.50 | 29,900 |
| January..... | 970 | 82 | 267 | 4.53 | 5.22 | 16,400 |
| February..... | 3,200 | 259 | 909 | 15.4 | 16.04 | 50,500 |
| March..... | 1,820 | 132 | 448 | 7.59 | 8.75 | 27,500 |
| April..... | 1,160 | 259 | 412 | 6.98 | 7.79 | 24,500 |
| May..... | 1,090 | 175 | 311 | 5.27 | 6.08 | 19,100 |
| June..... | 685 | 132 | 293 | 4.97 | 5.54 | 17,400 |
| July..... | 164 | 50 | 80.8 | 1.37 | 1.58 | 4,970 |
| August..... | 50 | 32 | 37.8 | .641 | .74 | 2,320 |
| September..... | 1,090 | 32 | 130 | 2.20 | 2.46 | 7,740 |
| The year..... | 3,200 | 32 | 292 | 4.95 | 67.09 | 211,000 |

NORTH FORK OF STILLAGUAMISH RIVER NEAR ARLINGTON, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 16, T. 32 N., R. 6 E., 6 miles above mouth and northeast of Arlington.

DRAINAGE AREA.—282 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 12,800 second-feet Feb. 5 (gage height, 9.38 feet); minimum, 160 second-feet Sept. 5 (gage height, 1.77 feet).

1928-1930: Maximum discharge, 14,300 second-feet Oct. 9, 1928 (gage height, 9.70 feet) minimum, that of Sept. 5, 1930.

REMARKS.—Records below 7,000 second-feet good; others fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 191 | 240 | 229 | 2,410 | 5,860 | 1,180 | 1,990 | 1,030 | 1,220 | 646 | 254 | 176 |
| 2..... | 191 | 246 | 223 | 2,050 | 5,040 | 1,060 | 1,760 | 1,300 | 1,580 | 586 | 248 | 172 |
| 3..... | 193 | 238 | 219 | 3,040 | 3,120 | 995 | 1,710 | 1,300 | 1,340 | 530 | 245 | 169 |
| 4..... | 352 | 232 | 216 | 2,880 | 5,630 | 930 | 2,190 | 1,030 | 1,060 | 500 | 242 | 165 |
| 5..... | 492 | 223 | 243 | 2,250 | 8,410 | 930 | 3,380 | 930 | 995 | 495 | 239 | 165 |
| 6..... | 312 | 223 | 347 | 1,660 | 3,790 | 865 | 2,990 | 995 | 1,060 | 485 | 236 | 176 |
| 7..... | 254 | 221 | 560 | 1,280 | 3,820 | 865 | 3,110 | 930 | 1,260 | 448 | 233 | 230 |
| 8..... | 236 | 217 | 604 | 1,100 | 3,770 | 865 | 3,110 | 835 | 1,180 | 422 | 233 | 188 |
| 9..... | 407 | 221 | 811 | 920 | 2,750 | 930 | 2,400 | 751 | 1,030 | 414 | 239 | 174 |
| 10..... | 508 | 236 | 530 | 802 | 2,940 | 865 | 1,890 | 745 | 1,140 | 422 | 233 | 167 |
| 11..... | 310 | 227 | 570 | 700 | 3,090 | 930 | 1,620 | 775 | 1,260 | 418 | 230 | 165 |
| 12..... | 280 | 217 | 368 | 675 | 2,340 | 1,180 | 1,540 | 781 | 1,260 | 410 | 224 | 163 |
| 13..... | 262 | 212 | 1,040 | 595 | 1,940 | 962 | 2,750 | 898 | 1,140 | 418 | 221 | 214 |
| 14..... | 248 | 208 | 7,460 | 570 | 1,620 | 835 | 2,810 | 1,060 | 995 | 414 | 218 | 834 |
| 15..... | 236 | 203 | 2,320 | 534 | 2,510 | 775 | 2,400 | 1,060 | 865 | 382 | 218 | 473 |
| 16..... | 230 | 218 | 2,250 | 470 | 4,160 | 721 | 1,990 | 1,100 | 930 | 358 | 218 | 269 |
| 17..... | 589 | 916 | 2,140 | 416 | 4,590 | 691 | 1,580 | 962 | 835 | 342 | 212 | 224 |
| 18..... | 602 | 445 | 1,420 | 446 | 5,160 | 674 | 1,420 | 1,030 | 745 | 334 | 208 | 208 |
| 19..... | 603 | 319 | 1,180 | 450 | 6,700 | 763 | 1,420 | 930 | 680 | 322 | 202 | 198 |
| 20..... | 512 | 278 | 1,070 | 396 | 4,960 | 799 | 1,500 | 1,400 | 697 | 314 | 198 | 185 |
| 21..... | 392 | 254 | 1,050 | 375 | 4,280 | 3,460 | 1,760 | 3,050 | 781 | 310 | 192 | 178 |
| 22..... | 328 | 244 | 3,180 | 392 | 3,180 | 3,540 | 2,090 | 2,400 | 745 | 306 | 192 | 178 |
| 23..... | 288 | 236 | 5,040 | 368 | 2,810 | 2,240 | 1,760 | 1,710 | 630 | 303 | 190 | 174 |
| 24..... | 265 | 234 | 3,430 | 382 | 2,340 | 4,590 | 1,620 | 1,460 | 586 | 303 | 188 | 167 |
| 25..... | 252 | 272 | 4,310 | 364 | 1,990 | 4,780 | 1,460 | 1,220 | 570 | 292 | 183 | 167 |
| 26..... | 246 | 285 | 2,860 | 375 | 1,710 | 3,370 | 1,420 | 1,060 | 550 | 282 | 181 | 730 |
| 27..... | 334 | 265 | 2,640 | 364 | 1,500 | 2,930 | 1,460 | 962 | 624 | 275 | 181 | 1,960 |
| 28..... | 416 | 234 | 1,960 | 350 | 1,340 | 3,050 | 1,580 | 1,030 | 1,250 | 272 | 178 | 1,510 |
| 29..... | 302 | 240 | 1,660 | 474 | ----- | 3,050 | 1,260 | 1,100 | 932 | 269 | 181 | 668 |
| 30..... | 265 | 236 | 2,320 | 522 | ----- | 2,570 | 1,060 | 1,060 | 727 | 269 | 181 | 430 |
| 31..... | 250 | ----- | 2,200 | 1,200 | ----- | 2,190 | ----- | 1,060 | ----- | 263 | 178 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 603 | 191 | 334 | 1.18 | 1.36 | 20,500 |
| November..... | 916 | 203 | 268 | 1.950 | 1.06 | 15,900 |
| December..... | 7,460 | 216 | 1,770 | 6.28 | 7.24 | 109,000 |
| January..... | 3,040 | 350 | 929 | 3.29 | 3.79 | 57,100 |
| February..... | 8,410 | 1,340 | 3,620 | 12.8 | 13.33 | 201,000 |
| March..... | 4,780 | 674 | 1,730 | 6.13 | 7.07 | 106,000 |
| April..... | 3,380 | 1,060 | 1,970 | 6.99 | 7.80 | 117,000 |
| May..... | 3,050 | 745 | 1,160 | 4.11 | 4.74 | 71,300 |
| June..... | 1,580 | 550 | 956 | 3.39 | 3.78 | 56,900 |
| July..... | 646 | 263 | 381 | 1.35 | 1.56 | 23,400 |
| August..... | 254 | 178 | 212 | 1.752 | .87 | 13,000 |
| September..... | 1,960 | 163 | 363 | 1.29 | 1.44 | 21,600 |
| The year..... | 8,410 | 163 | 1,120 | 3.97 | 54.04 | 813,000 |

DEER CREEK AT OSO, WASH.

LOCATION.—Water-stage recorder in sec. 5, T. 32 N., R. 7 E., $1\frac{1}{4}$ miles above Oso and junction with North Fork of Stillaguamish River.

DRAINAGE AREA.—84 square miles.

RECORDS AVAILABLE.—August, 1917, to September, 1930, when records were discontinued.

EXTREMES.—Maximum discharge during year, 5,640 second-feet Dec. 13, 14 (gage height, 8.2 feet); minimum, 18 second-feet Sept. 5 (gage height, 0.18 foot).

1917-1930: Maximum discharge, 10,400 second-feet Dec. 12, 1921 (gage height, 11.7 feet; from high-water mark); minimum, that of Sept. 5, 1930.

REMARKS.—Records good except those for Dec. 23 to Jan. 4, Jan. 11-30, which were estimated, and those for extreme high water. Records June 21-28, July 20 to Aug. 8, Aug. 13-19, 24-29, estimated also. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|---------|------|-------|-------|------|-------|-------|-------|-------|-------|------|------|-------|--|
| 1..... | 23 | 56 | 54 | 900 | 3,230 | 200 | 444 | 253 | 251 | 114 | 33 | 20 | |
| 2..... | 23 | 55 | 51 | | 2,310 | 182 | 377 | 362 | 419 | 99 | 32 | 19 | |
| 3..... | 24 | 52 | 48 | | 972 | 174 | 432 | 303 | 311 | 89 | 31 | 19 | |
| 4..... | 169 | 49 | 45 | | 3,070 | 168 | 558 | 228 | 235 | 82 | 30 | 19 | |
| 5..... | 220 | 46 | 77 | 435 | 2,890 | 166 | 1,450 | 211 | 209 | 76 | 30 | 18 | |
| 6..... | 78 | 49 | 129 | 320 | 1,000 | 150 | 860 | 242 | 217 | 72 | 29 | 29 | |
| 7..... | 52 | 47 | 252 | 222 | 1,300 | 158 | 1,020 | 226 | 235 | 68 | 28 | 59 | |
| 8..... | 43 | 44 | 310 | 207 | 974 | 166 | 787 | 200 | 217 | 63 | 27 | 29 | |
| 9..... | 206 | 49 | 306 | 156 | 580 | 204 | 500 | 180 | 186 | 59 | 27 | 23 | |
| 10..... | 167 | 58 | 175 | 146 | 1,070 | 182 | 383 | 186 | 215 | 57 | 26 | 22 | |
| 11..... | 80 | 52 | 132 | 110 | 834 | 237 | 327 | 186 | 237 | 53 | 24 | 21 | |
| 12..... | 65 | 46 | 111 | | 500 | 290 | 341 | 190 | 235 | 51 | 23 | 21 | |
| 13..... | 56 | 45 | 1,000 | | 405 | 211 | 402 | 219 | 235 | 50 | 23 | 88 | |
| 14..... | 49 | 42 | 3,450 | | 337 | 174 | 431 | 237 | 202 | 48 | 23 | 371 | |
| 15..... | 44 | 40 | 944 | | 1,200 | 152 | 825 | 253 | 170 | 45 | 23 | 131 | |
| 16..... | 41 | 110 | 768 | 110 | 2,150 | 136 | 519 | 230 | 194 | 44 | 24 | 58 | |
| 17..... | 256 | 458 | 568 | | 1,960 | 134 | 371 | 226 | 186 | 43 | 24 | 41 | |
| 18..... | 167 | 147 | 354 | | 2,700 | 136 | 350 | 262 | 154 | 44 | 24 | 36 | |
| 19..... | 215 | 95 | 312 | | 2,620 | 170 | 356 | 266 | 136 | 42 | 24 | 33 | |
| 20..... | 146 | 74 | 293 | | 1,700 | 174 | 389 | 1,480 | 133 | 42 | 24 | 30 | |
| 21..... | 105 | 61 | 351 | 110 | 1,070 | 2,460 | 500 | 1,220 | 150 | 41 | 24 | 29 | |
| 22..... | 82 | 59 | 1,860 | | 665 | 1,260 | 560 | 659 | | 40 | 23 | 28 | |
| 23..... | 67 | 54 | 750 | | 540 | 560 | 434 | 444 | | 39 | 23 | 28 | |
| 24..... | 58 | 50 | | | 412 | 2,340 | 395 | 356 | | 39 | 23 | 27 | |
| 25..... | 53 | 88 | | | 332 | 1,790 | 350 | 303 | | 38 | 22 | 28 | |
| 26..... | 52 | 87 | 750 | 110 | 286 | 984 | 338 | 262 | 156 | 37 | 22 | 232 | |
| 27..... | 146 | 77 | | | 244 | 815 | 394 | 230 | | 36 | 21 | 1,230 | |
| 28..... | 140 | 68 | | | 217 | 925 | 401 | 244 | | 36 | 21 | 436 | |
| 29..... | 85 | 61 | | | ----- | 858 | 283 | 248 | | 35 | 20 | 179 | |
| 30..... | 68 | 57 | | | ----- | 600 | 248 | 230 | | 34 | 20 | 111 | |
| 31..... | 59 | ----- | ----- | 450 | ----- | 482 | ----- | 230 | ----- | 33 | 20 | ----- | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acro-feet |
| October..... | 256 | 23 | 98.0 | 1.17 | 1.35 | 6,030 |
| November..... | 458 | 40 | 75.9 | 1.04 | 1.01 | 4,520 |
| December..... | 3,450 | 45 | 592 | 7.05 | 8.13 | 36,400 |
| January..... | ----- | ----- | 250 | 2.98 | 3.44 | 15,400 |
| February..... | 3,230 | 217 | 1,270 | 15.1 | 15.72 | 70,500 |
| March..... | 2,460 | 134 | 537 | 6.39 | 7.37 | 38,000 |
| April..... | 1,450 | 248 | 501 | 5.96 | 6.65 | 29,800 |
| May..... | 1,480 | 180 | 335 | 3.99 | 4.60 | 20,600 |
| June..... | 419 | ----- | 195 | 2.32 | 2.59 | 11,600 |
| July..... | 114 | 33 | 53.2 | .633 | .73 | 3,270 |
| August..... | 33 | 20 | 24.8 | .295 | .34 | 1,520 |
| September..... | 1,230 | 18 | 114 | 1.36 | 1.52 | 6,780 |
| The year..... | 3,450 | 18 | 331 | 3.94 | 53.45 | 239,000 |

PILCHUCK CREEK NEAR BRYANT, WASH.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 16, T. 32 N., R. 5 E., at highway bridge 2 miles north of Bryant.

DRAINAGE AREA.—52 square miles.

RECORDS AVAILABLE.—March, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 3,040 second-feet Mar. 24 (gage height, 4.66 feet); minimum, 0.8 second-foot Sept. 5, 6 (gage height, 0.95 foot, new datum).

1929-30: Maximum discharge, that of Mar. 26, 1930; minimum, that of Sept. 5, 6, 1930.

REMARKS.—Records good except those for Jan. 10-27, which were estimated because of ice. No diversion or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|-------|-------|-------|------|-----|------|------|------|-------|
| 1 | 4.9 | 23 | 34 | 800 | 2,760 | 123 | 157 | 71 | 123 | 27 | 2.8 | 1.0 |
| 2 | 4.9 | 21 | 31 | 408 | 1,000 | 116 | 143 | 68 | 113 | 25 | 2.8 | 1.0 |
| 3 | 5.2 | 21 | 27 | 950 | 476 | 104 | 129 | 87 | 101 | 24 | 2.4 | 1.0 |
| 4 | 10 | 20 | 25 | 1,330 | 1,110 | 92 | 168 | 76 | 96 | 23 | 2.0 | .9 |
| 5 | 24 | 18 | 27 | 850 | 540 | 90 | 161 | 64 | 78 | 21 | 2.0 | .8 |
| 6 | 21 | 20 | 138 | 400 | 372 | 80 | 172 | 73 | 68 | 18 | 1.8 | .8 |
| 7 | 18 | 18 | 142 | 308 | 308 | 90 | 193 | 83 | 61 | 17 | 1.8 | 1.2 |
| 8 | 18 | 18 | 108 | 248 | 270 | 202 | 157 | 78 | 60 | 16 | 2.0 | 1.2 |
| 9 | 26 | 18 | 255 | 202 | 239 | 164 | 161 | 68 | 53 | 15 | 2.0 | 1.4 |
| 10 | 67 | 18 | 166 | | 264 | 143 | 113 | 60 | 48 | 13 | 1.8 | 1.8 |
| 11 | 36 | 18 | 132 | | 372 | 132 | 96 | 47 | 54 | 12 | 1.8 | 2.0 |
| 12 | 25 | 18 | 120 | | 366 | 120 | 99 | 47 | 60 | 11 | 1.8 | 2.4 |
| 13 | 21 | 18 | 108 | | 359 | 107 | 96 | 44 | 68 | 11 | 1.5 | 5.5 |
| 14 | 18 | 17 | 1,820 | 70 | 516 | 94 | 96 | 40 | 55 | 11 | 1.5 | 61 |
| 15 | 17 | 17 | 468 | | 532 | 87 | 326 | 39 | 50 | 9.8 | 1.5 | 34 |
| 16 | 15 | 18 | 372 | | 620 | 83 | 202 | 34 | 47 | 9.8 | 1.5 | 24 |
| 17 | 17 | 561 | 359 | | 540 | 78 | 132 | 44 | 50 | 9.0 | 1.5 | 20 |
| 18 | 665 | 665 | 239 | | 1,060 | 76 | 116 | 43 | 46 | 8.2 | 1.5 | 18 |
| 19 | 553 | 622 | 239 | | 710 | 80 | 104 | 44 | 37 | 7.5 | 1.5 | 14 |
| 20 | 31 | 578 | 229 | | 580 | 83 | 96 | 400 | 35 | 6.8 | 1.5 | 12 |
| 21 | 28 | 487 | 253 | | 392 | 1,690 | 101 | 900 | 34 | 5.5 | 1.4 | 11 |
| 22 | 26 | 93 | 1,390 | | 333 | 492 | 96 | 620 | 35 | 5.5 | 1.2 | 11 |
| 23 | 24 | 28 | 800 | 30 | 295 | 445 | 87 | 189 | 34 | 5.0 | 1.2 | 9.8 |
| 24 | 22 | 27 | 476 | | 264 | 3,040 | 113 | 136 | 32 | 4.5 | 1.2 | 9.8 |
| 25 | 18 | 578 | 333 | | 239 | 1,000 | 92 | 116 | 33 | 4.5 | 1.2 | 9.0 |
| 26 | 18 | 622 | 372 | | 172 | 468 | 78 | 96 | 32 | 4.5 | 1.0 | 43 |
| 27 | 23 | 622 | 430 | | 154 | 333 | 90 | 83 | 37 | 4.0 | 1.0 | 1,220 |
| 28 | 67 | 536 | 301 | 40 | 136 | 270 | 126 | 76 | 48 | 4.0 | 1.0 | 206 |
| 29 | 43 | 52 | 253 | 80 | | 220 | 87 | 76 | 39 | 3.6 | 1.0 | 104 |
| 30 | 31 | 35 | 540 | 200 | | 189 | 75 | 75 | 35 | 3.6 | .9 | 64 |
| 31 | 24 | | 580 | 600 | | 168 | | 78 | | 2.8 | 1.0 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 665 | 4.9 | 62.0 | 1.19 | 1.37 | 3,810 |
| November | 665 | 17 | 194 | 3.73 | 4.16 | 11,500 |
| December | 1,820 | 25 | 347 | 6.67 | 7.69 | 21,300 |
| January | 1,330 | | 236 | 4.54 | 5.23 | 14,500 |
| February | 2,760 | 136 | 535 | 10.3 | 10.73 | 29,700 |
| March | 3,040 | 76 | 337 | 6.48 | 7.47 | 20,700 |
| April | 326 | 75 | 129 | 2.48 | 2.77 | 7,680 |
| May | 900 | 34 | 128 | 2.46 | 2.87 | 7,870 |
| June | 123 | 32 | 55.4 | 1.07 | 1.19 | 3,300 |
| July | 27 | 2.8 | 11.1 | .213 | .28 | 682 |
| August | 2.8 | .9 | 1.58 | .030 | .08 | 97.2 |
| September | 1,220 | .8 | 63.1 | 1.21 | 1.35 | 3,750 |
| The year | 3,040 | .8 | 173 | 3.33 | 45.07 | 125,000 |

SKAGIT RIVER BASIN

SKAGIT RIVER BELOW RUBY CREEK, NEAR MARBLEMOUNT, WASH.

LOCATION.—Water-stage recorder in Whatcom County, three-fourths mile below Ruby Creek and 23 miles northeast of Marblemount, Skagit County.

DRAINAGE AREA.—978 square miles, of which 390 square miles is in Canada.

RECORDS AVAILABLE.—June, 1919, to September, 1930.

EXTREMES.—Maximum discharge during year, 10,700 second-feet June 11 (gage height, 8.9 feet); minimum, 390 second-feet Dec. 11, 12 (gage height, 3.00 feet); discharge probably lower sometime during winter.

1919-1930: Maximum discharge, 45,700 second-feet Dec. 12, 1921 (gage height, 16.1 feet); minimum discharge recorded in December, 1929.

REMARKS.—Records excellent except those represented by braced figures, which were estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Dec. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|--------|-------|-------|--------|
| 1..... | 654 | 400 | 600 | 1,740 | 4,500 | 5,500 | 6,320 | 5,180 | 2,180 | 1,070 |
| 2..... | 654 | | 950 | 1,620 | | 6,000 | 6,320 | 4,770 | 1,980 | 1,140 |
| 3..... | 654 | | 868 | 1,520 | | 6,190 | 6,070 | 4,290 | 1,860 | 1,200 |
| 4..... | 1,080 | | 1,010 | | | 5,720 | 6,070 | 4,200 | 1,920 | 1,230 |
| 5..... | 1,860 | 396 | 2,900 | | 4,370 | 5,390 | 6,070 | 4,480 | 1,980 | 1,250 |
| 6..... | 1,160 | 408 | 2,590 | | 4,970 | 5,070 | 7,480 | 4,670 | 2,050 | 1,260 |
| 7..... | 974 | 414 | 2,180 | | 5,980 | 4,580 | 9,780 | 4,380 | 1,980 | 1,180 |
| 8..... | 889 | 426 | 1,860 | 1,300 | 7,750 | 4,290 | 9,780 | 4,200 | 2,050 | 1,570 |
| 9..... | 998 | 420 | 1,620 | | 6,950 | 4,020 | 8,890 | 4,380 | 2,080 | 1,570 |
| 10..... | 950 | 396 | 1,570 | | 5,720 | 4,200 | 9,480 | 5,070 | 2,120 | 1,350 |
| 11..... | 861 | 390 | 1,440 | | 5,070 | 4,580 | 10,100 | 5,180 | 2,180 | 1,240 |
| 12..... | 861 | 390 | 1,320 | | 4,370 | 4,970 | 8,310 | 5,180 | 2,120 | 1,210 |
| 13..... | 840 | | 1,220 | | 5,390 | 5,840 | 6,690 | 5,390 | 2,050 | 1,180 |
| 14..... | 805 | | 1,140 | | 6,440 | 7,210 | 5,610 | 5,280 | 2,050 | 1,340 |
| 15..... | 805 | | 1,170 | | 6,440 | | 5,720 | 4,290 | 2,050 | 1,390 |
| 16..... | 819 | | 1,620 | | 6,190 | | 6,950 | 3,760 | 1,980 | 1,220 |
| 17..... | 889 | | 2,800 | 1,300 | 5,720 | | 6,070 | 3,380 | 1,680 | 1,200 |
| 18..... | 805 | 500 | 4,400 | | 5,390 | | 5,280 | 3,150 | 1,570 | 1,250 |
| 19..... | 819 | | 5,180 | | 5,390 | | 5,280 | 3,080 | 1,620 | 1,110 |
| 20..... | 770 | | 4,970 | | 5,610 | 6,500 | 5,610 | 3,010 | 1,520 | 1,010 |
| 21..... | 749 | | 4,380 | | | | 6,440 | 3,080 | 1,400 | 1,050 |
| 22..... | 721 | | 3,680 | | | | 6,440 | 3,150 | 1,370 | 998 |
| 23..... | 687 | | 3,150 | | | | 6,320 | 3,220 | 1,350 | 882 |
| 24..... | 680 | | 2,800 | | | | 6,070 | 3,150 | 1,300 | 833 |
| 25..... | 674 | | 2,450 | | | | 5,720 | 2,730 | 1,250 | 784 |
| 26..... | 680 | | 2,240 | | 7,600 | 4,020 | 5,390 | 2,450 | 1,180 | 1,030 |
| 27..... | 687 | 1,000 | 1,980 | 3,000 | | 4,110 | 5,720 | 2,240 | 1,190 | 1,230 |
| 28..... | 680 | | 1,860 | | | 4,770 | 5,390 | 2,180 | 1,190 | *1,150 |
| 29..... | 648 | | | | | 5,610 | 5,070 | 2,310 | 1,210 | 1,070 |
| 30..... | 635 | | | | | 5,950 | 5,070 | 2,450 | 1,200 | 918 |
| 31..... | 628 | | | | | 6,440 | | 2,380 | 1,120 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 1,860 | 628 | 825 | 0.845 | 0.97 | 50,800 |
| November..... | | | 500 | .511 | .57 | 29,800 |
| December..... | | | 591 | .604 | .70 | 36,300 |
| January..... | | | 500 | .511 | .59 | 30,700 |
| February..... | 5,180 | 600 | 2,280 | 2.33 | 2.43 | 127,000 |
| March..... | | | 1,830 | 1.87 | 2.16 | 113,000 |
| April..... | | | 6,230 | 6.37 | 7.11 | 371,000 |
| May..... | | 4,020 | 5,680 | 5.81 | 6.70 | 349,000 |
| June..... | 10,100 | 5,070 | 6,650 | 6.80 | 7.69 | 396,080 |
| July..... | 5,390 | 2,180 | 3,760 | 3.84 | 4.43 | 231,000 |
| August..... | 2,180 | 1,120 | 1,700 | 1.74 | 2.01 | 105,000 |
| September..... | 1,570 | 784 | 1,160 | 1.19 | 1.33 | 69,000 |
| The year..... | 10,100 | | 2,630 | 2.69 | 36.59 | 1,910,000 |

* Interpolated.

NOTE.—Mean discharge for November to January and for March estimated.

SKAGIT RIVER NEAR MARBLEMOUNT, WASH.

LOCATION.—Water-stage recorder in SE. ¼ sec. 21, T. 37 N., R. 12 E., at city of Seattle power plant, one-fourth mile above Newhalem Creek and 16 miles above Marblemount. Zero of gage, 400 feet above mean sea level.

DRAINAGE AREA.—1,160 square miles, of which 390 square miles is in Canada. RECORDS AVAILABLE.—December, 1908, to May, 1914; October, 1927, to September, 1930.

EXTREMES.—Maximum discharge during year, 13,400 second-feet June 11 (gage height, 86.9 feet); minimum, less than 90 second-feet, result of regulation Jan. 27, Aug. 25, when water was below intake.

1908-1914, 1920-1930: Maximum discharge, 60,000 second-feet Dec. 12, 1921 (gage height, 94.2 feet); minimum discharge occurred in 1927.

REMARKS.—Records excellent except those for Jan. 10-30, which were estimated because of ice. Seattle municipal power plant diverts water through pressure tunnel 3 miles above gage and returns it to river at plant just above gage. Entire low-water flow may be carried through plant. Flow partly controlled by storage and release of water at tunnel intake and above Diablo Dam.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| 1 | 691 | 710 | 274 | 1,060 | 916 | 1,870 | 5,630 | 6,250 | 6,900 | 6,380 | 3,320 | 690 |
| 2 | 692 | 646 | 682 | 1,310 | 578 | 2,240 | 5,600 | 6,920 | 7,010 | 5,860 | 3,140 | 1,120 |
| 3 | 831 | 436 | 589 | 1,230 | 912 | 2,550 | 5,330 | 7,150 | 6,580 | 5,290 | 3,270 | 1,110 |
| 4 | 1,180 | 835 | 583 | 1,080 | 1,520 | 2,650 | 5,470 | 6,550 | 6,540 | 5,240 | 3,110 | 1,370 |
| 5 | 1,180 | 802 | 577 | 843 | 3,500 | 2,280 | 5,990 | 6,110 | 6,900 | 5,790 | 3,400 | 1,740 |
| 6 | 230 | 766 | 572 | 1,140 | 4,080 | 2,090 | 6,190 | 5,830 | 8,590 | 6,040 | 3,560 | 1,550 |
| 7 | 829 | 733 | 581 | 843 | 3,330 | 1,670 | 7,330 | 5,330 | 11,900 | 5,660 | 3,450 | 928 |
| 8 | 2,700 | 654 | 304 | 732 | 2,210 | 1,810 | 10,100 | 4,880 | 11,400 | 5,540 | 3,600 | 1,350 |
| 9 | 3,630 | 619 | 700 | 640 | 1,630 | 1,290 | 8,580 | 4,750 | 10,500 | 5,900 | 3,580 | 1,330 |
| 10 | 1,650 | 302 | 644 | | 2,150 | 1,470 | 7,170 | 4,900 | 11,500 | 7,040 | 3,670 | 1,320 |
| 11 | 1,250 | 819 | 538 | | 2,190 | 1,490 | 6,110 | 5,380 | 12,500 | 7,320 | 3,890 | 1,440 |
| 12 | 1,300 | 664 | 498 | | 2,360 | 1,540 | 5,900 | 5,870 | 9,930 | 7,160 | 3,740 | 1,440 |
| 13 | 1,010 | 595 | 549 | 900 | 1,910 | 1,710 | 6,390 | 6,920 | 7,550 | 7,560 | 3,610 | 1,650 |
| 14 | 1,100 | 556 | 702 | | 1,880 | 1,820 | 7,550 | 8,530 | 6,460 | 7,420 | 3,660 | 1,270 |
| 15 | 1,290 | 580 | 262 | | 1,980 | 1,760 | 7,540 | 10,400 | 6,660 | 6,140 | 3,760 | 2,100 |
| 16 | 1,250 | 602 | 792 | | 1,870 | 666 | 7,140 | 11,600 | 8,340 | 5,320 | 3,400 | 2,060 |
| 17 | 1,450 | 468 | 695 | | 3,080 | 1,810 | 6,610 | 10,400 | 7,090 | 4,620 | 2,780 | 2,000 |
| 18 | 1,180 | 792 | 533 | | 4,400 | 1,720 | 6,320 | 8,570 | 6,070 | 4,280 | 2,410 | 1,980 |
| 19 | 1,180 | 645 | 570 | | 6,250 | 1,580 | 6,330 | 7,180 | 6,170 | 4,440 | 2,550 | 1,820 |
| 20 | 772 | 610 | 545 | 490 | 6,160 | 1,560 | 6,570 | 7,320 | 6,810 | 4,400 | 2,480 | 1,420 |
| 21 | 1,240 | 571 | 551 | | 5,950 | 1,830 | 7,670 | 6,620 | 8,050 | 4,670 | 1,340 | 1,120 |
| 22 | 1,070 | 547 | 384 | | 5,750 | 2,200 | 10,100 | 5,810 | 7,580 | 4,800 | 877 | 1,370 |
| 23 | 936 | 542 | 842 | | 5,490 | 1,710 | 11,000 | 5,320 | 7,620 | 5,000 | 194 | 1,120 |
| 24 | 960 | 310 | 1,000 | | 4,490 | 2,320 | 10,300 | 5,320 | 7,240 | 4,690 | 136 | 1,000 |
| 25 | 938 | 674 | 1,510 | | 3,640 | 2,650 | 9,660 | 5,080 | 6,980 | 3,940 | 286 | 1,010 |
| 26 | 1,010 | 636 | 1,790 | | 3,520 | 3,490 | 9,270 | 4,740 | 6,520 | 3,430 | 1,510 | 1,040 |
| 27 | 976 | 557 | 1,900 | 540 | 2,970 | 4,740 | 8,630 | 4,860 | 7,280 | 3,050 | 1,930 | 1,620 |
| 28 | 982 | 275 | 1,160 | | 2,230 | 5,660 | 7,840 | 5,720 | 6,890 | 3,070 | 1,800 | 2,130 |
| 29 | 884 | 658 | 1,100 | | | 7,690 | 6,970 | 6,510 | 6,180 | 3,360 | 1,600 | 1,980 |
| 30 | 831 | 575 | 1,180 | | | 6,510 | 6,560 | 6,940 | 6,240 | 3,120 | 1,380 | 1,840 |
| 31 | 780 | | 1,160 | 689 | | 5,700 | | 7,360 | | 3,270 | 673 | |

Monthly discharge of Skagit River near Marblemount, Wash., 1929-30

| Month | Observed | | | | Gain or loss in storage, Diablo Reser- voir (acre-feet) | Corrected for storage | | | |
|----------------|-----------------------------|--------------|-------|----------------------------|---|--------------------------------|-----------------------------|-----------------------|--------------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run-off in acre- feet | Discharge in second-feet | | Run- off in inches |
| | Maxi- mum | Mini- mum | Mean | | | | Mean | Per square mile | |
| October..... | 3,630 | 230 | 1,160 | 71,300 | +660 | 72,000 | 1,170 | 1.01 | 1.16 |
| November..... | 835 | 275 | 606 | 36,100 | +1,190 | 37,300 | 627 | .541 | .60 |
| December..... | 1,900 | 262 | 767 | 47,200 | +4,170 | 51,400 | 836 | .721 | .83 |
| January..... | 1,310 | ----- | 744 | 45,700 | -4,240 | 41,500 | 675 | .582 | .67 |
| February..... | 6,250 | 578 | 3,110 | 173,000 | +5,990 | 179,000 | 3,220 | 2.78 | 2.90 |
| March..... | 7,690 | 666 | 2,580 | 159,000 | -5,080 | 154,000 | 2,500 | 2.16 | 2.49 |
| April..... | 11,000 | 5,380 | 7,400 | 440,000 | -2,040 | 438,000 | 7,360 | 6.34 | 7.07 |
| May..... | 11,600 | 4,740 | 6,620 | 407,000 | +170 | 407,000 | 6,620 | 5.71 | 6.58 |
| June..... | 12,500 | 6,070 | 7,870 | 468,000 | -220 | 468,000 | 7,860 | 6.78 | 7.56 |
| July..... | 7,590 | 3,050 | 5,150 | 317,000 | +2,470 | 319,000 | 5,190 | 4.47 | 5.15 |
| August..... | 3,890 | 136 | 2,520 | 155,000 | +21,500 | 176,000 | 2,860 | 2.47 | 2.85 |
| September..... | 2,130 | 690 | 1,470 | 87,500 | +35,000 | 122,000 | 2,050 | 1.77 | 1.98 |
| The year..... | 12,500 | 136 | 3,320 | 2,410,000 | +59,600 | 2,470,000 | 3,400 | 2.93 | 39.84 |

SKAGIT RIVER NEAR CONCRETE, WASH.

LOCATION.—Water-stage recorder in sec. 16, T. 35 N., R. 8 E., at dalles 2 miles below Baker River and 2½ miles southwest of Concrete. Zero of gage 163 feet above mean sea level.

DRAINAGE AREA.—2,700 square miles, of which 390 square miles is in Canada. RECORDS AVAILABLE.—September, 1924, to September, 1930.

EXTREMES.—Maximum discharge during year, 32,200 second-feet June 7 (gage height, 10.01 feet); minimum discharge not determined because of faulty gage-height record.

1924-1930: Maximum discharge, 95,500 second-feet Jan. 12, 1928 (gage height, 20.2 feet); minimum probably less than 2,160 second-feet during period Oct. 1-24, 1925, when recorder was not operating and gates in Baker River Dam were closed for first time.

High-water marks at gage height 56.6 feet indicate flood of 500,000 second-feet about 1815. Records of other floods prior to establishment of station are given in Water-Supply Paper 612.

REMARKS.—Records excellent except those for periods when discharge is represented by braced figures, which were estimated. Water diverted for operation of power plants upstream is returned to river above station. At low stages flow partly controlled by storage and release of water at power plants on Baker River and on upper Skagit River.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|--------|-------|--------|--------|--------|--------|--------|--------|--------|-------|
| 1 | | 3,980 | | 6,800 | 7,320 | 8,880 | 16,500 | 15,760 | 18,800 | 19,200 | 9,540 | 4,280 |
| 2 | | 3,680 | | 7,480 | 11,800 | 7,900 | 16,100 | 18,100 | 20,600 | 17,900 | 8,940 | 4,480 |
| 3 | | 3,500 | | 7,540 | 10,000 | 8,660 | 15,600 | 19,700 | 18,700 | 16,000 | 8,230 | 4,840 |
| 4 | | 3,900 | | 7,230 | 14,400 | 8,810 | 16,200 | 16,400 | 16,500 | 13,900 | 9,060 | 4,800 |
| 5 | 5,300 | 3,940 | | 6,530 | 28,100 | 8,420 | 18,200 | 15,900 | 18,000 | 16,600 | 9,420 | 5,460 |
| 6 | | 4,010 | 2,700 | 6,340 | 20,000 | 7,970 | 18,100 | 15,000 | 22,400 | 17,600 | 10,200 | 5,360 |
| 7 | | 3,770 | | 5,680 | 16,600 | 7,490 | 20,800 | 13,800 | 30,800 | 16,300 | 9,620 | 4,820 |
| 8 | | 3,560 | | | 16,000 | 7,400 | 29,800 | 12,600 | 30,100 | 15,800 | 9,780 | 4,900 |
| 9 | | 3,380 | | | 11,800 | 6,540 | 24,700 | 12,400 | 26,500 | 16,100 | 9,790 | 5,090 |
| 10 | | | | | 11,900 | 6,640 | 20,600 | 12,600 | 29,400 | 19,500 | 9,430 | 4,740 |
| 11 | | | 2,420 | 4,600 | 12,800 | 6,820 | 16,500 | 13,300 | 30,800 | 20,900 | 10,300 | 4,980 |
| 12 | | | 2,360 | | 11,200 | 7,480 | 16,200 | 14,900 | 26,400 | 20,900 | 10,300 | 5,060 |
| 13 | 5,600 | | 2,420 | | 10,200 | 7,280 | 18,300 | 17,500 | 20,700 | 22,200 | 9,860 | 4,920 |
| 14 | | | 10,100 | | 9,140 | 7,170 | 20,400 | 23,100 | 17,700 | 22,100 | 9,690 | 6,340 |
| 15 | | 3,700 | 8,910 | | 8,960 | 7,120 | 20,800 | 26,600 | 17,100 | 18,100 | 10,100 | 7,130 |
| 16 | | | 5,880 | | 11,500 | 5,620 | 19,100 | 30,400 | 23,700 | 14,900 | 9,600 | 6,300 |
| 17 | | | 5,580 | | 17,800 | 6,270 | 17,200 | 26,000 | 20,100 | 12,900 | 7,840 | 5,880 |
| 18 | | | 4,520 | 3,500 | 20,000 | 6,720 | 16,600 | 21,400 | 16,000 | 12,200 | 7,610 | 6,270 |
| 19 | | | 3,980 | | 27,800 | 7,020 | 16,700 | 18,300 | 16,500 | 11,800 | 7,540 | 5,820 |
| 20 | | 3,620 | 3,720 | | 29,200 | 6,740 | 16,900 | 23,900 | 19,600 | 11,700 | 7,000 | 5,250 |
| 21 | 5,300 | 3,560 | 3,700 | | 26,000 | 8,100 | 20,900 | 21,400 | 23,700 | 12,600 | 5,770 | 4,550 |
| 22 | | 3,410 | 4,640 | | 21,200 | 11,300 | 28,300 | 17,000 | 21,900 | 13,200 | 5,040 | 5,190 |
| 23 | | | 9,320 | | 18,200 | 8,790 | 28,400 | 14,600 | 21,600 | 13,600 | 4,480 | 4,520 |
| 24 | | | 8,080 | | 14,900 | 10,600 | 26,400 | 14,600 | 18,900 | 13,400 | 3,970 | 4,330 |
| 25 | 4,390 | | 12,200 | 3,400 | 12,700 | 16,300 | 25,000 | 13,900 | 19,200 | 11,800 | 4,140 | 4,740 |
| 26 | 4,220 | 3,100 | 11,500 | | 11,800 | 15,200 | 24,300 | 12,900 | 17,600 | 10,600 | 4,340 | 6,200 |
| 27 | 3,980 | | 9,800 | | 11,000 | 16,500 | 22,800 | 12,900 | 20,900 | 9,540 | 5,460 | 6,940 |
| 28 | 4,400 | | 7,420 | | 9,600 | 18,400 | 21,400 | 14,700 | 22,100 | 9,540 | 5,640 | 9,130 |
| 29 | 4,480 | | 6,080 | 3,680 | | 23,000 | 18,700 | 16,800 | 18,600 | 9,860 | 5,500 | 7,060 |
| 30 | 4,260 | | 6,860 | 3,680 | | 20,000 | 16,700 | 17,800 | 17,200 | 10,600 | 5,260 | 6,420 |
| 31 | 4,060 | | 7,580 | 3,580 | | 17,800 | | 20,600 | | 9,840 | 4,240 | |

Monthly discharge, in second-feet, of Skagit River near Concrete, Wash., 1929-30

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|---------|-----------------|---------|-------------|
| | | | | | Inches | Acre-feet |
| October..... | ----- | ----- | 5, 140 | ----- | ----- | 316, 000 |
| November..... | ----- | ----- | 3, 540 | ----- | ----- | 211, 000 |
| December..... | 12, 200 | ----- | 5, 290 | ----- | ----- | 325, 000 |
| January..... | 7, 540 | ----- | 4, 490 | ----- | ----- | 276, 000 |
| February..... | 29, 200 | 7, 320 | 15, 400 | ----- | ----- | 555, 000 |
| March..... | 23, 000 | 5, 620 | 10, 100 | ----- | ----- | 621, 000 |
| April..... | 29, 800 | 15, 600 | 20, 300 | ----- | ----- | 1, 210, 000 |
| May..... | 30, 400 | 12, 400 | 17, 600 | ----- | ----- | 1, 080, 000 |
| June..... | 30, 800 | 16, 000 | 21, 400 | ----- | ----- | 1, 270, 000 |
| July..... | 22, 200 | 9, 540 | 14, 900 | ----- | ----- | 916, 000 |
| August..... | 10, 300 | 3, 970 | 7, 670 | ----- | ----- | 472, 000 |
| September..... | 9, 130 | 4, 280 | 5, 530 | ----- | ----- | 329, 000 |
| The year..... | 30, 800 | ----- | 10, 900 | 4. 04 | 54. 84 | 7, 880, 000 |

NOTE.—Monthly discharge in second-feet per square mile and run-off in inches not computed, owing to regulation above. Yearly figures closely represent natural flow.

THUNDER CREEK NEAR MARBLEMOUNT, WASH.

LOCATION.—Water-stage recorder in Whatcom County, one-fourth mile above mouth and 20 miles northeast of Marblemount, Skagit County.

DRAINAGE AREA.—111 square miles.

RECORDS AVAILABLE.—February, 1919, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,370 second-feet July 13 (gage height, 8.10 feet); minimum probably occurred during period Jan. 7-31, when stage-discharge relation was affected by ice; not determined.

1919-1930: Maximum discharge, 9,720 second-feet Dec. 12, 1921 (gage height, 15.5 feet); minimum probably occurred during period Jan. 19 to Feb. 15, 1929, when stage-discharge relation was affected by ice; not determined.

REMARKS.—Records fair except those for periods included within braces, which were estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| 1 | 155 | 120 | 75 | 96 | 470 | 140 | 580 | 525 | 615 | 1,010 | 840 | 463 |
| 2 | 155 | 127 | 75 | 90 | | | 530 | 615 | 660 | 855 | 740 | 542 |
| 3 | 330 | 113 | 70 | 90 | | | 480 | 615 | 570 | 705 | 740 | 795 |
| 4 | 1,120 | 113 | 70 | 90 | | | 480 | 525 | 615 | 805 | 990 | 930 |
| 5 | 888 | 107 | 79 | 85 | | | 502 | 502 | 755 | 1,060 | 1,090 | 940 |
| 6 | 308 | 101 | 85 | 85 | 192 | 170 | 525 | 460 | 1,120 | 1,120 | 1,140 | 696 |
| 7 | 230 | 101 | 80 | 80 | | | 812 | 400 | 1,530 | 1,010 | 1,140 | 331 |
| 8 | 244 | 96 | 80 | 80 | | | 1,060 | 360 | 1,290 | 1,010 | 1,250 | 1,070 |
| 9 | 299 | 96 | 75 | 75 | | | 805 | 360 | 1,180 | 1,250 | 1,250 | 669 |
| 10 | 192 | 96 | 75 | 75 | | | 615 | 420 | 1,470 | 1,610 | 1,250 | 520 |
| 11 | 161 | 90 | 80 | 80 | 181 | 550 | 548 | 525 | 1,470 | 1,610 | 1,370 | 580 |
| 12 | 241 | 90 | 80 | 80 | 161 | | 548 | 615 | 1,010 | 1,740 | 1,250 | 710 |
| 13 | 230 | 85 | 80 | 80 | 143 | | 660 | 805 | 755 | 1,950 | 1,250 | 810 |
| 14 | 264 | 85 | 85 | 85 | 135 | | 755 | 1,060 | 615 | 1,880 | 1,310 | 1,190 |
| 15 | 395 | 85 | 85 | 80 | 143 | | 705 | 1,230 | 755 | 1,370 | 1,370 | 1,060 |
| 16 | 376 | 94 | 85 | 85 | 212 | 480 | 615 | 1,290 | 1,180 | 1,140 | 1,090 | 852 |
| 17 | 452 | 113 | 85 | 85 | 542 | | 570 | 1,010 | 805 | 940 | 840 | 830 |
| 18 | 204 | 90 | 80 | 80 | 755 | | 570 | 805 | 660 | 890 | 840 | 1,010 |
| 19 | 204 | 85 | 80 | 80 | 805 | | 570 | 615 | 855 | 1,090 | 840 | 610 |
| 20 | 161 | 80 | 75 | 75 | 705 | | 615 | 660 | 1,010 | 1,090 | 690 | 610 |
| 21 | 192 | 75 | 75 | 75 | 660 | 550 | 805 | 570 | 1,230 | 1,190 | 690 | 710 |
| 22 | 161 | 75 | 75 | 75 | 548 | | 1,120 | 460 | 1,010 | 1,250 | 790 | 382 |
| 23 | 171 | 75 | 85 | 85 | 480 | | 1,120 | 420 | 1,010 | 1,370 | 740 | 300 |
| 24 | 192 | 75 | 90 | 90 | 300 | | 955 | 440 | 1,010 | 1,190 | 690 | 256 |
| 25 | 212 | 75 | 152 | 152 | | | 855 | 420 | 955 | 940 | 572 | 252 |
| 26 | 281 | 75 | 135 | 135 | 300 | | 805 | 380 | 955 | 790 | 530 | 942 |
| 27 | 192 | 75 | 113 | 90 | 550 | | 755 | 400 | 1,180 | 640 | 690 | 988 |
| 28 | 143 | 75 | 107 | 107 | | | 660 | 570 | 1,610 | 740 | 740 | 572 |
| 29 | 127 | 75 | 101 | 101 | | | 570 | 660 | 855 | 940 | 790 | 332 |
| 30 | 120 | 75 | 101 | 101 | | | 525 | 705 | 955 | 1,190 | 690 | 250 |
| 31 | 113 | --- | 101 | 101 | | | --- | 705 | --- | 1,040 | 550 | --- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 1,120 | 113 | 275 | 2.48 | 2.86 | 16,900 |
| November | 127 | 75 | 90.6 | .816 | .91 | 5,390 |
| December | 152 | 70 | 87.5 | .788 | .91 | 5,380 |
| January | | | 84.7 | .763 | .88 | 5,210 |
| February | | | 407 | 3.67 | 3.82 | 22,600 |
| March | | | 267 | 2.41 | 2.78 | 16,400 |
| April | 1,120 | 480 | 690 | 6.22 | 6.94 | 41,100 |
| May | 1,290 | 360 | 617 | 5.56 | 6.41 | 37,900 |
| June | 1,530 | 570 | 970 | 8.74 | 9.75 | 57,700 |
| July | 1,950 | 640 | 1,140 | 10.3 | 11.87 | 70,100 |
| August | 1,370 | 530 | 927 | 8.35 | 9.63 | 57,000 |
| September | 1,190 | 250 | 674 | 6.07 | 6.77 | 40,100 |
| The year | 1,950 | | 519 | 4.68 | 63.53 | 376,000 |

CASCADE RIVER AT MARBLEMOUNT, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 9, T. 35 N., R. 11 E., 2 miles east of Marblemount.

DRAINAGE AREA.—180 square miles.

RECORDS AVAILABLE.—September, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,490 second-feet June 7 (gage height, 5.43 feet); minimum, 149 second-feet Nov. 15 (gage height, 1.38 feet).

1928-1930: Maximum discharge, 6,500 second-feet, Oct. 9, 1928 (gage height, 9.20 feet); minimum probably occurred during January or February, 1929, when stage-discharge relation was affected by ice; not determined.

REMARKS.—Records good except those for periods represented by braced figures, which were estimated and are fair. No diversions or regulations.

Daily and monthly discharge, in second-feet, 1928-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 211 | 199 | 171 | 365 | 508 | 470 | 1,110 | 990 | 1,310 | 1,570 | 875 | 456 |
| 2..... | 211 | 209 | 166 | 338 | 685 | 430 | 1,080 | 1,170 | 1,420 | 1,420 | 765 | 554 |
| 3..... | 289 | 193 | 160 | 357 | 595 | 405 | 1,050 | 1,140 | 1,240 | 1,280 | 738 | 596 |
| 4..... | 728 | 187 | 158 | 345 | 1,140 | 385 | 990 | 1,020 | 1,140 | 1,280 | 848 | 579 |
| 5..... | 652 | 179 | 181 | 317 | 1,960 | 385 | 1,080 | 960 | 1,310 | 1,490 | 930 | 592 |
| 6..... | 329 | 175 | 195 | 280 | 1,240 | 349 | 1,110 | 930 | 1,860 | 1,490 | 902 | 578 |
| 7..... | 272 | 171 | 177 | 255 | 1,050 | 338 | 1,600 | 820 | 2,220 | 1,880 | 902 | 476 |
| 8..... | 270 | 171 | 181 | 190 | 1,020 | 328 | 1,950 | 765 | 1,950 | 1,420 | 960 | 609 |
| 9..... | 337 | 173 | 171 | | 875 | 314 | 1,420 | 765 | 1,860 | 1,590 | 930 | 542 |
| 10..... | 293 | 167 | 175 | | 848 | 307 | 1,170 | 848 | 2,130 | 1,900 | 930 | 494 |
| 11..... | 255 | 158 | 166 | | 820 | 350 | 1,050 | 1,020 | 2,000 | 1,860 | 990 | 474 |
| 12..... | 288 | 155 | 158 | 160 | 710 | 389 | 1,050 | 1,140 | 1,610 | 1,900 | 925 | 502 |
| 13..... | 265 | 153 | 173 | | 570 | 353 | 1,280 | 1,450 | 1,340 | 2,040 | 902 | 672 |
| 14..... | 268 | 151 | 718 | | 492 | 320 | 1,420 | 1,730 | 1,140 | 1,770 | 902 | 1,080 |
| 15..... | 350 | 149 | 596 | | 560 | 307 | 1,380 | 2,000 | 1,300 | 1,450 | 902 | 774 |
| 16..... | | 174 | 425 | 160 | 850 | 292 | 1,200 | 2,040 | 1,730 | 1,280 | 792 | 586 |
| 17..... | | 271 | 338 | | 1,380 | 292 | 1,080 | 1,570 | 1,310 | 1,050 | 655 | 526 |
| 18..... | | 209 | 280 | | 1,610 | 310 | 1,050 | 1,280 | 1,110 | 1,020 | 650 | 690 |
| 19..... | 348 | 187 | 260 | | 1,860 | 349 | 1,050 | 1,140 | 1,310 | 1,170 | 660 | 477 |
| 20..... | 288 | 173 | 242 | 180 | 1,690 | 334 | 1,170 | 1,380 | 1,530 | 1,140 | 565 | 448 |
| 21..... | 288 | 167 | 242 | | 1,380 | 446 | 1,520 | 1,170 | 2,080 | 1,240 | 536 | 449 |
| 22..... | 275 | 167 | 312 | | 1,110 | 538 | 2,000 | 990 | 1,610 | 1,310 | 590 | 356 |
| 23..... | 272 | 164 | 515 | | 960 | 479 | 1,820 | 902 | 1,650 | 1,340 | 557 | 280 |
| 24..... | 265 | 162 | 482 | 207 | 820 | 792 | 1,650 | 960 | 1,570 | 1,240 | 533 | 265 |
| 25..... | 246 | 167 | 930 | | 710 | 1,340 | 1,530 | 875 | 1,450 | 990 | 484 | 242 |
| 26..... | 280 | 169 | 685 | | 620 | 1,200 | 1,490 | 792 | 1,420 | 875 | 449 | 807 |
| 27..... | 285 | 169 | 538 | | 560 | 1,240 | 1,380 | 848 | 1,730 | 820 | 502 | 824 |
| 28..... | 248 | 167 | 425 | 207 | 510 | 1,570 | 1,280 | 1,110 | 1,090 | 848 | 541 | 748 |
| 29..... | 229 | 171 | 381 | | 1,200 | 1,730 | 1,110 | 1,170 | 1,420 | 960 | 559 | 452 |
| 30..... | 213 | 179 | 393 | | | 1,380 | 1,020 | 1,310 | 1,490 | 1,050 | 513 | 357 |
| 31..... | 203 | ----- | 385 | | | 1,200 | ----- | 1,530 | ----- | 960 | 445 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 728 | 203 | 307 | 1.71 | 1.97 | 18,900 |
| November..... | 271 | 149 | 176 | .978 | 1.09 | 10,500 |
| December..... | 930 | 158 | 335 | 1.86 | 2.14 | 20,600 |
| January..... | 365 | ----- | 210 | 1.17 | 1.35 | 12,900 |
| February..... | 1,960 | 492 | 969 | 5.38 | 5.60 | 53,800 |
| March..... | 1,730 | 292 | 610 | 3.39 | 3.91 | 37,500 |
| April..... | 2,000 | 990 | 1,300 | 7.22 | 8.06 | 77,400 |
| May..... | 2,040 | 765 | 1,160 | 6.44 | 7.42 | 71,300 |
| June..... | 2,220 | 1,110 | 1,560 | 8.67 | 9.67 | 92,800 |
| July..... | 2,040 | 820 | 1,330 | 7.39 | 8.52 | 81,800 |
| August..... | 990 | 443 | 724 | 4.02 | 4.64 | 44,500 |
| September..... | 1,080 | 242 | 552 | 3.07 | 3.42 | 32,800 |
| The year..... | 2,220 | ----- | 766 | 4.26 | 57.79 | 555,000 |

SAUK RIVER ABOVE WHITECHUCK RIVER, NEAR DARRINGTON, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 24, T. 31 N., R. 10 E., half a mile above Whitechuck River and $9\frac{1}{2}$ miles southeast of Darrington.

DRAINAGE AREA.—152 square miles.

RECORDS AVAILABLE.—August to November, 1910 (fragmentary gage heights); October, 1917, to September, 1922; August, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 5,060 second-feet Feb. 5 (gage height, 6.35 feet); minimum discharge, 146 second-feet Sept. 25; minimum gage height, 2.01 feet Oct. 2, 3.

1917–1922, 1928–1930: Maximum discharge, 23,000 second-feet Dec. 12, 1921 (gage height, 14.65 feet); minimum, that of Sept. 25, 1930.

REMARKS.—Records excellent except those for Jan. 8–27, which were estimated because of ice. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1 | 158 | 204 | 180 | 732 | 1,070 | 555 | 1,270 | 1,170 | 1,370 | 1,270 | 373 | 197 |
| 2 | 156 | 219 | 175 | 635 | 1,450 | 489 | 1,200 | 1,370 | 1,320 | 1,150 | 334 | 201 |
| 3 | 156 | 213 | 170 | 755 | 1,040 | 462 | 1,190 | 1,420 | 1,190 | 1,010 | 334 | 208 |
| 4 | 210 | 204 | 164 | 688 | 2,700 | 436 | 1,230 | 1,220 | 1,140 | 998 | 334 | 208 |
| 5 | 312 | 195 | 168 | 598 | 4,020 | 423 | 1,320 | 1,130 | 1,320 | 1,110 | 350 | 215 |
| 6 | 239 | 201 | 180 | 504 | 2,090 | 398 | 1,370 | 1,070 | 1,730 | 1,110 | 350 | 238 |
| 7 | 207 | 185 | 180 | 432 | 1,760 | 392 | 1,990 | 962 | 2,250 | 980 | 345 | 251 |
| 8 | 190 | 182 | 190 | | 1,570 | 367 | 2,800 | 873 | 1,860 | 971 | 362 | 219 |
| 9 | 233 | 182 | 216 | | 1,160 | 362 | 1,920 | 830 | 1,740 | 1,050 | 373 | 219 |
| 10 | 232 | 188 | 219 | | 1,230 | 340 | 1,520 | 864 | 1,980 | 1,210 | 379 | 205 |
| 11 | 210 | 185 | 213 | | 1,180 | 350 | 1,320 | 971 | 1,920 | 1,180 | 379 | 232 |
| 12 | 210 | 180 | 195 | 210 | 935 | 386 | 1,260 | 1,100 | 1,740 | 1,170 | 367 | 205 |
| 13 | 201 | 175 | 288 | | 789 | 350 | 1,420 | 1,420 | 1,420 | 1,230 | 350 | 212 |
| 14 | 190 | 170 | 2,490 | | 693 | 334 | 1,420 | 1,740 | 1,210 | 1,080 | 350 | 367 |
| 15 | 188 | 168 | 1,420 | | 864 | 318 | 1,470 | 1,980 | 1,320 | 873 | 356 | 330 |
| 16 | 188 | 188 | 1,080 | | 1,520 | 297 | 1,370 | 2,180 | 1,620 | 773 | 328 | 249 |
| 17 | 396 | 552 | 825 | | 1,980 | 292 | 1,230 | 1,740 | 1,270 | 653 | 282 | 232 |
| 18 | 343 | 332 | 620 | | 2,250 | 297 | 1,180 | 1,470 | 1,090 | 592 | 258 | 232 |
| 19 | 421 | 260 | 525 | | 3,210 | 334 | 1,180 | 1,370 | 1,180 | 563 | 272 | 208 |
| 20 | 328 | 232 | 464 | | 2,750 | 345 | 1,320 | 1,860 | 1,370 | 570 | 249 | 194 |
| 21 | 296 | 210 | 458 | | 2,050 | 808 | 1,680 | 1,680 | 1,680 | 608 | 228 | 190 |
| 22 | 260 | 201 | 825 | 160 | 1,570 | 1,130 | 2,120 | 1,370 | 1,370 | 630 | 219 | 174 |
| 23 | 242 | 190 | 1,340 | | 1,270 | 789 | 1,980 | 1,230 | 1,230 | 669 | 215 | 162 |
| 24 | 225 | 185 | 1,080 | | 1,050 | 1,130 | 1,860 | 1,180 | 1,180 | 615 | 212 | 153 |
| 25 | 213 | 190 | 1,550 | | 917 | 1,470 | 1,740 | 1,100 | 1,130 | 803 | 208 | 148 |
| 26 | 210 | 188 | 1,260 | | 797 | 1,320 | 1,680 | 989 | 1,090 | 449 | 201 | 384 |
| 27 | 272 | 188 | 1,010 | | 709 | 1,320 | 1,620 | 1,020 | 1,320 | 398 | 201 | 380 |
| 28 | 274 | 182 | 793 | 166 | 630 | 1,520 | 1,520 | 1,220 | 1,470 | 386 | 205 | 444 |
| 29 | 239 | 182 | 688 | 180 | | 1,800 | 1,320 | 1,270 | 1,230 | 404 | 208 | 292 |
| 30 | 216 | 182 | 725 | 190 | | 1,520 | 1,190 | 1,320 | 1,240 | 449 | 208 | 292 |
| 31 | 210 | | 672 | 234 | | 1,370 | | 1,420 | | 410 | 201 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 421 | 156 | 240 | 1.58 | 1.82 | 14,800 |
| November | 552 | 168 | 210 | 1.38 | 1.54 | 12,500 |
| December | 2,490 | 164 | 657 | 4.32 | 4.98 | 40,400 |
| January | 755 | | 284 | 1.87 | 2.16 | 17,500 |
| February | 4,020 | 630 | 1,540 | 10.1 | 10.52 | 85,500 |
| March | 1,800 | 292 | 700 | 4.61 | 5.32 | 43,000 |
| April | 2,800 | 1,180 | 1,520 | 10.0 | 11.16 | 90,400 |
| May | 2,180 | 850 | 1,310 | 8.62 | 9.94 | 80,600 |
| June | 2,250 | 1,090 | 1,430 | 9.41 | 10.50 | 85,100 |
| July | 1,270 | 386 | 809 | 5.32 | 6.13 | 49,700 |
| August | 379 | 201 | 291 | 1.91 | 2.20 | 17,900 |
| September | 444 | 148 | 239 | 1.57 | 1.75 | 14,200 |
| The year | 4,020 | | 763 | 5.02 | 68.02 | 552,000 |

SAUK RIVER AT DARRINGTON, WASH.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 24, T. 32 N., R. 9 E., half a mile southeast of Darrington.

DRAINAGE AREA.—293 square miles.

RECORDS AVAILABLE.—June, 1914, to October, 1926; June, 1927, to September, 1930.

EXTREMES.—Maximum discharge during year, 7,280 second-feet Feb. 5 (gage height, 6.15 feet); minimum, 262 second-feet Sept. 25; discharge may have been less some time during Jan. 11-25; minimum gage height, 1.45 feet on Jan. 20.

1914-1926, 1928-1930: Maximum discharge, 36,000 second-feet Dec. 29, 1917, Dec. 12, 1921 (gage height, 15.0 feet); minimum, that of Sept. 25, 1930.

REMARKS.—Records good except those for Jan. 11-25, which were estimated because of ice and are fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 300 | 340 | 340 | 780 | 3,500 | 1,180 | 2,180 | 1,940 | 2,310 | 2,180 | 815 | 362 |
| 2..... | 300 | 410 | 320 | 1,220 | 4,340 | 770 | 2,060 | 1,830 | 2,060 | 1,940 | 770 | 390 |
| 3..... | 300 | 410 | 300 | 1,180 | 6,570 | 950 | 2,310 | 1,830 | 2,060 | 1,720 | 770 | 520 |
| 4..... | 585 | 362 | 300 | 1,420 | 6,800 | 950 | 2,310 | 1,830 | 1,940 | 2,060 | 770 | 390 |
| 5..... | 550 | 540 | 300 | 1,420 | 7,280 | 950 | 2,930 | 1,830 | 2,450 | 2,060 | 770 | 420 |
| 6..... | 435 | 362 | 320 | 1,040 | 6,800 | 860 | 2,930 | 1,830 | 2,930 | 2,060 | 770 | 450 |
| 7..... | 362 | 340 | 300 | 860 | 6,800 | 860 | 4,550 | 1,940 | 3,920 | 2,060 | 725 | 420 |
| 8..... | 362 | 340 | 362 | 780 | 6,800 | 770 | 4,340 | 1,940 | 3,110 | 1,830 | 860 | 420 |
| 9..... | 550 | 340 | 435 | 780 | 6,110 | 770 | 3,110 | 1,940 | 2,760 | 2,450 | 860 | 390 |
| 10..... | 585 | 340 | 340 | 585 | 3,110 | 770 | 2,600 | 1,830 | 3,710 | 1,280 | 860 | 520 |
| 11..... | 362 | 340 | 340 | 300 | 2,180 | 770 | 2,930 | 1,940 | 3,920 | 2,450 | 770 | 390 |
| 12..... | 340 | 340 | 340 | | 1,720 | 860 | 2,600 | 1,830 | 2,760 | 2,600 | 725 | 420 |
| 13..... | 355 | 300 | 435 | | 1,520 | 770 | 2,450 | 2,310 | 2,060 | 2,060 | 860 | 485 |
| 14..... | 320 | 300 | 5,650 | | 1,420 | 680 | 2,450 | 2,930 | 1,940 | 1,830 | 860 | 905 |
| 15..... | 300 | 550 | 2,600 | | 1,530 | 680 | 2,450 | 2,760 | 1,830 | 1,620 | 905 | 640 |
| 16..... | 1,040 | 1,420 | 2,060 | 282 | 4,130 | 680 | 2,310 | 2,600 | 2,760 | 1,620 | 770 | 485 |
| 17..... | 950 | 950 | 1,420 | | 4,130 | 680 | 2,060 | 2,930 | 2,060 | 1,420 | 600 | 450 |
| 18..... | 860 | 550 | 1,040 | | 5,430 | 680 | 2,060 | 2,930 | 1,830 | 1,320 | 520 | 560 |
| 19..... | 860 | 435 | 780 | | 6,800 | 680 | 2,060 | 3,300 | 2,310 | 1,220 | 905 | 390 |
| 20..... | 820 | 385 | 820 | | 4,550 | 680 | 2,930 | 3,710 | 2,310 | 1,220 | 520 | 390 |
| 21..... | 550 | 362 | 1,270 | 290 | 4,130 | 680 | 4,130 | 2,930 | 3,110 | 1,220 | 520 | 420 |
| 22..... | 435 | 340 | 2,060 | | 3,110 | 2,450 | 4,130 | 2,180 | 2,600 | 1,220 | 560 | 335 |
| 23..... | 435 | 340 | 3,300 | | 2,180 | 2,600 | 3,710 | 2,060 | 2,180 | 1,220 | 520 | 285 |
| 24..... | 410 | 340 | 2,930 | | 2,060 | 3,500 | 3,300 | 1,830 | 2,180 | 1,220 | 450 | 285 |
| 25..... | 385 | 300 | 2,600 | | 1,620 | 3,500 | 3,110 | 1,940 | 2,060 | 1,080 | 450 | 262 |
| 26..... | 435 | 320 | 2,450 | 300 | 1,420 | 2,600 | 3,710 | 1,940 | 2,180 | 1,040 | 450 | 1,180 |
| 27..... | 435 | 340 | 1,830 | 300 | 1,320 | 2,450 | 3,710 | 1,720 | 2,600 | 950 | 450 | 1,220 |
| 28..... | 462 | 340 | 1,420 | 410 | 1,270 | 2,930 | 2,600 | 1,720 | 2,600 | 905 | 450 | 815 |
| 29..... | 410 | 340 | 1,420 | 550 | ----- | 2,760 | 2,180 | 1,830 | 2,310 | 1,040 | 450 | 560 |
| 30..... | 435 | 340 | 1,520 | 1,520 | ----- | 2,760 | 1,940 | 2,450 | 2,18 | 995 | 1,270 | 450 |
| 31..... | 435 | ----- | 1,320 | 2,600 | ----- | 2,310 | ----- | 2,310 | ----- | 950 | 390 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 1,040 | 300 | 497 | 1.70 | 1.96 | 30,600 |
| November..... | 1,420 | 300 | 417 | 1.42 | 1.58 | 24,800 |
| December..... | 5,650 | 300 | 1,320 | 4.51 | 5.20 | 81,200 |
| January..... | 2,600 | ----- | 651 | 2.22 | 2.56 | 40,000 |
| February..... | 7,280 | 1,270 | 3,890 | 13.3 | 13.85 | 216,000 |
| March..... | 3,500 | 680 | 1,440 | 4.91 | 5.66 | 88,500 |
| April..... | 4,550 | 1,940 | 2,870 | 9.80 | 10.93 | 171,000 |
| May..... | 3,710 | 1,720 | 2,220 | 7.58 | 8.74 | 136,000 |
| June..... | 3,920 | 1,830 | 2,500 | 8.53 | 9.52 | 149,000 |
| July..... | 2,600 | 905 | 1,600 | 5.46 | 6.30 | 98,400 |
| August..... | 1,270 | 390 | 689 | 2.35 | 2.71 | 42,400 |
| September..... | 1,220 | 262 | 507 | 1.73 | 1.93 | 30,200 |
| The year..... | 7,280 | ----- | 1,530 | 5.22 | 70.94 | 1,110,000 |

SAUK RIVER NEAR SAUK, WASH.

LOCATION.—Water-stage recorder in NW. ¼ sec. 19, T. 34 N., R. 10 E., 5 miles above mouth and southeast of Sauk.

DRAINAGE AREA.—714 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1930; August, 1910, to August, 1912, for station 1 mile below.

EXTREMES.—Maximum discharge during year, 15,200 second-feet Feb. 5 (gage height, 7.99 feet); minimum, 572 second-feet Dec. 5 (gage height, 2.62 feet); discharge may have been less some time during Jan. 10–27, when stage-discharge relation was affected by ice.

1910–1912, 1928–1930: Maximum discharge, 21,800 second-feet Oct. 9, 1928 (gage height, 9.33 feet); minimum, that of Dec. 5, 1929.

REMARKS.—Records excellent except those for Jan. 10–29, which were estimated because of ice. Discharge Aug. 24 to Sept. 1 also estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 668 | 740 | 614 | 2,710 | 3,920 | 2,520 | 4,700 | 4,110 | 5,070 | 5,580 | 2,520 | 1,300 |
| 2..... | 676 | 866 | 602 | 2,520 | 5,850 | 2,290 | 4,340 | 4,700 | 5,200 | 5,070 | 2,240 | 1,280 |
| 3..... | 684 | 822 | 590 | 3,120 | 4,340 | 2,200 | 4,220 | 4,700 | 4,580 | 4,580 | 2,190 | 1,420 |
| 4..... | 1,290 | 750 | 578 | 2,910 | 7,950 | 2,100 | 4,460 | 4,220 | 4,340 | 4,340 | 2,310 | 1,600 |
| 5..... | 1,590 | 720 | 596 | 2,520 | 13,000 | 2,060 | 4,820 | 4,000 | 4,820 | 5,070 | 2,420 | 1,620 |
| 6..... | 1,130 | 730 | 692 | 2,150 | 7,620 | 1,940 | 4,820 | 3,880 | 6,140 | 5,200 | 2,520 | 1,670 |
| 7..... | 888 | 700 | 676 | 1,860 | 6,430 | 1,890 | 6,000 | 3,440 | 8,550 | 4,700 | 2,420 | 1,380 |
| 8..... | 855 | 692 | 684 | 1,710 | 6,230 | 1,890 | 8,550 | 3,220 | 7,350 | 4,580 | 2,520 | 1,460 |
| 9..... | 1,040 | 684 | 790 | 1,520 | 4,580 | 1,790 | 6,420 | 3,120 | 6,720 | 4,940 | 2,370 | 1,440 |
| 10..... | 1,030 | 700 | 811 | | 4,580 | 1,750 | 5,200 | 3,220 | 7,680 | 5,720 | 2,420 | 1,350 |
| 11..... | 855 | 676 | 750 | 1,040 | 4,700 | 1,760 | 4,580 | 3,660 | 7,680 | 5,720 | 2,420 | 1,540 |
| 12..... | 922 | 636 | 684 | | 3,770 | 1,980 | 4,340 | 3,880 | 6,280 | 5,850 | 2,420 | 1,390 |
| 13..... | 888 | 628 | 769 | | 3,220 | 1,760 | 4,940 | 4,820 | 5,320 | 6,130 | 2,240 | 1,380 |
| 14..... | 833 | 620 | 7,030 | | 2,910 | 1,670 | 5,200 | 5,990 | 4,580 | 5,850 | 2,280 | 2,140 |
| 15..... | 899 | 614 | 4,450 | | 3,340 | 1,570 | 5,200 | 6,720 | 4,580 | 4,700 | 2,290 | 1,910 |
| 16..... | 1,010 | 644 | 3,220 | 770 | 5,580 | 1,510 | 4,820 | 7,680 | 6,420 | 4,220 | 2,080 | 1,480 |
| 17..... | 1,550 | 1,480 | 2,720 | | 6,880 | 1,480 | 4,340 | 6,280 | 5,200 | 3,550 | 1,780 | 1,380 |
| 18..... | 1,390 | 1,080 | 1,960 | | 7,350 | 1,510 | 4,340 | 5,320 | 4,340 | 3,220 | 1,760 | 1,520 |
| 19..... | 1,350 | 844 | 1,710 | | 10,200 | 1,620 | 4,220 | 4,700 | 4,580 | 3,220 | 1,890 | 1,220 |
| 20..... | 1,190 | 730 | 1,540 | | 9,660 | 1,630 | 4,580 | 6,130 | 5,320 | 3,220 | 1,700 | 1,110 |
| 21..... | 1,070 | 660 | 1,510 | 820 | 7,700 | 3,050 | 5,580 | 5,580 | 7,030 | 3,440 | 1,520 | 1,150 |
| 22..... | 994 | 644 | 2,810 | | 5,990 | 4,580 | 7,030 | 4,820 | 5,720 | 3,550 | 1,600 | 1,020 |
| 23..... | 910 | 628 | 5,580 | | 4,940 | 3,220 | 6,880 | 4,220 | 5,320 | 3,660 | 1,520 | 790 |
| 24..... | 866 | 620 | 4,460 | | 4,220 | 4,210 | 6,420 | 4,110 | 5,070 | 3,550 | 1,500 | 740 |
| 25..... | 844 | 644 | 5,850 | | 3,660 | 6,130 | 5,990 | 3,880 | 5,070 | 3,010 | 1,470 | 700 |
| 26..... | 899 | 660 | 4,700 | | 3,220 | 5,450 | 5,850 | 3,550 | 4,820 | 2,710 | 1,450 | 1,530 |
| 27..... | 1,010 | 644 | 3,880 | | 2,910 | 5,070 | 5,720 | 3,550 | 5,850 | 2,380 | 1,420 | 1,900 |
| 28..... | 1,010 | 628 | 3,010 | 844 | 2,610 | 5,720 | 5,320 | 4,110 | 5,990 | 2,380 | 1,400 | 2,200 |
| 29..... | 866 | 620 | 2,520 | 900 | | 6,720 | 4,700 | 4,460 | 5,200 | 2,520 | 1,380 | 1,380 |
| 30..... | 811 | 628 | 2,710 | 958 | | 5,720 | 4,220 | 4,700 | 5,200 | 2,810 | 1,350 | 1,110 |
| 31..... | 780 | | 2,610 | 1,200 | | 5,070 | | 5,320 | | 2,710 | 1,330 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 1,590 | 668 | 993 | 1.39 | 1.60 | 61,100 |
| November..... | 1,480 | 614 | 724 | 1.01 | 1.13 | 43,100 |
| December..... | 7,030 | 578 | 2,290 | 3.21 | 3.70 | 141,000 |
| January..... | 3,120 | | 1,310 | 1.83 | 2.11 | 80,600 |
| February..... | 13,000 | 2,610 | 5,620 | 7.87 | 8.20 | 312,000 |
| March..... | 6,720 | 1,480 | 2,960 | 4.15 | 4.78 | 182,000 |
| April..... | 8,550 | 4,220 | 5,260 | 7.37 | 8.22 | 313,000 |
| May..... | 7,680 | 3,120 | 4,580 | 6.41 | 7.39 | 282,000 |
| June..... | 8,550 | 4,340 | 5,670 | 7.94 | 8.86 | 337,000 |
| July..... | 6,130 | 2,380 | 4,130 | 5.78 | 6.66 | 254,000 |
| August..... | 2,520 | 1,330 | 1,960 | 2.75 | 3.17 | 121,000 |
| September..... | 2,200 | 700 | 1,400 | 1.96 | 2.19 | 83,300 |
| The year..... | 13,000 | | 3,050 | 4.27 | 58.01 | 2,210,000 |

SOUTH FORK OF SAUK RIVER NEAR BARLOW PASS, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 21, T. 30 N., R. 11 E., $2\frac{3}{4}$ miles above mouth and 4 miles northeast of Barlow Pass.

DRAINAGE AREA.—32.7 square miles.

RECORDS AVAILABLE.—October, 1917, to October, 1921; October, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,080 second-feet Feb. 5 (gage height, 6.37 feet); minimum, 27 second-feet Oct. 3 (gage height, 2.65 feet); discharge may have been less sometime during Jan. 10–31, when recorder was not operating and stage-discharge relation was affected by ice.

1917–1921, 1928–1930: Maximum discharge, 5,800 second-feet Dec. 29, 1917 (gage height, 9.1 feet); minimum, that of Oct. 3, 1929.

REMARKS.—Records fair except those for periods included within braces, which were estimated and are poor. Discharge Sept. 18–24 also estimated. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|-------|------|------|-----|------|------|------|-------|
| 1..... | 30 | 67 | 50 | 159 | 568 | 138 | 322 | 300 | 320 | 316 | 142 | 53 |
| 2..... | 29 | 78 | | 144 | 428 | 129 | 296 | | 312 | 289 | 125 | 56 |
| 3..... | 29 | 71 | | 178 | 280 | 118 | 292 | | 265 | 252 | 123 | 60 |
| 4..... | 48 | 64 | | 155 | 1,180 | 113 | 303 | | 282 | 252 | 127 | 62 |
| 5..... | 102 | 60 | | 131 | 1,450 | 108 | 319 | | 293 | 293 | 131 | 63 |
| 6..... | 78 | 57 | 290 | 110 | 595 | 102 | 334 | 300 | 452 | 289 | 100 | 76 |
| 7..... | 66 | 53 | | 98 | 498 | 100 | 591 | | 584 | 255 | | 78 |
| 8..... | 59 | 46 | | 91 | 442 | 97 | 879 | | 450 | 255 | | 72 |
| 9..... | 72 | 48 | | 87 | 322 | 97 | 488 | | 410 | 282 | | 70 |
| 10..... | 77 | 48 | | | 330 | 90 | 343 | | 504 | 333 | | 64 |
| 11..... | 70 | 43 | 50 | | 303 | 92 | 300 | 390 | 482 | 341 | 60 | 63 |
| 12..... | 67 | 37 | | | 253 | 103 | 289 | | 425 | 345 | | 60 |
| 13..... | 62 | 35 | | | 222 | 98 | 334 | | 330 | 329 | | 64 |
| 14..... | 59 | 34 | | | 187 | 92 | 343 | | 306 | 268 | | 156 |
| 15..... | 58 | 33 | | | 234 | 87 | 338 | | 435 | 308 | | 129 |
| 16..... | 57 | 89 | 50 | | 441 | 83 | 303 | 390 | 488 | 424 | 90 | 89 |
| 17..... | 148 | 164 | | | 681 | 80 | 269 | | 367 | 301 | | 75 |
| 18..... | 121 | 98 | | | 790 | 83 | 266 | | 305 | 262 | | 71 |
| 19..... | 146 | 81 | | | 1,080 | 96 | 293 | | 271 | 167 | | 67 |
| 20..... | 110 | 71 | | 50 | 826 | 102 | 497 | | 333 | 172 | 81 | 63 |
| 21..... | 101 | 50 | 121 | | 522 | 254 | 420 | 390 | 415 | 195 | 73 | 60 |
| 22..... | 87 | | 231 | | 382 | 312 | 324 | | 329 | 211 | 71 | 56 |
| 23..... | 79 | | 352 | | 303 | 212 | 271 | | 286 | 216 | 71 | 52 |
| 24..... | 71 | | 273 | | 253 | 314 | 265 | | 282 | 208 | 70 | 48 |
| 25..... | 68 | | 426 | | 220 | 461 | 239 | | 282 | 172 | 60 | 44 |
| 26..... | 66 | 50 | 308 | | 190 | 391 | 213 | 390 | 275 | 150 | 55 | 166 |
| 27..... | 95 | | 243 | | 169 | 382 | 219 | | 358 | 142 | 56 | 158 |
| 28..... | 88 | | 188 | | 152 | 446 | 282 | | 430 | 142 | 56 | 180 |
| 29..... | 79 | | 164 | | | 517 | 293 | | 324 | 150 | 58 | 122 |
| 30..... | 70 | | 171 | | | 396 | 278 | | 297 | 163 | 55 | 90 |
| 31..... | 64 | | 164 | | | 343 | 316 | | | 152 | 54 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 148 | 29 | 76.0 | 2.32 | 2.68 | 4,670 |
| November..... | 164 | 33 | 59.2 | 1.81 | 2.02 | 3,520 |
| December..... | | | 195 | 5.96 | 6.87 | 12,000 |
| January..... | 178 | | 72.7 | 2.22 | 2.56 | 4,470 |
| February..... | 1,450 | 152 | 475 | 14.5 | 15.10 | 26,400 |
| March..... | 517 | 80 | 195 | 5.96 | 6.87 | 12,000 |
| April..... | 879 | | 376 | 11.5 | 12.83 | 22,400 |
| May..... | 497 | | 317 | 9.69 | 11.17 | 19,500 |
| June..... | 584 | 252 | 351 | 10.7 | 11.94 | 20,900 |
| July..... | 358 | 142 | 233 | 7.13 | 8.22 | 14,300 |
| August..... | 142 | 54 | 90.3 | 2.76 | 3.18 | 5,550 |
| September..... | 180 | 44 | 82.2 | 2.51 | 2.80 | 4,890 |
| The year..... | 1,450 | | 208 | 6.36 | 86.24 | 151,000 |

BAKER RIVER BELOW ANDERSON CREEK, NEAR CONCRETE, WASH.

LOCATION.—Water-stage recorder in SE. ¼ sec. 30, T. 37 N., R. 9 E., 350 feet below Anderson Creek and 11 miles northeast of Concrete.

DRAINAGE AREA.—184 square miles.

RECORDS AVAILABLE.—September, 1910, to October, 1925; August, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 7,390 second-feet Feb. 18 (gage height, 6.88 feet); minimum, 408 second-feet Dec. 11-13 (gage height, 1.68 feet); discharge may have been less during period Jan. 9-31, when stage-discharge relation was affected by ice.

1910-1925, 1928-1930: Maximum discharge, 36,800 second-feet Dec. 29, 1917 (gage height, 13.7 feet); minimum, 219 second-feet Dec. 15, 16, 1919 (gage height, 1.21 feet).

REMARKS.—Records excellent except those for Jan. 9 to Feb. 6, May 8-13, 22-25, which were estimated and are poor. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 490 | 478 | 418 | 1,260 | 2,070 | 986 | 2,060 | 1,700 | 2,220 | 2,520 | 1,440 | 941 |
| 2..... | 490 | 478 | 412 | 1,170 | | 914 | 1,900 | 2,280 | 2,640 | 2,340 | 1,260 | 1,070 |
| 3..... | 846 | 458 | 412 | 1,130 | | 862 | 1,900 | 2,460 | 2,280 | 2,060 | 1,260 | 1,130 |
| 4..... | 1,540 | 446 | 412 | 1,130 | | 814 | 1,950 | 2,000 | 2,060 | 1,950 | 1,340 | 1,170 |
| 5..... | 2,350 | 436 | 429 | 1,010 | | 774 | 3,320 | 1,660 | 2,170 | 2,220 | 1,480 | 1,210 |
| 6..... | 1,390 | 432 | 436 | 876 | 2,890 | 755 | 3,130 | 1,850 | 2,940 | 2,340 | 1,520 | 1,090 |
| 7..... | 978 | 432 | 426 | 774 | | 755 | 3,880 | 1,900 | 3,790 | 2,170 | 1,570 | 1,010 |
| 8..... | 814 | 429 | 426 | 748 | | 755 | 4,020 | | 3,650 | 2,170 | 1,570 | 1,130 |
| 9..... | 1,520 | 436 | 426 | | | 774 | 2,880 | | 3,260 | 2,400 | 1,570 | 1,130 |
| 10..... | 1,090 | 426 | 426 | | | 1,700 | 768 | 2,120 | 3,790 | 2,880 | 1,660 | 1,030 |
| 11..... | 869 | 432 | 415 | 590 | 1,570 | 876 | 1,850 | 1,850 | 3,940 | 3,060 | 1,660 | 906 |
| 12..... | 906 | 443 | 408 | | 1,300 | 998 | 1,800 | | 3,260 | 3,130 | 1,660 | 862 |
| 13..... | 855 | 450 | 471 | | 1,130 | 938 | 2,000 | | 2,520 | 3,320 | 1,620 | 1,040 |
| 14..... | 774 | 454 | 2,610 | | 1,030 | 906 | 2,220 | | 3,320 | 3,000 | 1,620 | 1,520 |
| 15..... | 788 | 458 | 2,170 | | 1,280 | 855 | 2,340 | 3,390 | 2,460 | 2,460 | 1,620 | 1,440 |
| 16..... | 820 | 638 | 1,620 | 462 | 2,480 | 820 | 2,060 | 3,390 | 3,000 | 2,060 | 1,480 | 1,210 |
| 17..... | 1,340 | 778 | 1,300 | | 4,740 | 820 | 1,850 | 2,760 | 2,400 | 1,750 | 1,300 | 1,130 |
| 18..... | 1,030 | 555 | 1,090 | | 5,830 | 855 | 1,800 | 2,220 | 2,000 | 1,660 | 1,210 | 1,130 |
| 19..... | 1,440 | 498 | 914 | | 4,940 | 914 | 1,800 | 2,410 | 2,170 | 1,700 | 1,130 | 1,020 |
| 20..... | 1,000 | 454 | 807 | | 4,100 | 898 | 1,950 | 3,580 | 2,640 | 1,750 | 1,030 | 986 |
| 21..... | 883 | 426 | 800 | 430 | 3,320 | 1,180 | 2,580 | 2,820 | 2,880 | 1,950 | 1,050 | 946 |
| 22..... | 788 | 422 | 1,060 | | 2,520 | 1,340 | 3,580 | | 2,640 | 2,060 | 1,030 | 762 |
| 23..... | 768 | 418 | 1,480 | | 2,060 | 1,210 | 3,390 | | 2,640 | 2,120 | 996 | 620 |
| 24..... | 710 | 418 | 1,840 | | 1,700 | 1,870 | 3,060 | | 2,460 | 1,950 | 938 | 545 |
| 25..... | 648 | 418 | 3,500 | | 1,480 | 2,580 | 2,820 | | 2,280 | 1,620 | 862 | 545 |
| 26..... | 615 | 418 | 2,820 | 440 | 1,300 | 2,280 | 2,700 | 1,570 | 2,220 | 1,390 | 876 | 1,610 |
| 27..... | 654 | 418 | 2,120 | | 1,170 | 2,400 | 2,520 | 1,620 | 2,760 | 1,260 | 954 | 3,230 |
| 28..... | 610 | 415 | 1,820 | | 1,090 | 3,130 | 2,280 | 1,900 | 2,940 | 1,340 | 1,030 | 2,700 |
| 29..... | 550 | 440 | 1,390 | | | 3,390 | 1,900 | 2,170 | 2,460 | 1,520 | 1,050 | 1,520 |
| 30..... | 510 | 450 | 1,440 | | | 2,760 | 1,750 | 2,170 | 2,460 | 1,620 | 946 | 1,130 |
| 31..... | 482 | | 1,390 | | | 2,280 | | 2,280 | | 1,570 | 922 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 2,350 | 482 | 924 | 5.02 | 5.79 | 56,800 |
| November..... | 2,778 | 415 | 462 | 2.51 | 2.80 | 27,500 |
| December..... | 3,590 | 408 | 1,140 | 6.20 | 7.15 | 70,100 |
| January..... | 1,260 | | 620 | 3.37 | 3.88 | 38,100 |
| February..... | 5,830 | | 2,290 | 12.4 | 12.91 | 127,000 |
| March..... | 3,390 | 755 | 1,340 | 7.28 | 8.39 | 82,400 |
| April..... | 4,020 | 1,750 | 2,450 | 13.9 | 14.84 | 146,000 |
| May..... | 3,580 | | 2,190 | 11.9 | 13.72 | 136,000 |
| June..... | 3,940 | 2,000 | 2,700 | 14.7 | 16.40 | 161,000 |
| July..... | 3,320 | 1,280 | 2,110 | 11.5 | 13.26 | 130,000 |
| August..... | 1,060 | 862 | 1,280 | 6.96 | 8.02 | 78,000 |
| September..... | 3,230 | 545 | 1,190 | 6.47 | 7.22 | 70,800 |
| The year..... | 5,830 | 408 | 1,550 | 8.42 | 114.38 | 1,120,000 |

UPPER COLUMBIA RIVER BASIN

MAIN STREAM

COLUMBIA RIVER AT TRAIL, BRITISH COLUMBIA

LOCATION.—Chain gage on highway bridge at Trail, 15 miles above international boundary and mouth of Clark Fork.

DRAINAGE AREA.—34,000 square miles.

RECORDS AVAILABLE.—April, 1913, to September, 1930.

EXTREMES.—Maximum mean daily discharge during year, 183,000 second-feet June 14 (gage height, 30.2 feet); minimum, 11,600 second-feet Feb. 6, 7 (gage height, 6.9 feet).

1913-1930: Maximum discharge, 312,000 second-feet June 14, 15, 1913 (gage height, 41.6 feet); minimum 9,600 second-feet Mar. 28, 1917.

REMARKS.—Small amount of water diverted above station. No regulation except natural storage in lakes. Complete record furnished by Dominion Water Power and Hydrometric Bureau, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|--------|
| 1 | 41,500 | 24,400 | 16,600 | 14,700 | 12,000 | 14,400 | 16,300 | 84,600 | 123,000 | 170,000 | 124,000 | 80,800 |
| 2 | 40,200 | 24,400 | 16,600 | 14,700 | 12,000 | 14,400 | 16,300 | 87,800 | 127,000 | 170,000 | 122,000 | 79,100 |
| 3 | 38,900 | 23,900 | 16,300 | 14,700 | 12,000 | 14,400 | 17,400 | 90,600 | 133,000 | 169,000 | 120,000 | 78,500 |
| 4 | 38,300 | 23,400 | 16,000 | 14,700 | 11,800 | 14,400 | 18,100 | 94,500 | 137,000 | 167,000 | 118,000 | 74,400 |
| 5 | 37,700 | 23,000 | 16,000 | 14,700 | 11,800 | 14,400 | 18,800 | 96,500 | 137,000 | 166,000 | 116,000 | 72,100 |
| 6 | 36,500 | 23,000 | 15,600 | 14,700 | 11,600 | 14,400 | 19,700 | 97,600 | 146,000 | 164,000 | 113,000 | 69,700 |
| 7 | 35,900 | 22,600 | 15,300 | 14,700 | 11,600 | 14,400 | 20,700 | 98,800 | 150,000 | 162,000 | 112,000 | 69,100 |
| 8 | 34,700 | 22,100 | 15,300 | 14,700 | 11,800 | 14,400 | 21,700 | 98,800 | 158,000 | 159,000 | 110,000 | 68,400 |
| 9 | 34,100 | 21,700 | 15,300 | 14,700 | 11,800 | 14,400 | 22,900 | 98,100 | 164,000 | 158,000 | 110,000 | 68,000 |
| 10 | 32,900 | 21,300 | 15,300 | 14,700 | 12,000 | 14,400 | 24,300 | 96,200 | 171,000 | 157,000 | 110,000 | 67,400 |
| 11 | 32,400 | 21,300 | 15,300 | 15,000 | 12,000 | 14,400 | 25,700 | 94,500 | 179,000 | 158,000 | 110,000 | 66,900 |
| 12 | 31,200 | 20,900 | 15,300 | 15,000 | 12,300 | 14,400 | 27,300 | 93,800 | 183,000 | 158,000 | 110,000 | 66,400 |
| 13 | 31,200 | 20,500 | 15,300 | 15,300 | 12,300 | 14,400 | 29,000 | 93,000 | 187,000 | 160,000 | 112,000 | 66,100 |
| 14 | 30,700 | 20,100 | 15,300 | 15,300 | 12,300 | 14,400 | 30,400 | 93,700 | 189,000 | 162,000 | 113,000 | 65,900 |
| 15 | 30,200 | 20,100 | 15,300 | 15,300 | 12,600 | 14,400 | 31,700 | 94,600 | 188,000 | 165,000 | 113,000 | 65,700 |
| 16 | 30,200 | 19,700 | 15,300 | 15,000 | 12,600 | 14,400 | 32,900 | 96,300 | 185,000 | 168,000 | 113,000 | 64,700 |
| 17 | 29,600 | 19,700 | 15,000 | 14,700 | 12,900 | 14,400 | 34,300 | 98,200 | 183,000 | 171,000 | 113,000 | 63,500 |
| 18 | 29,100 | 19,700 | 14,700 | 14,400 | 12,900 | 14,400 | 35,600 | 101,000 | 180,000 | 171,000 | 112,000 | 62,300 |
| 19 | 29,100 | 19,300 | 14,700 | 14,100 | 12,900 | 14,400 | 37,000 | 106,000 | 175,000 | 168,000 | 111,000 | 61,400 |
| 20 | 28,600 | 18,900 | 14,700 | 13,500 | 13,200 | 14,400 | 40,800 | 110,000 | 172,000 | 164,000 | 109,000 | 60,700 |
| 21 | 28,100 | 18,900 | 14,700 | 13,200 | 13,500 | 14,400 | 44,800 | 113,000 | 170,000 | 160,000 | 106,000 | 59,700 |
| 22 | 28,100 | 18,500 | 14,700 | 12,900 | 13,500 | 14,100 | 49,000 | 114,000 | 168,000 | 156,000 | 104,000 | 58,900 |
| 23 | 27,600 | 18,100 | 14,400 | 12,600 | 13,800 | 14,100 | 52,900 | 113,000 | 166,000 | 152,000 | 101,000 | 58,000 |
| 24 | 27,100 | 17,700 | 14,400 | 12,600 | 14,100 | 14,400 | 57,300 | 112,000 | 164,000 | 150,000 | 98,800 | 56,100 |
| 25 | 27,100 | 17,400 | 14,400 | 12,600 | 14,100 | 14,400 | 61,700 | 112,000 | 163,000 | 149,000 | 96,300 | 54,200 |
| 26 | 26,600 | 17,400 | 14,400 | 12,300 | 14,100 | 14,700 | 66,100 | 113,000 | 164,000 | 146,000 | 93,600 | 52,400 |
| 27 | 26,200 | 17,400 | 14,100 | 12,300 | 14,100 | 14,700 | 71,200 | 115,000 | 166,000 | 143,000 | 91,100 | 50,800 |
| 28 | 25,700 | 17,000 | 14,100 | 12,300 | 14,100 | 15,000 | 75,300 | 117,000 | 167,000 | 140,000 | 88,600 | 49,500 |
| 29 | 25,700 | 17,000 | 14,400 | 12,300 | ----- | 15,300 | 78,200 | 118,000 | 168,000 | 134,000 | 85,600 | 47,700 |
| 30 | 25,200 | 16,600 | 14,400 | 12,300 | ----- | 15,600 | 81,300 | 120,000 | 169,000 | 130,000 | 84,300 | 46,000 |
| 31 | 24,800 | ----- | 14,400 | 12,300 | ----- | 16,000 | ----- | 122,000 | ----- | 126,000 | 82,500 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|---------|-----------------|---------|------------|
| | | | | | Inches | Acre-feet |
| October | 41,500 | 24,800 | 31,100 | 0.915 | 1.05 | 1,910,000 |
| November | 24,400 | 16,600 | 20,200 | .594 | .66 | 1,200,000 |
| December | 16,600 | 14,100 | 15,100 | .444 | .51 | 928,000 |
| January | 15,300 | 12,300 | 13,900 | .409 | .47 | 855,000 |
| February | 14,100 | 11,600 | 12,700 | .374 | .39 | 705,000 |
| March | 16,000 | 14,100 | 14,500 | .428 | .49 | 892,000 |
| April | 81,300 | 16,600 | 38,600 | 1.14 | 1.27 | 2,300,000 |
| May | 122,000 | 84,600 | 103,000 | 3.03 | 3.49 | 6,330,000 |
| June | 189,000 | 123,000 | 164,000 | 4.82 | 5.38 | 9,780,000 |
| July | 171,000 | 126,000 | 157,000 | 4.62 | 5.33 | 9,650,000 |
| August | 124,000 | 82,500 | 107,000 | 3.15 | 3.63 | 6,580,000 |
| September | 80,800 | 46,000 | 63,400 | 1.86 | 2.08 | 3,770,000 |
| The year | 189,000 | 11,600 | 62,000 | 1.82 | 24.75 | 44,900,000 |

COLUMBIA RIVER AT KETTLE FALLS, WASH.

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 23, T. 36 N., R. 37 E., $1\frac{1}{2}$ miles above mouth of Colville River at Kettle Falls. Gage datum is mean sea level.

DRAINAGE AREA.—64,500 square miles.

RECORDS AVAILABLE.—April, 1913, to September, 1930.

EXTREMES.—Maximum discharge during year, 246,000 second-feet June 15 (gage height, 1,184.8 feet); minimum (estimated), 13,000 second-feet Jan. 18–21, during period of ice effect.

1913–1930: Maximum discharge, 468,000 second-feet June 14, 15, 1913 (gage height, 34.2 feet; from high-water mark referred to United States Weather Bureau gage at Marcus); minimum, that of Jan. 18–21, 1930.

Maximum discharge during 1894 flood, 700,000 second-feet based on information from several sources.

REMARKS.—Records excellent except those for period of ice effect, Jan. 9 to Feb. 19. Numerous diversions above gage for irrigation but amount very small in proportion to flow past gage. No regulation except effect of natural storage in numerous lakes above gage.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|--------|
| 1 | 48,400 | 30,000 | 21,000 | 20,700 | 16,000 | 22,800 | 24,900 | 129,000 | 172,000 | 215,000 | 142,000 | 89,000 |
| 2 | 47,000 | 29,500 | 21,000 | 20,700 | | 22,800 | 25,300 | 133,000 | 180,000 | 213,000 | 139,000 | 86,100 |
| 3 | 45,600 | 29,000 | 20,700 | 20,400 | | 22,800 | 25,700 | 138,000 | 188,000 | 212,000 | 137,000 | 84,200 |
| 4 | 43,500 | 28,500 | 20,700 | 20,700 | | 22,800 | 27,100 | 142,000 | 193,000 | 210,000 | 134,000 | 82,200 |
| 5 | 42,800 | 28,500 | 20,400 | 21,000 | | 22,800 | 27,500 | 145,000 | 196,000 | 207,000 | 132,000 | 80,300 |
| 6 | 41,400 | 28,500 | 20,400 | 21,400 | | 22,400 | 28,500 | 148,000 | 199,000 | 204,000 | 129,000 | 78,500 |
| 7 | 40,700 | 28,000 | 20,100 | 20,700 | 18,000 | 22,000 | 30,000 | 150,000 | 204,000 | 201,000 | 128,000 | 77,500 |
| 8 | 40,000 | 27,500 | 19,800 | 20,400 | | 21,700 | 32,200 | 150,000 | 213,000 | 197,000 | 125,000 | 76,600 |
| 9 | 40,000 | 27,100 | 20,100 | | | 21,700 | 34,500 | 151,000 | 217,000 | 196,000 | 124,000 | 76,600 |
| 10 | 38,700 | 26,600 | 20,700 | | | 21,000 | 36,200 | 151,000 | 225,000 | 193,000 | 122,000 | 75,700 |
| 11 | 38,000 | 26,600 | 21,000 | | | 21,400 | 38,700 | 150,000 | 230,000 | 193,000 | 121,000 | 74,700 |
| 12 | 37,400 | 26,200 | 21,000 | | | 21,400 | 40,700 | 150,000 | 234,000 | 191,000 | 122,000 | 74,700 |
| 13 | 36,800 | 25,700 | 20,400 | | 14,500 | 21,400 | 44,900 | 150,000 | 242,000 | 191,000 | 122,000 | 73,800 |
| 14 | 36,200 | 25,300 | 20,700 | | | 21,000 | 48,400 | 148,000 | 244,000 | 193,000 | 124,000 | 73,800 |
| 15 | 35,600 | 25,300 | 21,000 | | | 21,000 | 53,600 | 150,000 | 246,000 | 194,000 | 124,000 | 72,900 |
| 16 | 35,100 | 24,900 | 21,400 | | | 21,000 | 59,600 | 151,000 | 244,000 | 196,000 | 125,000 | 72,900 |
| 17 | 34,500 | 24,400 | 21,400 | | | 21,000 | 61,200 | 152,000 | 240,000 | 201,000 | 124,000 | 72,000 |
| 18 | 33,900 | 24,400 | 21,400 | | | 21,000 | 63,600 | 156,000 | 235,000 | 201,000 | 122,000 | 71,100 |
| 19 | 33,300 | 24,000 | 21,400 | | 20,100 | 20,700 | 64,400 | 158,000 | 232,000 | 199,000 | 122,000 | 69,300 |
| 20 | 33,300 | 23,600 | 21,000 | | | 21,000 | 66,800 | 162,000 | 227,000 | 193,000 | 121,000 | 69,300 |
| 21 | 32,700 | 23,600 | 21,000 | | | 21,000 | 70,200 | 164,000 | 222,000 | 189,000 | 118,000 | 68,500 |
| 22 | 32,700 | 23,200 | 21,000 | | | 22,000 | 75,700 | 168,000 | 215,000 | 183,000 | 116,000 | 66,800 |
| 23 | 32,700 | 22,800 | 21,000 | | | 22,400 | 80,300 | 168,000 | 217,000 | 178,000 | 113,000 | 66,000 |
| 24 | 32,700 | 22,400 | 21,000 | | | 22,400 | 86,100 | 168,000 | 215,000 | 175,000 | 110,000 | 65,200 |
| 25 | 32,200 | 22,000 | 20,700 | | 14,000 | 22,800 | 93,200 | 169,000 | 215,000 | 172,000 | 107,000 | 62,800 |
| 26 | 31,600 | 21,700 | 21,000 | | | 22,800 | 98,800 | 168,000 | 212,000 | 169,000 | 104,000 | 61,200 |
| 27 | 31,600 | 21,700 | 20,700 | | | 23,200 | 105,000 | 168,000 | 212,000 | 168,000 | 101,000 | 59,600 |
| 28 | 31,100 | 21,400 | 20,700 | | | 23,200 | 113,000 | 164,000 | 213,000 | 163,000 | 98,800 | 58,100 |
| 29 | 31,100 | 21,000 | 20,700 | | | | 120,000 | 166,000 | 213,000 | 158,000 | 95,400 | 56,600 |
| 30 | 30,500 | 21,000 | 20,700 | | | | 125,000 | 168,000 | 215,000 | 152,000 | 93,200 | 55,100 |
| 31 | 30,500 | | 21,000 | | | 24,000 | | 170,000 | | 146,000 | 91,000 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|---------|-----------------|---------|------------|
| | | | | | Inches | Acre-feet |
| October | 48,400 | 30,500 | 36,500 | 0.566 | 0.65 | 2,240,000 |
| November | 30,000 | 21,000 | 25,100 | .389 | .43 | 1,490,000 |
| December | 21,400 | 19,800 | 20,800 | .322 | .37 | 1,280,000 |
| January | 21,400 | | 15,900 | .247 | .28 | 978,000 |
| February | 23,200 | | 18,600 | .258 | .30 | 1,030,000 |
| March | 24,000 | 20,400 | 21,700 | .336 | .39 | 1,330,000 |
| April | 125,000 | 24,900 | 60,000 | .930 | 1.04 | 3,570,000 |
| May | 170,000 | 129,000 | 155,000 | 2.40 | 2.77 | 9,530,000 |
| June | 246,000 | 172,000 | 217,000 | 3.36 | 3.75 | 12,990,000 |
| July | 215,000 | 146,000 | 180,000 | 2.93 | 3.38 | 11,600,000 |
| August | 142,000 | 91,000 | 119,000 | 1.84 | 2.12 | 7,320,000 |
| September | 89,000 | 55,100 | 71,700 | 1.11 | 1.24 | 4,270,000 |
| The year | 246,000 | | 79,500 | 1.23 | 16.72 | 57,500,000 |

* Interpolated.

COLUMBIA RIVER AT GRAND COULEE, NEAR NESPELEM, WASH.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ Sec. 1, T. 28 N., R. 30 E., at Grant County Ferry at Grand Coulee, 15 miles south of Nespelem. Gage set to sea level datum.

DRAINAGE AREA.—74,100 square miles.

RECORDS AVAILABLE.—June to December, 1923; June, 1928, to September, 1930; monthly discharge, April, 1913, to June, 1923; January, 1924, to May, 1928.

EXTREMES.—Maximum discharge during year, 251,000 second-feet June 14-16 (gage height, 967.6 feet); minimum estimated at less than 16,000 second-feet during period of ice effect, Jan. 9-31.

1913-1930: Maximum discharge, 492,000 second-feet June 15, 1913 (determined from records at other gaging stations); minimum occurred during January, 1930.

Maximum discharge during flood of June, 1894, estimated at 725,000 second-feet (revised).

REMARKS.—Records good except those for period of ice effect, Jan. 9 to Feb. 19. Diversions for irrigation above station small in comparison to flow past gage. Some diurnal fluctuation due to operation of power plants on Spokane River.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|--------|
| 1----- | 53,800 | 34,500 | 24,600 | 23,700 | | 31,400 | 39,500 | 139,000 | 178,000 | 221,000 | 147,000 | 94,100 |
| 2----- | 52,200 | 34,500 | 22,000 | 22,400 | | 27,300 | 39,500 | 143,000 | 184,000 | 220,000 | 145,000 | 92,700 |
| 3----- | 51,100 | 34,000 | 24,600 | 23,200 | | 26,400 | 39,000 | 147,000 | 190,000 | 215,000 | 143,000 | 91,300 |
| 4----- | 49,400 | 32,200 | 24,600 | 23,200 | | 27,300 | 39,500 | 149,000 | 194,000 | 218,000 | 140,000 | 88,500 |
| 5----- | 47,800 | 32,700 | 25,000 | 23,200 | | 27,300 | 40,000 | 153,000 | 201,000 | 214,000 | 138,000 | 86,400 |
| 6----- | 46,700 | 32,700 | 24,200 | 23,200 | 19,500 | 26,800 | 41,500 | 155,000 | 207,000 | 210,000 | 136,000 | 83,200 |
| 7----- | 45,000 | 32,200 | 23,200 | 24,200 | | 26,800 | 42,500 | 159,000 | 209,000 | 205,000 | 134,000 | 81,400 |
| 8----- | 45,000 | 32,200 | 22,800 | 22,800 | | 26,400 | 44,500 | 160,000 | 213,000 | 205,000 | 131,000 | 81,400 |
| 9----- | 44,500 | 31,800 | 20,800 | | | 26,400 | 46,700 | 157,000 | 220,000 | 202,000 | 129,000 | 80,200 |
| 10----- | 44,000 | 30,900 | 23,200 | | | 25,000 | 49,400 | 158,000 | 226,000 | 190,000 | 127,000 | 80,800 |
| 11----- | 43,500 | 29,600 | 23,700 | | | 25,500 | 51,600 | 157,000 | 232,000 | 197,000 | 127,000 | 79,600 |
| 12----- | 42,000 | 30,400 | 24,200 | | | 25,500 | 53,800 | 157,000 | 238,000 | 197,000 | 127,000 | 79,600 |
| 13----- | 41,000 | 30,400 | 23,700 | | | 26,000 | 56,000 | 155,000 | 245,000 | 190,000 | 127,000 | 79,000 |
| 14----- | 40,000 | 30,000 | 26,000 | | | 25,500 | 58,200 | 153,000 | 250,000 | 190,000 | 127,000 | 77,800 |
| 15----- | 39,500 | 30,000 | 23,700 | 17,000 | | 25,000 | 65,200 | 154,000 | 251,000 | 197,000 | 127,000 | 77,200 |
| 16----- | 40,000 | 30,000 | 22,800 | | 22,000 | 25,500 | 69,400 | 152,000 | 250,000 | 190,000 | 128,000 | 77,200 |
| 17----- | 38,500 | 29,100 | 24,200 | | | 24,600 | 67,000 | 154,000 | 248,000 | 200,000 | 128,000 | 76,600 |
| 18----- | 38,500 | 26,800 | 24,600 | | | 24,600 | 73,000 | 156,000 | 245,000 | 200,000 | 127,000 | 76,000 |
| 19----- | 38,000 | 28,600 | 25,000 | | | 25,000 | 77,800 | 158,000 | 240,000 | 204,000 | 127,000 | 76,000 |
| 20----- | 37,500 | 27,800 | 25,000 | | 23,700 | 25,500 | 81,400 | 163,000 | 235,000 | 200,000 | 126,000 | 74,800 |
| 21----- | 36,000 | 27,800 | 25,000 | | | 23,700 | 83,200 | 165,000 | 231,000 | 197,000 | 123,000 | 73,600 |
| 22----- | 37,500 | 27,800 | 24,600 | | | 25,500 | 85,700 | 172,000 | 230,000 | 191,000 | 122,000 | 71,800 |
| 23----- | 37,500 | 27,300 | 22,800 | | | 25,500 | 89,900 | 173,000 | 226,000 | 180,000 | 120,000 | 71,800 |
| 24----- | 37,000 | 26,400 | 24,200 | | | 30,000 | 96,900 | 173,000 | 222,000 | 181,000 | 115,000 | 71,200 |
| 25----- | 37,000 | 24,200 | 22,400 | | | 30,900 | 101,000 | 174,000 | 220,000 | 170,000 | 113,000 | 68,800 |
| 26----- | 36,500 | 25,500 | 22,400 | 17,500 | | 28,600 | 107,000 | 174,000 | 217,000 | 170,000 | 110,000 | 67,000 |
| 27----- | 36,000 | 25,500 | 22,800 | | | 30,900 | 114,000 | 172,000 | 217,000 | 174,000 | 108,000 | 65,200 |
| 28----- | 34,500 | 25,000 | 22,800 | | | 30,900 | 120,000 | 171,000 | 216,000 | 170,000 | 106,000 | 64,000 |
| 29----- | 35,000 | 22,800 | 22,800 | | | 39,000 | 126,000 | 166,000 | 218,000 | 160,000 | 102,000 | 62,200 |
| 30----- | 35,000 | 24,600 | 22,800 | | | 39,500 | 132,000 | 168,000 | 218,000 | 150,000 | 100,000 | 60,400 |
| 31----- | 35,000 | | 23,200 | | | 40,000 | | 172,000 | | 150,000 | 97,600 | |

* Estimated.

Monthly discharge of Columbia River at Grand Coulee, near Nespelem, Wash., 1929-30

| Month | Discharge in second-feet | | | | Run-off | |
|-----------------|--------------------------|---------|---------|-----------------|---------|------------|
| | Maximum | Minimum | Mean | Per square mile | Inches | Acre-feet |
| October | 53,800 | 34,500 | 41,100 | 0.555 | 0.64 | 2,530,000 |
| November | 34,500 | 22,800 | 29,200 | .394 | .44 | 1,740,000 |
| December | 26,000 | 20,800 | 23,700 | .320 | .37 | 1,460,000 |
| January | 24,200 | ----- | 18,800 | .254 | .28 | 1,160,000 |
| February | 30,900 | ----- | 23,000 | .310 | .35 | 1,280,000 |
| March | 44,000 | 24,600 | 28,500 | .385 | .44 | 1,750,000 |
| April | 132,000 | 39,000 | 71,000 | .958 | 1.07 | 4,220,000 |
| May | 174,000 | 139,000 | 160,000 | 2.16 | 2.46 | 9,840,000 |
| June | 251,000 | 178,000 | 222,000 | 3.00 | 3.35 | 13,200,000 |
| July | 221,000 | 155,000 | 195,000 | 2.63 | 3.06 | 12,000,000 |
| August | 147,000 | 97,600 | 124,000 | 1.67 | 1.92 | 7,620,000 |
| September | 94,100 | 60,400 | 77,000 | 1.04 | 1.16 | 4,580,000 |
| The year | 251,000 | ----- | 84,900 | 1.15 | 15.52 | 61,400,000 |

COLUMBIA RIVER AT VERNITA, WASH.

LOCATION.—Staff gage in sec. 11, T. 13 N., R. 24 E., at Richmond Ferry, half a mile north of Vernita. Zero of gage, 388.7 feet above near sea level.

DRAINAGE AREA.—95,500 square miles.

RECORDS AVAILABLE.—January, 1917, to September, 1930. January to December, 1910, May, 1913, to December, 1916, at Wenatchee.

EXTREMES.—Maximum discharge during year, 270,000 second-feet June 15, 16 (gage height, 21.5 feet); minimum occurred during period of ice effect, Jan. 10-31; not determined.

1913-1930: Maximum discharge, 528,000 second-feet June 15, 16, 1913 (gage height, 45.7 feet at Wenatchee); minimum occurred in January, 1930.

Maximum discharge during 1894 flood, 740,000 second-feet June 7, 1894, based on information obtained at other points.

REMARKS.—Records excellent except those for Jan. 9 to Feb. 22, which were estimated because of ice. Considerable water diverted for irrigation above gage, but amount very small in proportion to flow past gage. No regulation except effect of natural storage in numerous lakes.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 1----- | 60,200 | 39,600 | 27,800 | 26,700 | | 35,600 | 46,000 | 142,000 | 188,000 | 234,000 | 160,000 | 102,000 |
| 2----- | 58,600 | 39,600 | 29,000 | 26,700 | | 35,600 | 46,000 | 149,000 | 192,000 | 235,000 | 155,000 | 99,300 |
| 3----- | 57,800 | 39,600 | 28,400 | 27,200 | | 32,000 | 46,800 | 154,000 | 200,000 | 234,000 | 151,000 | 96,400 |
| 4----- | 56,200 | 38,900 | 27,200 | 26,200 | | 31,400 | 46,800 | 158,000 | 206,000 | 232,000 | 149,000 | 95,400 |
| 5----- | 54,600 | 38,900 | 28,400 | 26,700 | 22,000 | 30,800 | 46,000 | 162,000 | 209,000 | 230,000 | 146,000 | 94,500 |
| 6----- | 53,200 | 37,600 | 28,400 | 26,200 | | 30,800 | 46,800 | 165,000 | 217,000 | 227,000 | 142,000 | 92,600 |
| 7----- | 52,400 | 37,600 | 29,000 | 25,600 | | 30,200 | 47,400 | 167,000 | 223,000 | 223,000 | 140,000 | 89,800 |
| 8----- | 51,000 | 37,600 | 28,400 | 25,000 | | 30,200 | 48,200 | 170,000 | 230,000 | 222,000 | 137,000 | 88,000 |
| 9----- | 50,200 | 37,000 | 27,800 | | | 29,600 | 51,000 | 172,000 | 235,000 | 217,000 | 135,000 | 87,000 |
| 10----- | 50,200 | 36,300 | 26,700 | | | 29,000 | 52,400 | 170,000 | 240,000 | 212,000 | 134,000 | 86,200 |
| 11----- | 48,800 | 36,300 | 25,600 | | 22,500 | 29,000 | 55,400 | 169,000 | 247,000 | 209,000 | 131,000 | 85,200 |
| 12----- | 48,800 | 35,600 | 26,700 | | | 28,400 | 57,000 | 172,000 | 253,000 | 207,000 | 130,000 | 84,400 |
| 13----- | 48,200 | 35,600 | 27,800 | 24,000 | | 28,400 | 59,400 | 170,000 | 258,000 | 207,000 | 130,000 | 83,400 |
| 14----- | 47,400 | 35,000 | 28,400 | | | 29,000 | 62,600 | 170,000 | 264,000 | 208,000 | 130,000 | 83,400 |
| 15----- | 46,000 | 35,000 | 27,800 | | | 28,400 | 65,100 | 169,000 | 268,000 | 207,000 | 130,000 | 81,600 |
| 16----- | 45,400 | 34,400 | 27,800 | | | 28,400 | 70,200 | 170,000 | 270,000 | 206,000 | 131,000 | 81,600 |
| 17----- | 44,800 | 34,400 | 27,800 | | | 28,400 | 77,200 | 174,000 | 268,000 | 206,000 | 130,000 | 81,600 |
| 18----- | 44,100 | 34,400 | 26,700 | | | 27,800 | 79,000 | 174,000 | 268,000 | 207,000 | 130,000 | 81,600 |
| 19----- | 44,100 | 33,800 | 28,400 | | | 27,200 | 79,800 | 176,000 | 264,000 | 211,000 | 130,000 | 80,800 |
| 20----- | 43,400 | 32,600 | 27,800 | 21,000 | | 27,200 | 86,200 | 177,000 | 256,000 | 212,000 | 130,000 | 79,800 |
| 21----- | 42,800 | 32,600 | 28,400 | | | 27,800 | 89,800 | 180,000 | 253,000 | 209,000 | 130,000 | 79,000 |
| 22----- | 42,800 | 32,600 | 28,400 | | | 28,400 | 92,600 | 180,000 | 249,000 | 206,000 | 128,000 | 78,000 |
| 23----- | 42,200 | 32,000 | 28,400 | | 31,400 | 29,000 | 99,300 | 186,000 | 247,000 | 206,000 | 126,000 | 76,200 |
| 24----- | 42,200 | 32,000 | 27,800 | | 31,400 | 28,400 | 103,000 | 188,000 | 244,000 | 192,000 | 124,000 | 75,400 |
| 25----- | 42,200 | 31,400 | 26,700 | | 32,600 | 29,000 | 110,000 | 188,000 | 242,000 | 188,000 | 120,000 | 74,400 |
| 26----- | 42,200 | 30,200 | 27,200 | | 35,000 | 29,000 | 116,000 | 188,000 | 240,000 | 183,000 | 118,000 | 73,600 |
| 27----- | 41,500 | 29,600 | 27,200 | 21,500 | 35,600 | 30,800 | 121,000 | 188,000 | 239,000 | 186,000 | 116,000 | 71,900 |
| 28----- | 40,800 | 29,600 | 26,200 | | 35,600 | 35,600 | 126,000 | 186,000 | 235,000 | 176,000 | 112,000 | 69,400 |
| 29----- | 40,200 | 29,600 | 26,700 | | | 47,400 | 133,000 | 185,000 | 234,000 | 174,000 | 109,000 | 68,500 |
| 30----- | 40,200 | 29,000 | 26,200 | | | 46,800 | 139,000 | 182,000 | 235,000 | 172,000 | 106,000 | 66,800 |
| 31----- | 40,200 | | 26,700 | | | 45,400 | | 183,000 | | 167,000 | 104,000 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|---------|-----------------|---------|------------|
| | | | | | Inches | Acre-feet |
| October----- | 60,200 | 40,200 | 47,200 | 0.494 | 0.57 | 2,900,000 |
| November----- | 39,600 | 29,000 | 34,600 | .362 | .40 | 2,060,000 |
| December----- | 29,000 | 25,600 | 27,600 | .289 | .33 | 1,700,000 |
| January----- | 27,200 | | 23,300 | .244 | .28 | 1,430,000 |
| February----- | 35,600 | | 25,600 | .268 | .28 | 1,420,000 |
| March----- | 47,400 | 27,200 | 31,500 | .330 | .38 | 1,940,000 |
| April----- | 139,000 | 46,000 | 76,600 | .802 | .89 | 4,560,000 |
| May----- | 188,000 | 142,000 | 173,000 | 1.81 | 2.09 | 10,600,000 |
| June----- | 270,000 | 188,000 | 239,000 | 2.50 | 2.79 | 14,200,000 |
| July----- | 235,000 | 167,000 | 206,000 | 2.16 | 2.49 | 12,700,000 |
| August----- | 160,000 | 104,000 | 130,000 | 1.36 | 1.57 | 7,990,000 |
| September----- | 102,000 | 66,800 | 82,900 | .868 | .97 | 4,930,000 |
| The year----- | 270,000 | | 91,900 | .962 | 13.04 | 66,400,000 |

KOOTENAI RIVER BASIN

KOOTENAI RIVER NEAR REXFORD, MONT.

LOCATION.—Staff gage in sec. 21, T. 36 N., R. 28 W., at highway bridge 300 feet below Sullivan Creek and 1.1 miles southwest of Rexford.

DRAINAGE AREA.—8,420 square miles.

RECORDS AVAILABLE.—March, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 46,400 second-feet June 1, 9 (gage height, 11.6 feet); minimum, 1,750 second-feet Dec. 10 (gage height, 0.5 foot).

1929-30: Maximum discharge, 52,900 second-feet June 3, 4, 1929 (gage height, 12.4 feet); minimum, that of Dec. 10, 1929.

REMARKS.—Records good except those estimated on account of ice, Jan. 8 to Feb. 19, which are fair. No diversions or regulation. Results of several discharge measurements furnished by Dominion Water Power and Hydro-metric Bureau, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| 1 | 3,990 | 3,030 | 2,620 | 2,620 | 2,200 | 2,380 | 3,180 | 16,800 | 46,400 | 23,700 | 9,990 | 5,910 |
| 2 | 3,820 | 3,030 | 2,380 | 2,270 | 2,250 | 2,170 | 3,180 | 16,000 | 41,800 | 22,600 | 10,300 | 5,910 |
| 3 | 3,650 | 3,030 | 2,270 | 2,500 | 2,300 | 2,170 | 3,490 | 16,000 | 36,800 | 23,700 | 9,990 | 5,490 |
| 4 | 3,650 | 3,030 | 1,980 | 2,380 | 2,340 | 2,170 | 3,820 | 17,700 | 34,000 | 23,200 | 9,700 | 5,290 |
| 5 | 3,650 | 3,030 | 1,980 | 2,380 | 2,380 | 2,270 | 3,820 | 17,700 | 30,800 | 24,200 | 9,130 | 5,090 |
| 6 | 3,820 | 2,890 | 1,980 | 1,980 | 2,400 | 2,270 | 3,990 | 17,700 | 30,800 | 25,900 | 8,850 | 5,290 |
| 7 | 4,340 | 2,890 | 2,270 | 1,980 | 2,400 | 2,170 | 4,340 | 17,300 | 33,400 | 24,200 | 8,580 | 5,290 |
| 8 | 4,340 | 2,890 | 2,270 | 1,800 | 2,400 | 2,270 | 5,090 | 16,400 | 40,400 | 22,100 | 8,580 | 5,290 |
| 9 | 4,160 | 2,750 | 2,170 | 1,800 | 2,400 | 2,270 | 6,130 | 15,200 | 46,400 | 19,600 | 8,580 | 5,490 |
| 10 | 3,990 | 2,750 | 1,750 | 1,840 | 2,360 | 2,270 | 6,350 | 15,600 | 43,400 | 20,600 | 8,580 | 5,490 |
| 11 | 3,820 | 2,750 | 1,980 | 1,880 | 2,320 | 2,380 | 5,910 | 14,400 | 42,600 | 21,600 | 8,580 | 5,490 |
| 12 | 3,820 | 2,620 | 2,070 | 1,920 | 2,300 | 2,500 | 5,910 | 14,400 | 42,600 | 20,600 | 9,130 | 5,490 |
| 13 | 3,650 | 2,500 | 2,170 | 1,960 | 2,280 | 2,500 | 6,130 | 13,600 | 37,500 | 19,600 | 9,130 | 5,700 |
| 14 | 3,650 | 2,500 | 2,380 | 2,010 | 2,260 | 2,380 | 7,290 | 13,600 | 31,400 | 19,600 | 8,850 | 5,700 |
| 15 | 3,650 | 2,620 | 2,500 | 2,010 | 2,240 | 2,380 | 9,700 | 15,200 | 26,500 | 19,600 | 8,580 | 5,700 |
| 16 | 3,490 | 2,620 | 2,750 | 2,000 | 2,260 | 2,270 | 10,900 | 18,200 | 25,400 | 19,600 | 8,310 | 5,700 |
| 17 | 3,490 | 2,750 | 2,890 | 2,000 | 2,300 | 2,270 | 9,990 | 21,100 | 27,700 | 18,600 | 8,310 | 5,490 |
| 18 | 3,490 | 2,750 | 3,180 | 2,040 | 2,400 | 2,270 | 9,130 | 22,600 | 24,800 | 16,800 | 8,050 | 5,290 |
| 19 | 3,490 | 2,750 | 3,180 | 2,080 | 3,000 | 2,380 | 8,580 | 22,600 | 27,100 | 15,200 | 7,790 | 5,290 |
| 20 | 3,330 | 2,270 | 2,750 | 2,120 | 3,990 | 2,380 | 8,580 | 22,100 | 24,800 | 15,200 | 7,540 | 5,290 |
| 21 | 3,490 | 2,270 | 2,620 | 2,150 | 3,650 | 2,270 | 8,850 | 24,200 | 25,400 | 14,800 | 7,540 | 5,090 |
| 22 | 3,490 | 2,170 | 2,500 | 2,180 | 3,330 | 2,380 | 10,600 | 22,600 | 25,900 | 14,000 | 7,290 | 5,490 |
| 23 | 3,490 | 1,980 | 2,620 | 2,200 | 3,030 | 2,500 | 12,200 | 19,600 | 25,900 | 13,600 | 7,050 | 5,090 |
| 24 | 3,330 | 2,070 | 2,620 | 2,200 | 2,380 | 2,500 | 13,600 | 17,700 | 24,800 | 13,600 | 6,810 | 5,090 |
| 25 | 3,180 | 2,070 | 2,750 | 2,200 | 2,750 | 2,380 | 17,700 | 16,800 | 24,800 | 10,300 | 6,580 | 4,710 |
| 26 | 3,180 | 2,170 | 3,030 | 2,200 | 2,750 | 2,380 | 19,100 | 16,000 | 24,800 | 13,300 | 6,580 | 4,520 |
| 27 | 3,330 | 2,380 | 3,030 | 2,200 | 2,500 | 2,620 | 19,600 | 15,600 | 25,900 | 12,600 | 6,350 | 4,520 |
| 28 | 3,330 | 2,500 | 2,750 | 2,200 | 2,500 | 2,750 | 19,600 | 15,200 | 26,500 | 11,600 | 6,350 | 4,520 |
| 29 | 3,330 | 2,620 | 2,750 | 2,180 | ----- | 3,030 | 19,600 | 17,700 | 27,100 | 10,600 | 6,130 | 4,340 |
| 30 | 3,180 | 2,620 | 2,620 | 2,180 | ----- | 3,180 | 18,200 | 27,700 | 24,800 | 9,990 | 5,910 | 4,340 |
| 31 | 3,180 | ----- | 2,620 | 2,200 | ----- | 3,030 | ----- | 41,100 | ----- | 9,700 | 5,700 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 4,340 | 3,180 | 3,610 | 0.429 | 0.49 | 222,000 |
| November | 3,030 | 1,980 | 2,610 | .310 | .35 | 155,000 |
| December | 3,180 | 1,750 | 2,500 | .297 | .34 | 154,000 |
| January | 2,620 | 1,800 | 2,120 | .252 | .29 | 130,000 |
| February | 3,990 | 2,200 | 2,560 | .304 | .32 | 142,000 |
| March | 3,180 | 2,170 | 2,420 | .287 | .33 | 149,000 |
| April | 19,600 | 3,180 | 9,490 | 1.13 | 1.26 | 565,000 |
| May | 41,100 | 13,600 | 18,700 | 2.22 | 2.56 | 1,150,000 |
| June | 46,400 | 24,800 | 31,700 | 3.76 | 4.20 | 1,890,000 |
| July | 25,900 | 9,700 | 17,700 | 2.10 | 2.42 | 1,090,000 |
| August | 10,300 | 5,700 | 8,030 | .954 | 1.10 | 494,000 |
| September | 5,910 | 4,340 | 5,230 | .621 | .69 | 311,000 |
| The year | 46,400 | 1,750 | 8,900 | 1.06 | 14.35 | 6,450,000 |

KOOTENAI RIVER AT LIBBY, MONT.

LOCATION.—Chain gage in sec. 3, T. 30 N., R. 31 W., on highway bridge opposite Great Northern Railway station at Libby.

DRAINAGE AREA.—11,000 square miles.

RECORDS AVAILABLE.—October, 1910, to September, 1930.

EXTREMES.—Maximum discharge during year, 52,100 second-feet June 1 (gage height, 11.54 feet); minimum, 895 second-feet Jan. 11 (from discharge measurement; ice present).

1910-1930: Maximum discharge, 130,000 second-feet June 21, 1916 (gage height, 19.17 feet); minimum, 895 second-feet Jan. 11, 1930.

REMARKS.—Records good except those for Dec. 10 to Mar. 9, which are estimated because of ice and are fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|---------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|--------|--------|
| 1----- | 3,800 | 3,070 | 2,750 | 3,120 | *2,690 | *2,510 | 4,690 | 20,300 | 50,700 | 24,800 | 10,800 | *6,290 | |
| 2----- | 3,800 | 2,990 | 2,520 | *2,900 | | | 4,690 | 18,800 | 48,600 | 24,200 | 10,800 | *6,290 | |
| 3----- | 3,800 | 2,990 | 2,640 | *2,670 | | | *5,220 | 19,300 | 42,300 | 24,800 | *10,800 | 5,960 | |
| 4----- | 3,800 | 2,990 | 2,200 | 2,750 | | | *5,760 | 20,300 | 38,800 | 25,500 | 10,800 | 5,630 | |
| 5----- | 3,800 | 2,990 | 2,300 | *2,480 | *2,820 | 3,250 | 6,290 | 21,400 | 35,300 | 23,600 | 9,970 | 5,630 | |
| 6----- | 3,800 | 2,990 | 2,640 | 2,200 | | | *6,620 | 20,800 | 40,900 | *22,800 | 9,560 | 5,630 | |
| 7----- | 4,390 | 2,870 | 2,640 | 1,800 | | | 6,960 | 20,300 | 36,000 | 22,000 | 9,560 | *5,630 | |
| 8----- | 4,690 | 2,870 | 2,410 | 2,200 | | | 8,380 | 19,300 | 41,600 | *22,200 | 9,160 | 5,630 | |
| 9----- | 4,390 | 2,750 | 1,610 | *2,160 | 3,250 | 9,560 | 9,560 | 17,800 | 43,000 | 22,500 | 9,160 | 5,630 | |
| 10----- | 4,390 | 2,750 | | *2,130 | | | 9,560 | 16,900 | 49,300 | 22,000 | *9,160 | 5,960 | |
| 11----- | 4,090 | 2,640 | | 2,090 | *2,680 | 3,120 | 9,160 | 16,500 | 46,500 | 22,500 | 9,160 | 5,630 | |
| 12----- | 4,090 | 2,410 | | | | | 3,380 | 9,160 | 16,500 | 47,200 | 22,500 | 9,560 | 5,960 |
| 13----- | 4,090 | 2,410 | *2,550 | | | | 2,990 | *9,980 | 16,500 | 43,000 | *21,600 | 9,970 | 5,960 |
| 14----- | 3,800 | 2,300 | | | | | 2,640 | 10,800 | 16,000 | 37,400 | 20,800 | 9,560 | *5,960 |
| 15----- | 3,800 | 2,300 | | | | | 2,640 | 12,900 | 16,000 | *32,100 | 20,300 | 9,560 | |
| 16----- | 3,800 | 2,410 | | *2,300 | *2,560 | 14,200 | 18,800 | 26,800 | *20,000 | 9,160 | 5,630 | | |
| 17----- | 3,520 | *2,460 | | | | | *2,490 | 13,800 | 22,500 | 28,800 | 19,800 | *8,960 | 5,630 |
| 18----- | 3,520 | 2,520 | 3,250 | | | | 2,410 | 12,500 | 24,800 | 33,300 | 18,300 | 8,760 | 5,630 |
| 19----- | 3,520 | 2,640 | 3,380 | | *3,110 | 2,410 | 12,000 | 25,500 | 31,400 | 16,900 | 8,380 | 5,310 | |
| 20----- | 3,520 | 2,520 | 2,990 | | | | 2,750 | *12,000 | *26,800 | 27,400 | *16,700 | 8,010 | *5,310 |
| 21----- | 3,520 | 1,700 | 2,750 | | | | *2,770 | 12,000 | 28,100 | 26,800 | 16,500 | *7,890 | 5,310 |
| 22----- | 3,800 | 1,990 | 2,750 | | | | *2,790 | 12,900 | 26,800 | 28,800 | 15,600 | *7,770 | 5,000 |
| 23----- | 3,520 | 2,200 | 2,870 | | *4,080 | *2,810 | 14,200 | 23,000 | 28,100 | 15,100 | 7,650 | 5,630 | |
| 24----- | 3,380 | 2,090 | 3,250 | | | | *2,830 | 16,900 | 20,300 | 27,400 | 14,600 | *7,300 | 5,630 |
| 25----- | 3,380 | 2,200 | 3,380 | | | | *2,850 | 20,300 | 19,800 | 26,800 | 14,200 | 6,960 | 5,310 |
| 26----- | 3,380 | 1,800 | 3,520 | *2,530 | | | 2,870 | 23,000 | 18,300 | 26,800 | 14,200 | 6,960 | |
| 27----- | 3,380 | 1,800 | 3,800 | *3,160 | | | 2,990 | 23,000 | 17,800 | 27,400 | 14,200 | 6,960 | 5,000 |
| 28----- | 3,380 | 2,200 | 3,800 | | | | 3,520 | 23,000 | 17,400 | 28,100 | 13,300 | 6,620 | *4,840 |
| 29----- | 3,380 | 2,520 | 3,380 | | | | 4,090 | 23,000 | 18,300 | *28,100 | *12,200 | 6,620 | 4,690 |
| 30----- | 3,250 | 2,630 | | | | *4,540 | *21,600 | 27,400 | 28,100 | 11,200 | 6,290 | 4,690 | |
| 31----- | 3,160 | | 2,990 | | | | 5,000 | | 43,000 | | 10,800 | *6,290 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October----- | 4,690 | 3,160 | 3,740 | 0.340 | 0.39 | 230,000 |
| November----- | 3,070 | 1,700 | 2,500 | .227 | .25 | 149,000 |
| December----- | 3,800 | | 2,820 | .256 | .30 | 173,000 |
| January----- | | 1,800 | 2,420 | .220 | .25 | 149,000 |
| February----- | | | 3,080 | .280 | .29 | 171,000 |
| March----- | 5,000 | | 2,930 | .266 | .31 | 180,000 |
| April----- | 23,000 | 4,690 | 12,500 | 1.14 | 1.27 | 744,000 |
| May----- | 43,000 | 16,000 | 21,100 | 1.92 | 2.21 | 1,300,000 |
| June----- | 50,700 | 26,800 | 35,200 | 3.20 | 3.67 | 2,090,000 |
| July----- | 25,500 | 10,800 | 18,900 | 1.72 | 1.98 | 1,160,000 |
| August----- | 10,800 | 6,290 | 8,650 | .786 | .91 | 532,000 |
| September----- | 6,290 | 4,690 | 5,550 | .505 | .66 | 330,000 |
| The year----- | 50,700 | | 9,960 | .905 | 12.29 | 7,210,000 |

* Interpolated.

KOOTENAI RIVER AT LEONIA, IDAHO

LOCATION.—Water-stage recorder in SW. ¼ sec. 17, T. 33 N., R. 34 W., at Leonia, 450 feet east of Montana-Idaho State line and half a mile above mouth of Boulder Creek. Recorder reads elevation above mean sea level, United States Coast and Geodetic Survey datum.

DRAINAGE AREA.—11,740 square miles.

RECORDS AVAILABLE.—March, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 57,300 second-feet June 1, 2 (gage height, 1,812.7 feet); minimum (estimated), 2,000 second-feet Dec. 10 (gage height, 1,797.56 feet).

1928-1930: Maximum discharge, 76,700 second-feet May 24, 25, 27, 1928 (gage height, 1,815.98 feet); minimum, that of Dec. 10, 1929.

Floods of June, 1894 and 1916, reached stages of 1,824.6 and 1,821.6 feet, respectively.

REMARKS.—Records excellent Oct. 1 to Nov. 20 and Mar. 11 to Sept. 30; others estimated in part are good except those for Jan. 8 to Mar. 2, which are fair. No regulation or diversions above station.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| 1 | 4,230 | 3,740 | 3,000 | 3,540 | 2,900 | 3,450 | 6,420 | 24,300 | 55,100 | 27,000 | 10,600 | 6,440 |
| 2 | 4,130 | 3,640 | 3,000 | 3,270 | 2,970 | 3,330 | 6,420 | 22,400 | 55,700 | 26,100 | 10,900 | 6,440 |
| 3 | 4,130 | 3,640 | 2,720 | 3,090 | 3,080 | 3,300 | 7,140 | 22,400 | 48,800 | 26,100 | 10,900 | 6,440 |
| 4 | 4,130 | 3,640 | 2,500 | 3,180 | 3,180 | 3,300 | 7,140 | 23,100 | 44,100 | 27,000 | 10,600 | 6,220 |
| 5 | 4,130 | 3,540 | 2,400 | 3,090 | 3,250 | 3,300 | 7,640 | 24,300 | 40,700 | 25,300 | 10,400 | 6,000 |
| 6 | 4,230 | 3,540 | 2,350 | 2,670 | 3,230 | 3,310 | 8,130 | 23,900 | 38,100 | 22,900 | 9,850 | 5,780 |
| 7 | 4,330 | 3,450 | 2,630 | 2,400 | 3,230 | 3,320 | 9,150 | 23,100 | 38,600 | 22,900 | 9,590 | 5,780 |
| 8 | 4,740 | 3,450 | 2,590 | 2,300 | 3,230 | 3,280 | 11,000 | 22,000 | 43,500 | 24,500 | 9,330 | 5,780 |
| 9 | 4,740 | 3,450 | 2,400 | 2,250 | 3,220 | 3,320 | 12,400 | 20,900 | 51,200 | 24,100 | 9,330 | 6,000 |
| 10 | 4,640 | 3,380 | 2,000 | 2,300 | 3,200 | 3,400 | 12,400 | 19,500 | 53,800 | 22,900 | 9,330 | 6,000 |
| 11 | 4,540 | 3,270 | 2,250 | 2,350 | 3,100 | 3,450 | 12,100 | 18,800 | 50,600 | 23,300 | 9,330 | 6,220 |
| 12 | 4,430 | 3,180 | 2,400 | 2,400 | 3,100 | 3,450 | 11,900 | 18,400 | 50,000 | 23,700 | 9,590 | 6,220 |
| 13 | 4,330 | 3,000 | 2,600 | 2,450 | 3,050 | 3,740 | 12,700 | 18,400 | 48,200 | 22,500 | 9,850 | 6,220 |
| 14 | 4,230 | 2,840 | 3,090 | 2,500 | 3,000 | 3,640 | 14,800 | 18,100 | 41,800 | 21,800 | 9,590 | 6,440 |
| 15 | 4,030 | 3,000 | 3,610 | 2,500 | 3,000 | 3,540 | 16,400 | 18,100 | 34,600 | 21,800 | 9,330 | 6,220 |
| 16 | 4,030 | 3,270 | 3,700 | 2,500 | 3,010 | 3,360 | 17,700 | 20,200 | 30,400 | 21,400 | 9,070 | 6,220 |
| 17 | 4,030 | 3,180 | 3,800 | 2,550 | 3,080 | 3,270 | 17,100 | 23,500 | 30,000 | 21,000 | 9,070 | 6,220 |
| 18 | 4,030 | 3,180 | 4,050 | 2,600 | 3,200 | 3,360 | 15,800 | 26,300 | 33,600 | 19,600 | 8,820 | 6,000 |
| 19 | 4,030 | 3,090 | 4,050 | 2,700 | 3,600 | 3,540 | 14,900 | 27,500 | 34,100 | 18,200 | 8,570 | 5,780 |
| 20 | 3,930 | 2,670 | 3,900 | 2,800 | 4,500 | 3,740 | 14,200 | 28,300 | 30,400 | 17,200 | 8,570 | 5,780 |
| 21 | 3,930 | 2,550 | 3,600 | 2,830 | 5,600 | 3,830 | 14,800 | 30,500 | 29,100 | 16,900 | 8,320 | 5,560 |
| 22 | 3,930 | 2,500 | 3,200 | 2,830 | 5,200 | 3,930 | 16,100 | 30,500 | 30,400 | 15,900 | 8,080 | 5,560 |
| 23 | 3,930 | 2,350 | 3,300 | 2,830 | 4,400 | 3,930 | 18,100 | 27,500 | 30,000 | 15,300 | 8,080 | 5,780 |
| 24 | 3,830 | 2,400 | 3,450 | 2,830 | 4,300 | 3,830 | 21,300 | 24,300 | 29,500 | 15,000 | 7,600 | 5,780 |
| 25 | 3,830 | 2,350 | 3,930 | 2,830 | 4,200 | 3,830 | 25,500 | 22,800 | 28,700 | 14,700 | 7,360 | 5,780 |
| 26 | 3,830 | 2,670 | 3,950 | 2,830 | 4,000 | 3,930 | 27,900 | 21,600 | 28,200 | 14,700 | 7,130 | 5,560 |
| 27 | 4,030 | 2,750 | 4,050 | 2,830 | 3,700 | 4,130 | 28,700 | 20,200 | 28,700 | 14,400 | 7,130 | 5,350 |
| 28 | 4,030 | 2,920 | 4,090 | 2,820 | 3,550 | 4,640 | 28,300 | 19,600 | 29,100 | 13,500 | 7,130 | 5,240 |
| 29 | 4,030 | 3,000 | 3,830 | 2,810 | ----- | 5,390 | 27,500 | 20,200 | 29,300 | 12,600 | 7,130 | 5,140 |
| 30 | 3,930 | 3,070 | 3,830 | 2,830 | ----- | 6,190 | 26,300 | 27,100 | 29,500 | 11,800 | 6,670 | 5,040 |
| 31 | 3,830 | ----- | 3,540 | 2,860 | ----- | 6,420 | ----- | 42,500 | ----- | 11,200 | 6,670 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 4,740 | 3,830 | 4,130 | 0.352 | 0.41 | 254,000 |
| November | 3,740 | 2,350 | 3,090 | .263 | .29 | 184,000 |
| December | 4,090 | 2,000 | 3,220 | .274 | .32 | 198,000 |
| January | 3,540 | 2,250 | 2,730 | .233 | .27 | 168,000 |
| February | 5,600 | 2,900 | 3,540 | .302 | .31 | 197,000 |
| March | 6,420 | 3,270 | 3,820 | .325 | .37 | 235,000 |
| April | 28,700 | 6,420 | 15,700 | 1.34 | 1.50 | 934,000 |
| May | 42,500 | 18,100 | 23,600 | 2.01 | 2.32 | 1,450,000 |
| June | 55,700 | 28,200 | 38,200 | 3.25 | 3.63 | 2,270,000 |
| July | 27,000 | 11,200 | 19,800 | 1.69 | 1.95 | 1,220,000 |
| August | 10,900 | 6,670 | 8,840 | .753 | .87 | 544,000 |
| September | 6,440 | 5,040 | 5,900 | .503 | .56 | 351,000 |
| The year | 55,700 | 2,000 | 11,100 | .945 | 12.80 | 8,000,000 |

KOOTENAI RIVER AT KATKA, IDAHO

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 25, T. 62 N., R. 2 E., 3,007 feet downstream from Great Northern Railway station at Katka and $\frac{3}{4}$ miles above Moyie River. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum.

DRAINAGE AREA.—11,860 square miles.

RECORDS AVAILABLE.—April, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 56,400 second-feet June 1, 2 (gage height, 1,788.8 feet); minimum discharge (estimated), 2,027 second-feet Dec. 10; minimum gage height, 1,773.74 feet Dec. 11.

1928-1930: Maximum discharge, 77,800 second-feet May 25, 27, 1928 (gage height, 1,793.5 feet); minimum discharge and stage, those of Dec. 10 and 11, 1929, respectively.

REMARKS.—Records excellent Oct. 1 to Nov. 14, Mar. 16 to Sept. 30; others good except those for Jan. 8 to Mar. 2, which are fair; affected by ice Nov. 15 to Mar. 15.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| 1----- | 4,260 | 3,720 | 3,030 | 3,570 | 2,950 | 3,500 | 6,620 | 24,700 | 55,400 | 27,100 | 10,800 | 6,140 |
| 2----- | 4,260 | 3,720 | 3,030 | 3,300 | 3,020 | 3,430 | 6,620 | 22,900 | 55,900 | 25,900 | 10,800 | 6,380 |
| 3----- | 4,150 | 3,620 | 2,740 | 3,120 | 3,130 | 3,350 | 7,120 | 22,900 | 48,700 | 25,500 | 11,100 | 6,260 |
| 4----- | 4,150 | 3,620 | 2,530 | 3,210 | 3,230 | 3,350 | 7,870 | 23,600 | 44,300 | 26,700 | 10,800 | 6,020 |
| 5----- | 4,260 | 3,620 | 2,430 | 3,120 | 3,300 | 3,350 | 8,130 | 24,700 | 40,500 | 25,100 | 10,500 | 5,780 |
| 6----- | 4,260 | 3,520 | 2,380 | 2,700 | 3,280 | 3,360 | 8,650 | 24,400 | 37,700 | 22,900 | 9,980 | 5,660 |
| 7----- | 4,370 | 3,520 | 2,650 | 2,430 | 3,280 | 3,370 | 9,440 | 23,600 | 37,700 | 22,900 | 9,710 | 5,780 |
| 8----- | 4,810 | 3,520 | 2,620 | 2,330 | 3,280 | 3,330 | 11,400 | 22,500 | 42,400 | 24,000 | 9,440 | 5,780 |
| 9----- | 4,810 | 3,410 | 2,430 | 2,280 | 3,260 | 3,380 | 13,100 | 21,400 | 50,700 | 24,000 | 9,440 | 5,780 |
| 10----- | 4,700 | 3,410 | 2,020 | 2,320 | 3,240 | 3,450 | 13,100 | 20,100 | 53,800 | 22,900 | 9,440 | 5,900 |
| 11----- | 4,590 | 3,310 | 2,280 | 2,370 | 3,130 | 3,500 | 12,500 | 19,400 | 50,700 | 22,900 | 9,440 | 6,020 |
| 12----- | 4,480 | 3,210 | 2,430 | 2,420 | 3,130 | 3,500 | 12,500 | 19,900 | 50,200 | 23,600 | 9,440 | 6,020 |
| 13----- | 4,370 | 3,070 | 2,640 | 2,470 | 3,080 | 3,800 | 13,100 | 19,900 | 48,200 | 22,500 | 9,710 | 6,140 |
| 14----- | 4,260 | 2,900 | 3,300 | 2,520 | 3,080 | 3,710 | 15,200 | 18,700 | 41,900 | 21,400 | 9,710 | 6,260 |
| 15----- | 4,260 | 3,050 | 3,840 | 2,520 | 3,030 | 3,610 | 16,800 | 18,700 | 34,200 | 21,400 | 9,440 | 6,260 |
| 16----- | 4,150 | 3,320 | 3,800 | 2,520 | 3,060 | 3,540 | 18,000 | 20,400 | 30,300 | 21,400 | 9,170 | 6,260 |
| 17----- | 4,150 | 3,230 | 3,880 | 2,570 | 3,140 | 3,440 | 17,700 | 23,600 | 29,100 | 21,100 | 8,910 | 6,140 |
| 18----- | 4,040 | 3,280 | 3,110 | 2,620 | 3,300 | 3,440 | 16,400 | 26,700 | 32,900 | 19,700 | 8,910 | 5,780 |
| 19----- | 4,040 | 3,130 | 4,090 | 2,720 | 3,800 | 3,540 | 15,200 | 27,900 | 34,200 | 18,400 | 8,650 | 5,660 |
| 20----- | 4,040 | 2,700 | 3,940 | 2,830 | 4,750 | 3,540 | 14,900 | 28,300 | 29,900 | 17,400 | 8,390 | 5,540 |
| 21----- | 4,040 | 2,580 | 3,640 | 2,860 | 5,800 | 3,760 | 15,200 | 30,700 | 28,700 | 17,100 | 8,130 | 5,540 |
| 22----- | 4,040 | 2,530 | 3,240 | 2,860 | 5,350 | 3,970 | 16,800 | 31,200 | 29,900 | 16,400 | 8,130 | 5,540 |
| 23----- | 4,040 | 2,380 | 3,340 | 2,860 | 4,530 | 4,080 | 18,400 | 27,900 | 29,500 | 15,500 | 7,870 | 5,540 |
| 24----- | 3,940 | 2,430 | 3,490 | 2,860 | 4,400 | 4,080 | 21,400 | 24,700 | 29,100 | 14,900 | 7,620 | 5,660 |
| 25----- | 3,940 | 2,380 | 3,990 | 2,860 | 4,270 | 3,970 | 25,900 | 22,900 | 28,300 | 14,900 | 7,370 | 5,660 |
| 26----- | 3,940 | 2,700 | 3,990 | 2,860 | 4,060 | 3,970 | 28,300 | 21,800 | 27,900 | 14,900 | 7,120 | 5,430 |
| 27----- | 3,940 | 2,780 | 4,090 | 2,860 | 3,760 | 4,190 | 29,100 | 20,800 | 28,700 | 14,600 | 7,120 | 5,320 |
| 28----- | 4,040 | 2,950 | 4,120 | 2,860 | 3,600 | 4,630 | 28,700 | 20,100 | 29,100 | 14,000 | 6,870 | 5,200 |
| 29----- | 3,940 | 3,030 | 3,870 | 2,850 | ----- | 5,320 | 27,900 | 20,400 | 30,300 | 12,800 | 6,870 | 5,080 |
| 30----- | 3,940 | 3,100 | 3,860 | 2,870 | ----- | 6,260 | 26,700 | 26,300 | 30,300 | 11,900 | 6,620 | 4,970 |
| 31----- | 3,830 | ----- | 3,570 | 2,900 | ----- | 6,620 | ----- | 42,400 | ----- | 11,100 | 6,380 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October----- | 4,810 | 3,830 | 4,190 | 0.353 | 0.41 | 258,000 |
| November----- | 3,720 | 2,380 | 3,120 | .263 | .29 | 186,000 |
| December----- | 4,130 | 2,020 | 3,270 | .276 | .32 | 201,000 |
| January----- | 3,570 | 2,280 | 2,760 | .233 | .27 | 170,000 |
| February----- | 5,800 | 2,950 | 3,620 | .305 | .32 | 201,000 |
| March----- | 6,620 | 3,330 | 3,880 | .327 | .38 | 239,000 |
| April----- | 29,100 | 6,620 | 16,100 | 1.36 | 1.62 | 958,000 |
| May----- | 42,400 | 18,700 | 23,900 | 2.02 | 2.33 | 1,470,000 |
| June----- | 55,900 | 27,900 | 38,000 | 3.20 | 3.57 | 2,260,000 |
| July----- | 27,100 | 11,100 | 19,800 | 1.67 | 1.92 | 1,220,000 |
| August----- | 11,100 | 6,380 | 8,830 | .745 | .86 | 543,000 |
| September----- | 6,380 | 4,970 | 5,780 | .487 | .54 | 344,000 |
| The year----- | 55,900 | 2,020 | 11,100 | .936 | 12.73 | 8,060,000 |

KOOTENAI RIVER AT BOOM CAMP, NEAR BONNERS FERRY, IDAHO

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 29, T. 62 N., R. 2 E., 600 feet east of Boom Camp, 3.5 miles upstream from Bonners Ferry, and 4 miles downstream from Moyie River. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum.

RECORDS AVAILABLE.—October, 1927, to September, 1930. From April, 1925, to September, 1927, records were collected by Dominion Water Power and Reclamation Service of Canada.

EXTREMES.—Maximum water-surface elevation during year, 1,768.78 feet June 2; minimum, 1,756.16 feet Jan. 13.

1927-1930: Maximum water-surface elevation, 1,774.75 feet May 28, 1928; minimum, that of Jan. 13, 1930.

REMARKS.—Records good. Elevations affected by backwater from Kootenai Lake. Prior to Dec. 1, 1929, records furnished by Dominion Water Power and Hydrometric Bureau, Department of the Interior, Canada.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 57.33 | 56.98 | ----- | ----- | 57.87 | 57.97 | 58.50 | 63.38 | ----- | 63.48 | 59.68 | ----- |
| 2 | 57.32 | 56.96 | 56.85 | 57.13 | ----- | ----- | 58.50 | 63.03 | 68.78 | 63.23 | 59.66 | 58.24 |
| 3 | 57.23 | ----- | 56.88 | 56.73 | 57.83 | 57.34 | 58.68 | 62.98 | 67.78 | 63.18 | ----- | 58.21 |
| 4 | 57.23 | 56.92 | 56.78 | 56.78 | 57.82 | 57.18 | 58.94 | ----- | 66.98 | ----- | 59.68 | 58.16 |
| 5 | 57.23 | 56.94 | 56.27 | ----- | 57.85 | 57.16 | 59.08 | 63.28 | 66.38 | 63.13 | 59.55 | 58.09 |
| 6 | ----- | 56.88 | 56.27 | 56.98 | 57.78 | 57.06 | ----- | 63.18 | 65.88 | ----- | 59.38 | ----- |
| 7 | 57.38 | 56.87 | 56.28 | ----- | 57.88 | 56.98 | 59.49 | 63.03 | 65.73 | 62.58 | 59.28 | ----- |
| 8 | 57.48 | 56.85 | ----- | ----- | 57.98 | 57.08 | 60.08 | 62.83 | ----- | 62.78 | 59.26 | ----- |
| 9 | 57.56 | 56.82 | ----- | ----- | ----- | ----- | 60.58 | 62.53 | 67.58 | 62.83 | 59.22 | ----- |
| 10 | 57.48 | ----- | ----- | ----- | 57.91 | 56.99 | 60.58 | 62.28 | 68.38 | 62.58 | ----- | ----- |
| 11 | 57.43 | 56.76 | ----- | 56.18 | 57.86 | 57.00 | 60.43 | 62.08 | 67.98 | 62.58 | 59.18 | ----- |
| 12 | 57.37 | 56.76 | ----- | ----- | 57.90 | 57.08 | 60.38 | 62.08 | 67.78 | 62.68 | 59.18 | 58.06 |
| 13 | ----- | 56.73 | ----- | 56.16 | 57.75 | 57.20 | ----- | 61.98 | 67.68 | ----- | 59.34 | 58.07 |
| 14 | 57.36 | 56.63 | ----- | 56.17 | 57.66 | 57.15 | 61.08 | 61.88 | 66.68 | 62.28 | 59.30 | ----- |
| 15 | 57.20 | 56.83 | ----- | 56.67 | 57.67 | 57.08 | 61.58 | 61.93 | ----- | 62.28 | 59.24 | 58.11 |
| 16 | 57.18 | 56.87 | ----- | 56.73 | ----- | ----- | 61.83 | 62.28 | 64.38 | 62.18 | 59.18 | 58.09 |
| 17 | 57.16 | ----- | ----- | 56.72 | 58.00 | 56.90 | 61.78 | 62.88 | 64.08 | 62.18 | ----- | 58.06 |
| 18 | 57.16 | 56.72 | ----- | 56.80 | 58.60 | 56.88 | 61.43 | ----- | 64.63 | 61.93 | 59.08 | 58.00 |
| 19 | 57.14 | 56.72 | 56.78 | ----- | 58.75 | 56.88 | 61.18 | 63.73 | 64.93 | 61.63 | 59.00 | 57.92 |
| 20 | ----- | 56.72 | 56.78 | 57.03 | 59.44 | 56.98 | ----- | 63.78 | 64.23 | ----- | 58.93 | 57.86 |
| 21 | 57.10 | 56.88 | 56.78 | 57.38 | 60.23 | 57.08 | 61.18 | 64.33 | 63.88 | 61.28 | 58.84 | ----- |
| 22 | 57.10 | 56.28 | ----- | 57.47 | ----- | 57.16 | 61.48 | 64.53 | ----- | 61.08 | 58.78 | 57.84 |
| 23 | 57.10 | 56.28 | ----- | 57.56 | ----- | ----- | 61.98 | 63.98 | 64.08 | 60.98 | 58.70 | 57.83 |
| 24 | 57.08 | ----- | 56.90 | 57.57 | 58.38 | 57.24 | 62.58 | 63.28 | 63.93 | 60.78 | ----- | 57.84 |
| 25 | 57.08 | 56.28 | ----- | 57.58 | 58.83 | 57.18 | 63.63 | ----- | 63.78 | 60.78 | 58.50 | 57.88 |
| 26 | ----- | 57.08 | 56.38 | 57.19 | ----- | 58.64 | 57.18 | 63.98 | 62.73 | 63.68 | 60.68 | 57.86 |
| 27 | ----- | ----- | 56.38 | 57.19 | 57.76 | 58.43 | 57.28 | ----- | 62.43 | 63.78 | ----- | 57.76 |
| 28 | 57.16 | ----- | 57.23 | 57.68 | 58.44 | 57.48 | ----- | 64.13 | 62.28 | 63.88 | 60.48 | 58.38 |
| 29 | 57.08 | 56.64 | ----- | 57.75 | ----- | 57.86 | 63.98 | 62.18 | ----- | 60.28 | 58.30 | 57.62 |
| 30 | 57.10 | 56.68 | 57.08 | 57.72 | ----- | ----- | 63.78 | ----- | 64.08 | 59.98 | 58.26 | 57.58 |
| 31 | 57.08 | ----- | 56.98 | 57.71 | ----- | 58.58 | ----- | 65.98 | ----- | 59.73 | ----- | ----- |

NOTE.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

KOOTENAI RIVER AT BONNERS FERRY, IDAHO

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 27, T. 62 N., R. 1 E., on highway bridge at Bonners Ferry. Prior to Nov. 25, 1929, staff gage at same bridge site but near opposite bank was used. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum.

DRAINAGE AREA.—13,000 square miles.

RECORDS AVAILABLE.—October, 1927, to September, 1930; May to October, 1904, at point three-fourths mile downstream. Gage heights collected by United States Weather Bureau, May, 1904, to September, 1927.

EXTREMES.—Maximum discharge during year, 59,200 second-feet June 2; maximum water-surface elevation, 1,764.96 feet June 2; minimum discharge, 2,090 second-feet Dec. 10; minimum water-surface elevation, 1,741.14 feet Dec. 5.

1927-1930: Maximum discharge, 82,800 second-feet May 25, 1928; maximum water-surface elevation, 1,772.78 feet May 28, 29, 1928; minimum discharge and water-surface elevation occurred in 1930.

Maximum elevation known, 1,777.2 feet in June, 1894.

REMARKS.—Records of discharge good except those for January and February, which are fair. Gage-height records reliable. River partly frozen over Jan. 7 to Feb. 18. Because backwater from Kootenai Lake made it impossible to rate station by results of current-meter measurements, discharge was obtained by combining records collected on Kootenai River at Katka, Moyie River at Eileen, Cow Creek near Bonners Ferry, and a small amount of estimated unmeasured intervening inflow. No allowance made for time interval below Katka, which varies from about two to five hours, depending upon stage and slope of river. No diversions or artificial regulation above station.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 43.28 | 42.30 | 41.59 | 42.11 | 43.68 | 42.78 | 43.98 | 56.05 | 63.36 | 57.99 | 49.71 | 45.76 |
| 2 | 43.20 | 42.25 | 41.37 | 41.99 | 43.30 | 42.54 | 43.96 | 55.46 | 64.85 | 57.35 | 49.61 | 45.72 |
| 3 | 43.08 | 42.20 | 41.28 | 42.03 | 43.46 | 42.38 | 44.14 | 55.14 | 64.25 | 57.07 | 49.56 | 45.64 |
| 4 | 43.08 | 42.20 | 41.41 | 41.89 | 43.60 | 42.40 | 44.54 | 55.56 | 63.11 | 57.13 | 49.48 | 45.50 |
| 5 | 43.10 | 42.15 | 41.17 | 41.96 | 43.76 | 42.42 | 44.92 | 55.72 | 62.05 | 57.03 | 49.24 | 45.34 |
| 6 | 43.10 | 42.12 | 41.21 | 41.94 | 43.40 | 42.36 | 45.26 | 55.74 | 61.45 | 56.27 | 48.94 | 45.18 |
| 7 | 43.10 | 42.05 | 41.31 | 41.86 | 43.50 | 42.26 | 45.65 | 55.60 | 61.05 | 55.81 | 48.78 | 45.16 |
| 8 | 43.20 | 42.02 | 41.50 | 41.90 | 43.43 | 42.19 | 46.42 | 55.35 | 61.64 | 55.98 | 48.58 | 45.15 |
| 9 | 43.25 | 42.00 | 41.94 | 41.74 | 43.33 | 42.13 | 47.59 | 54.89 | 63.21 | 56.14 | 48.48 | 45.13 |
| 10 | 43.20 | 41.95 | 41.73 | 41.72 | 43.27 | 42.08 | 48.04 | 54.33 | 64.72 | 55.78 | 48.42 | 45.15 |
| 11 | 43.15 | 41.85 | 41.48 | 42.20 | 43.19 | 41.99 | 47.94 | 54.08 | 64.64 | 55.58 | 48.33 | 45.17 |
| 12 | 43.05 | 41.82 | 41.28 | 42.53 | 43.17 | 42.09 | 47.86 | 53.83 | 64.22 | 55.66 | 48.27 | 45.13 |
| 13 | 42.92 | 41.75 | 41.36 | 42.69 | 43.21 | 42.11 | 48.28 | 53.71 | 64.22 | 55.64 | 48.35 | 45.05 |
| 14 | 42.85 | 41.65 | 41.61 | 43.05 | 42.83 | 42.25 | 48.89 | 53.54 | 63.42 | 55.12 | 48.35 | 45.06 |
| 15 | 42.80 | 41.85 | 42.57 | 43.51 | 42.72 | 42.14 | 50.12 | 53.52 | 61.68 | 54.95 | 48.23 | 45.06 |
| 16 | 42.75 | 41.82 | 42.65 | 43.75 | 42.50 | 42.09 | 50.72 | 53.86 | 60.10 | 54.85 | 48.09 | 45.08 |
| 17 | 42.68 | 41.78 | 42.53 | 43.81 | 42.60 | 41.87 | 51.01 | 54.78 | 59.23 | 54.71 | 47.95 | 45.04 |
| 18 | 42.65 | 41.75 | 42.27 | 43.82 | 42.68 | 41.90 | 50.62 | 56.02 | 59.68 | 54.41 | 47.82 | 44.96 |
| 19 | 42.60 | 41.70 | 42.19 | 43.98 | 43.32 | 41.84 | 50.17 | 56.52 | 60.27 | 53.99 | 47.70 | 44.84 |
| 20 | 42.60 | 41.70 | 42.17 | 44.18 | 44.62 | 41.96 | 49.91 | 56.79 | 59.59 | 53.45 | 47.60 | 44.72 |
| 21 | 42.65 | 42.20 | 41.95 | 44.06 | 45.78 | 42.02 | 50.06 | 57.87 | 58.85 | 53.15 | 47.40 | 44.60 |
| 22 | 42.60 | 42.00 | 41.88 | 44.02 | 44.37 | 42.06 | 50.61 | 58.39 | 58.81 | 52.81 | 47.28 | 44.63 |
| 23 | 42.60 | 42.00 | 42.16 | 43.82 | 45.01 | 42.22 | 51.58 | 57.77 | 58.87 | 52.42 | 47.09 | 44.55 |
| 24 | 42.50 | 41.50 | 42.04 | 43.78 | 44.49 | 42.22 | 52.60 | 56.72 | 58.60 | 52.17 | 46.92 | 44.53 |
| 25 | 42.48 | 41.44 | 42.20 | 43.63 | 43.91 | 42.20 | 54.50 | 55.94 | 58.32 | 52.00 | 46.73 | 44.49 |
| 26 | 42.45 | 41.40 | 42.34 | 43.85 | 43.59 | 42.20 | 55.85 | 55.55 | 58.12 | 51.77 | 46.63 | 44.41 |
| 27 | 42.52 | 41.30 | 42.38 | 43.75 | 43.23 | 42.24 | 56.59 | 55.06 | 58.10 | 51.67 | 46.51 | 44.33 |
| 28 | 42.55 | 41.40 | 42.46 | 43.67 | 42.95 | 42.46 | 56.87 | 54.66 | 55.16 | 51.35 | 46.39 | 44.17 |
| 29 | 42.45 | 41.55 | 42.27 | 43.63 | ----- | 42.86 | 56.75 | 54.48 | 55.36 | 50.99 | 46.27 | 44.04 |
| 30 | 42.40 | 41.55 | 42.19 | 42.95 | ----- | 43.60 | 56.53 | 55.46 | 55.58 | 50.51 | 46.09 | 44.00 |
| 31 | 42.38 | ----- | 42.13 | 43.19 | ----- | 43.96 | ----- | 59.12 | ----- | 50.03 | 45.95 | ----- |

NOTE.—Add 1,700.00 feet to convert gage readings to elevation above sea level (U. S. Coast and Geodetic Survey datum).

Daily and monthly discharge, in second-feet, of Kootenai River at Bonners Ferry, Idaho, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
|-----------|-------|-------|-------|---------|-------|---------|--------|--------|--------|-----------------|--------|--------|-----------|
| 1 | 4,360 | 3,820 | 3,110 | 3,680 | 3,050 | 3,680 | 7,270 | 27,300 | 59,000 | 27,800 | 11,000 | 6,250 | |
| 2 | 4,360 | 3,820 | 3,110 | 3,410 | 3,120 | 3,600 | 7,310 | 25,800 | 59,200 | 26,600 | 11,000 | 6,490 | |
| 3 | 4,250 | 3,720 | 2,820 | 3,240 | 3,230 | 3,520 | 7,910 | 25,600 | 51,800 | 26,200 | 11,800 | 6,370 | |
| 4 | 4,250 | 3,720 | 2,610 | 3,340 | 3,330 | 3,520 | 8,700 | 26,200 | 47,100 | 27,300 | 11,000 | 6,120 | |
| 5 | 4,360 | 3,720 | 2,510 | 3,250 | 3,400 | 3,520 | 8,940 | 27,200 | 43,100 | 25,700 | 10,700 | 5,880 | |
| 6 | 4,360 | 3,620 | 2,460 | 2,820 | 3,380 | 3,520 | 9,530 | 26,800 | 40,200 | 23,500 | 10,200 | 5,760 | |
| 7 | 4,470 | 3,620 | 2,730 | 2,540 | 3,380 | 3,540 | 10,600 | 25,800 | 40,000 | 23,400 | 9,880 | 5,880 | |
| 8 | 4,910 | 3,620 | 2,700 | 2,440 | 3,380 | 3,490 | 12,900 | 24,500 | 44,500 | 24,500 | 9,600 | 5,880 | |
| 9 | 4,910 | 3,510 | 2,500 | 2,380 | 3,360 | 3,540 | 14,700 | 23,300 | 52,600 | 24,500 | 9,600 | 5,880 | |
| 10 | 4,800 | 3,510 | 2,090 | 2,410 | 3,330 | 3,630 | 14,500 | 21,900 | 55,600 | 23,400 | 9,510 | 6,010 | |
| 11 | 4,700 | 3,400 | 2,350 | 2,460 | 3,220 | 3,690 | 13,800 | 21,200 | 52,400 | 23,300 | 9,600 | 6,140 | |
| 12 | 4,580 | 3,300 | 2,500 | 2,500 | 3,220 | 3,700 | 13,900 | 20,800 | 51,800 | 24,000 | 9,600 | 6,250 | |
| 13 | 4,470 | 3,170 | 2,720 | 2,550 | 3,170 | 4,000 | 14,700 | 20,800 | 49,700 | 22,900 | 9,860 | 6,260 | |
| 14 | 4,360 | 3,000 | 3,420 | 2,890 | 3,170 | 3,910 | 17,200 | 20,400 | 43,200 | 21,800 | 9,860 | 6,380 | |
| 15 | 4,360 | 3,150 | 4,000 | 2,590 | 3,120 | 3,810 | 19,100 | 20,500 | 35,400 | 21,800 | 9,590 | 6,380 | |
| 16 | 4,240 | 3,420 | 3,940 | 2,590 | 3,150 | 3,730 | 20,000 | 22,300 | 31,400 | 21,700 | 9,320 | 6,380 | |
| 17 | 4,250 | 3,330 | 4,000 | 2,640 | 3,240 | 3,640 | 19,500 | 25,500 | 30,100 | 21,400 | 9,060 | 6,250 | |
| 18 | 4,140 | 3,310 | 4,210 | 2,690 | 3,420 | 3,650 | 18,100 | 28,700 | 33,900 | 20,000 | 9,050 | 5,890 | |
| 19 | 4,140 | 3,220 | 4,190 | 2,790 | 3,960 | 3,750 | 16,900 | 29,800 | 35,100 | 18,700 | 8,790 | 5,770 | |
| 20 | 4,140 | 2,920 | 4,030 | 2,890 | 5,010 | 3,770 | 16,700 | 30,500 | 30,800 | 17,800 | 8,540 | 5,640 | |
| 21 | 4,140 | 2,670 | 3,730 | 2,930 | 6,040 | 4,010 | 17,200 | 33,400 | 29,800 | 17,500 | 8,270 | 5,640 | |
| 22 | 4,140 | 2,620 | 3,340 | 2,930 | 5,570 | 4,250 | 19,000 | 33,700 | 31,000 | 16,700 | 8,270 | 5,650 | |
| 23 | 4,140 | 2,470 | 3,450 | 2,940 | 4,740 | 4,350 | 20,900 | 30,200 | 30,500 | 15,800 | 8,000 | 5,650 | |
| 24 | 4,040 | 2,520 | 3,610 | 2,940 | 4,600 | 4,340 | 24,200 | 26,800 | 30,000 | 15,200 | 7,750 | 5,770 | |
| 25 | 4,040 | 2,480 | 4,120 | 2,940 | 4,460 | 4,260 | 29,500 | 25,000 | 29,200 | 15,200 | 7,500 | 5,770 | |
| 26 | 4,040 | 2,800 | 4,120 | 2,940 | 4,240 | 4,310 | 31,600 | 23,800 | 28,800 | 15,200 | 7,240 | 5,540 | |
| 27 | 4,050 | 2,870 | 4,210 | 2,940 | 3,940 | 4,580 | 32,500 | 22,600 | 29,600 | 14,900 | 7,240 | 5,430 | |
| 28 | 4,170 | 3,030 | 4,250 | 2,940 | 3,770 | 5,120 | 32,000 | 21,900 | 30,000 | 14,200 | 6,990 | 5,310 | |
| 29 | 4,060 | 3,110 | 3,990 | 2,940 | ----- | 5,930 | 31,100 | 22,300 | 31,100 | 13,000 | 6,990 | 5,200 | |
| 30 | 4,050 | 3,180 | 3,980 | 2,960 | ----- | 6,970 | 30,000 | 29,100 | 31,100 | 12,100 | 6,730 | 5,090 | |
| 31 | 3,940 | ----- | 3,690 | 2,990 | ----- | 7,290 | ----- | 46,000 | ----- | 11,300 | 6,490 | ----- | |
| | | | | | | | | | | Run-off | | | |
| Month | | | | Maximum | | Minimum | | Mean | | Per square mile | | Inches | Acre-feet |
| October | | | | 4,910 | | 3,940 | | 4,300 | | 0.331 | | 0.38 | 264,000 |
| November | | | | 3,820 | | 2,470 | | 3,220 | | .248 | | .28 | 192,000 |
| December | | | | 4,250 | | 2,090 | | 3,370 | | .259 | | .30 | 207,000 |
| January | | | | 3,680 | | 2,380 | | 2,840 | | .218 | | .25 | 175,000 |
| February | | | | 6,040 | | 3,050 | | 3,750 | | .288 | | .30 | 208,000 |
| March | | | | 7,290 | | 3,490 | | 4,150 | | .319 | | .37 | 255,000 |
| April | | | | 32,500 | | 7,270 | | 18,000 | | 1.38 | | 1.54 | 1,070,000 |
| May | | | | 46,000 | | 20,400 | | 26,100 | | 2.01 | | 2.32 | 1,600,000 |
| June | | | | 59,200 | | 28,800 | | 39,600 | | 3.05 | | 3.40 | 2,360,000 |
| July | | | | 27,800 | | 11,300 | | 20,200 | | 1.55 | | 1.79 | 1,240,000 |
| August | | | | 11,300 | | 6,490 | | 8,990 | | .692 | | .80 | 553,000 |
| September | | | | 6,490 | | 5,090 | | 5,890 | | .453 | | .51 | 350,000 |
| The year | | | | 59,200 | | 2,090 | | 11,700 | | .900 | | 12.24 | 8,470,000 |

KOOTENAI RIVER NEAR BONNERS FERRY, IDAHO

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 28, T. 62 N., R. 1 E., 1.6 miles downstream from highway bridge at Bonners Ferry. Recorder reads elevation above mean sea level, United States Coast and Geodetic Survey datum.

DRAINAGE AREA.—13,000 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 1,764.15 feet June 2; minimum, 1,740.32 feet Jan. 16.

1928-1930: Maximum water-surface elevation, 1,772.22 feet May 28, 1928; minimum, that of Jan. 16, 1930.

REMARKS.—Records excellent except those for Oct. 25 to Feb. 19, Mar. 1-19, during which periods daily staff readings only were obtained. Elevations affected by backwater of Kootenai Lake.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 42.86 | 41.76 | 40.86 | ----- | 40.60 | 41.76 | 43.17 | 55.35 | 62.86 | 57.40 | 49.33 | 45.43 |
| 2..... | 42.76 | 41.72 | 40.60 | 41.04 | 40.94 | 41.66 | 43.19 | 54.83 | 64.05 | 56.86 | 49.21 | 45.37 |
| 3..... | 42.68 | 41.62 | 40.51 | 41.06 | 40.98 | 41.54 | 43.41 | 54.72 | 63.28 | 56.63 | 49.20 | 45.27 |
| 4..... | 42.68 | ----- | 40.43 | 41.06 | 41.04 | 41.58 | 43.84 | 54.96 | 62.27 | 56.70 | 49.08 | 45.12 |
| 5..... | 42.69 | 41.54 | 40.50 | 41.12 | 41.16 | ----- | 44.22 | 55.20 | 61.45 | 56.47 | 48.84 | 44.96 |
| 6..... | 42.68 | 41.55 | 40.45 | ----- | 41.18 | 41.58 | 44.51 | 55.21 | 60.78 | 55.72 | 48.55 | 44.80 |
| 7..... | 42.65 | 41.49 | 40.58 | 40.98 | 41.18 | 41.52 | 45.00 | 55.03 | 60.50 | 55.43 | 48.34 | 44.86 |
| 8..... | 42.72 | 41.40 | 40.70 | 40.90 | 41.28 | 41.52 | 45.93 | 54.75 | 61.29 | 55.59 | 48.21 | 44.80 |
| 9..... | 42.73 | 41.38 | ----- | 40.70 | ----- | 41.47 | 46.96 | 54.27 | 62.89 | 55.63 | 48.09 | 44.75 |
| 10..... | 42.69 | ----- | 40.80 | 40.72 | 41.22 | ----- | 47.33 | 53.78 | 64.04 | 55.29 | 48.03 | 44.76 |
| 11..... | 42.62 | 41.30 | 40.42 | 40.62 | ----- | 41.34 | 47.26 | 53.53 | 63.81 | 55.16 | 47.95 | 44.74 |
| 12..... | 42.53 | 41.24 | 40.59 | 40.48 | 41.32 | 41.48 | 47.25 | 53.35 | 63.60 | 55.23 | 47.91 | 44.61 |
| 13..... | 42.46 | 41.14 | 40.68 | 40.44 | 41.24 | 41.46 | 47.58 | 53.21 | 63.50 | 55.03 | 47.97 | 44.63 |
| 14..... | 42.39 | 41.00 | 40.80 | 40.46 | 40.88 | 41.46 | 48.54 | 53.08 | 62.49 | 54.63 | 47.94 | 44.68 |
| 15..... | 42.32 | 40.96 | 41.68 | ----- | 40.98 | 41.40 | 49.58 | 53.09 | 60.86 | 54.49 | 47.82 | 44.72 |
| 16..... | 42.28 | 41.14 | ----- | 40.32 | 41.40 | ----- | 50.14 | 53.55 | 59.41 | 54.35 | 47.65 | 44.70 |
| 17..... | 42.18 | 41.10 | 41.70 | ----- | 41.38 | 41.12 | 50.29 | 54.48 | 58.73 | 54.22 | 47.53 | 44.60 |
| 18..... | 42.16 | 41.14 | 41.62 | 40.40 | 41.46 | 41.04 | 49.92 | 55.46 | 59.17 | 53.92 | 47.42 | 44.54 |
| 19..... | 42.11 | ----- | 41.44 | 40.46 | 41.78 | 41.20 | 49.51 | 56.04 | 59.68 | 53.49 | 47.34 | 44.43 |
| 20..... | 42.11 | 41.14 | 41.40 | 40.52 | 43.10 | 41.10 | 49.32 | 56.42 | 58.97 | 53.01 | 47.22 | 44.31 |
| 21..... | 42.11 | 40.77 | 41.14 | ----- | 43.68 | 41.15 | 49.58 | 57.38 | 58.36 | 52.72 | 47.05 | 44.25 |
| 22..... | 42.07 | ----- | 41.08 | 40.56 | 43.68 | 41.38 | 50.21 | 57.72 | 58.38 | 52.42 | 46.94 | 44.22 |
| 23..... | 42.03 | 40.56 | 41.22 | 40.62 | 43.47 | 41.42 | 51.17 | 57.13 | 58.33 | 52.04 | 46.74 | 44.13 |
| 24..... | 42.00 | ----- | 41.28 | 40.60 | 43.12 | 41.40 | 52.37 | 56.15 | 58.10 | 51.74 | 46.52 | 44.14 |
| 25..... | 41.96 | 40.80 | 41.48 | 40.46 | 42.65 | 41.42 | 54.22 | 55.47 | 57.81 | 51.57 | 46.36 | 44.04 |
| 26..... | 41.94 | 40.76 | 41.56 | 40.56 | 42.46 | 41.42 | 55.36 | 55.02 | 57.64 | 51.41 | 46.28 | 43.95 |
| 27..... | ----- | 40.72 | 41.58 | ----- | 42.21 | 41.52 | 56.00 | 54.53 | 57.62 | 51.26 | 46.16 | 43.82 |
| 28..... | 41.98 | 40.74 | 41.66 | 40.56 | 42.03 | 41.82 | 56.23 | 54.15 | 57.74 | 50.96 | 46.04 | 43.72 |
| 29..... | 41.90 | ----- | 41.46 | 40.64 | ----- | 42.18 | 56.10 | 54.13 | 57.95 | 50.54 | 45.88 | 43.65 |
| 30..... | 41.85 | 40.88 | 41.34 | ----- | ----- | 42.75 | 55.83 | 55.57 | 58.01 | 50.04 | 45.74 | 43.57 |
| 31..... | 41.78 | ----- | 41.30 | ----- | ----- | 43.14 | ----- | 59.33 | ----- | 49.60 | 45.57 | ----- |

Note.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

KOOTENAI RIVER AT DEEP CREEK, NEAR BONNERS FERRY, IDAHO

LOCATION.—Staff gage in S. ½ sec. 19, T. 62 N., R. 1 E., on bridge across Deep Creek 150 feet above mouth and 3.8 miles downstream from Bonners Ferry. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum.

RECORDS AVAILABLE.—May, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 1,763.84 feet June 10; minimum not determined.

1928-1930: Maximum water-surface elevation, 1,771.86 feet May 28, 1928; minimum occurred in December, 1929, when gage was not read.

REMARKS.—Records excellent. Elevations affected by backwater from Kootenai Lake. On account of small fall in Deep Creek below gage at low river levels, gage was not read Nov. 10 to Apr. 6.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 42.75 | 41.65 | ----- | 55.14 | 62.76 | 57.18 | 49.21 | 45.33 |
| 2 | 42.67 | 41.60 | ----- | 54.60 | 63.79 | 56.65 | 49.12 | 45.24 |
| 3 | 42.58 | 41.55 | ----- | 54.48 | 63.05 | 56.44 | 49.06 | 45.14 |
| 4 | 42.61 | 41.49 | ----- | 54.74 | 62.04 | 56.54 | 48.93 | 44.99 |
| 5 | 42.61 | 41.47 | ----- | 54.98 | 61.24 | 56.21 | 48.70 | 44.87 |
| 6 | 42.62 | 41.45 | ----- | 54.98 | 60.56 | 55.52 | 48.41 | 44.70 |
| 7 | 42.56 | 41.43 | 44.81 | 54.76 | 60.31 | 55.30 | 48.22 | 44.74 |
| 8 | 42.60 | 41.36 | 45.35 | 54.50 | 61.08 | 55.42 | 48.08 | 44.66 |
| 9 | 42.59 | 41.29 | 46.71 | 54.06 | 62.65 | 55.46 | 47.96 | 44.63 |
| 10 | 42.58 | ----- | 47.06 | 53.54 | 63.75 | 55.13 | 47.88 | 44.63 |
| 11 | 42.52 | ----- | 46.97 | 53.34 | 63.52 | 54.96 | 47.81 | 44.61 |
| 12 | 42.45 | ----- | 46.97 | 53.16 | 63.33 | 55.06 | 47.79 | 44.47 |
| 13 | 42.35 | ----- | 47.35 | 53.03 | 63.28 | 54.86 | 47.85 | 44.49 |
| 14 | 42.30 | ----- | 48.32 | 52.90 | 62.27 | 54.45 | 47.80 | 44.54 |
| 15 | 42.23 | ----- | 49.40 | 52.92 | 60.63 | 54.29 | 47.68 | 44.58 |
| 16 | 42.17 | ----- | 49.89 | 53.30 | 59.27 | 54.16 | 47.49 | 44.54 |
| 17 | 42.09 | ----- | 50.06 | 54.25 | 58.56 | 54.08 | 47.35 | 44.49 |
| 18 | 42.06 | ----- | 49.71 | 55.25 | 59.01 | 53.77 | 47.29 | 44.39 |
| 19 | 42.01 | ----- | 49.27 | 55.82 | 59.48 | 53.29 | 47.19 | 44.27 |
| 20 | 42.03 | ----- | 49.10 | 56.20 | 58.83 | 52.84 | 47.08 | 44.17 |
| 21 | 42.01 | ----- | 49.51 | 57.22 | 58.19 | 52.55 | 46.93 | 44.09 |
| 22 | 41.99 | ----- | 50.09 | 57.53 | 58.21 | 52.25 | 46.79 | 44.07 |
| 23 | 41.96 | ----- | 50.94 | 56.91 | 58.16 | 51.88 | 46.62 | 43.97 |
| 24 | 41.90 | ----- | 52.08 | 55.93 | 57.94 | 51.57 | 46.42 | 43.96 |
| 25 | 41.85 | ----- | 53.94 | 55.26 | 57.64 | 51.33 | 46.27 | 43.89 |
| 26 | 41.81 | ----- | 55.09 | 54.78 | 57.48 | 51.24 | 46.15 | 43.79 |
| 27 | 41.83 | ----- | 55.76 | 54.34 | 57.46 | 51.10 | 46.05 | 43.67 |
| 28 | 41.86 | ----- | 56.03 | 53.92 | 57.57 | 50.79 | 45.94 | 43.59 |
| 29 | 41.79 | ----- | 55.85 | 53.93 | 57.76 | 50.38 | 45.80 | 43.49 |
| 30 | 41.74 | ----- | 55.60 | 55.36 | 57.82 | 49.90 | 45.63 | 43.43 |
| 31 | 41.68 | ----- | ----- | 59.10 | ----- | 49.48 | 45.47 | ----- |

NOTE.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

KOOTENAI RIVER AT MYRTLE CREEK, NEAR BONNERS FERRY, IDAHO

LOCATION.—Reference point in N. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 12, T. 62 N., R. 1 W., on highway bridge across mouth of Myrtle Creek, 5.4 miles northwest of Bonners Ferry. Elevation of reference point 1,768.636 feet above mean sea level, United States Coast and Geodetic Survey datum. Gage readings adjusted to elevation above mean sea level.

RECORDS AVAILABLE.—April, 1929, to September, 1930.

REMARKS.—Elevations determined by measuring to river water surface from reference point. Occasional observations made to define river profiles at different stages between Deep Creek and Klockman ranch stations. Elevations affected by backwater from Kootenai Lake.

Daily elevation, in feet, 1930

| Date | Elevation | Date | Elevation |
|--------------|-----------|---------------|-----------|
| May 15..... | 1,752.53 | July 30..... | 1,749.24 |
| May 21..... | 1,756.82 | Aug. 1..... | 1,749.10 |
| June 3..... | 1,762.59 | Sept. 13..... | 1,744.30 |
| June 16..... | 1,759.08 | | |

KOOTENAI RIVER AT KLOCKMANN RANCH, NEAR BONNERS FERRY, IDAHO

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 19, T. 63 N., R. 1 E., st Klockmann ranch, 800 feet south of viaduct on Kootenai Valley Branch of Great Northern Railway and 8 miles north of Bonners Ferry. Recorder reads elevation above mean sea level, United States Coast and Geodetic Survey datum.

RECORDS AVAILABLE.—May, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 1,762.21 feet June 10; minimum occurred during period of no record.

1928-1930: Maximum water-surface elevation occurred on May 28, 1928, when gage was not read; minimum occurred during period of no record.

REMARKS.—Records good. Elevations affected by backwater from Kootenai Lake. No records obtained Oct. 1 to Dec. 1, Dec. 3 to Apr. 7.

Daily elevation, in feet, 1929-30

| Day | Dec. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|
| 1. | ----- | ----- | 53.94 | 60.69 | 56.22 | 48.75 | 45.04 |
| 2. | 40.28 | ----- | 53.50 | 61.87 | 55.74 | 48.62 | 44.91 |
| 3. | ----- | ----- | 53.40 | 61.36 | 55.52 | 48.57 | 44.82 |
| 4. | ----- | ----- | 53.60 | 60.57 | 55.55 | 48.44 | 44.70 |
| 5. | ----- | ----- | 53.83 | 59.87 | 55.33 | 48.21 | 44.57 |
| 6. | ----- | ----- | 53.86 | 59.27 | 54.72 | 47.95 | 44.42 |
| 7. | ----- | ----- | 53.71 | 59.02 | 54.40 | 47.76 | 44.40 |
| 8. | ----- | 44.53 | 53.47 | 59.63 | 54.50 | 47.63 | 44.35 |
| 9. | ----- | 45.47 | 53.07 | 61.02 | 54.54 | 47.52 | 44.30 |
| 10. | ----- | 45.85 | 52.64 | 62.08 | 54.25 | 47.45 | 44.28 |
| 11. | ----- | 45.84 | 52.43 | 61.98 | 54.11 | 47.35 | 44.25 |
| 12. | ----- | 45.87 | 52.27 | 61.82 | 54.13 | 47.32 | 44.16 |
| 13. | ----- | 46.19 | 52.13 | 61.77 | 53.97 | 47.35 | 44.13 |
| 14. | ----- | 47.06 | 52.02 | 61.01 | 53.64 | 47.30 | 44.16 |
| 15. | ----- | 48.07 | 52.01 | 59.60 | 53.50 | 47.20 | 44.17 |
| 16. | ----- | 48.62 | 52.39 | 58.29 | 53.37 | 47.05 | 44.15 |
| 17. | ----- | 48.80 | 53.21 | 57.63 | 53.26 | 46.96 | 44.08 |
| 18. | ----- | 48.51 | 54.08 | 57.91 | 53.00 | 46.83 | 44.03 |
| 19. | ----- | 48.19 | 54.64 | 58.33 | 52.62 | 46.76 | 43.96 |
| 20. | ----- | 48.04 | 55.03 | 57.76 | 52.17 | 46.63 | 43.84 |
| 21. | ----- | 48.28 | 55.90 | 57.22 | 51.89 | 46.47 | 43.78 |
| 22. | ----- | 48.85 | 56.23 | 57.19 | 51.58 | 46.40 | 43.76 |
| 23. | ----- | 49.71 | 55.72 | 57.13 | 51.24 | 46.26 | 43.66 |
| 24. | ----- | 50.87 | 54.88 | 56.90 | 50.99 | 46.04 | 43.60 |
| 25. | ----- | 52.58 | 54.27 | 56.64 | 50.82 | 45.88 | 43.55 |
| 26. | ----- | 53.68 | 53.85 | 56.47 | 50.64 | 45.83 | 43.46 |
| 27. | ----- | 54.37 | 53.42 | 56.44 | 50.48 | 45.72 | 43.38 |
| 28. | ----- | 54.63 | 53.08 | 56.53 | 50.20 | 45.59 | 43.28 |
| 29. | ----- | 54.53 | 53.04 | 56.68 | 49.83 | 45.49 | 43.20 |
| 30. | ----- | 54.35 | 54.21 | 56.72 | 49.39 | 45.38 | 43.15 |
| 31. | ----- | ----- | 57.46 | ----- | 49.00 | 45.18 | ----- |

NOTE.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

KOOTENAI RIVER AT SPURLING RANCH, NEAR COPELAND, IDAHO

LOCATION.—Staff gage in W. $\frac{1}{2}$ sec. 6, T. 63 N., R. 1 E., at Spurling ranch house, 5 miles south of Copeland and 10.2 miles upstream by river from mouth of Mission Creek. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum.

RECORDS AVAILABLE.—May, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 1,761.35 feet June 10; minimum, 1,739.84 feet Jan. 26.

1928-1930: Maximum water-surface elevation, 1,769.00 feet May 28, 1928; minimum, that of Jan. 26, 1930.

REMARKS.—Records fair for elevations above 1,742.5 feet; others poor. Elevations affected by backwater from Kootenai Lake.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 42.43 | 41.38 | ----- | 40.80 | 39.92 | 40.88 | 42.00 | 53.34 | 59.94 | 55.66 | 48.59 | 44.90 |
| 2 | 42.36 | 41.34 | ----- | 40.66 | 40.00 | 40.82 | 42.03 | 52.99 | 60.92 | 55.28 | 48.45 | 44.82 |
| 3 | 42.27 | 41.29 | ----- | 40.66 | 40.04 | 40.78 | 42.19 | 52.86 | 60.56 | 55.08 | 48.38 | 44.74 |
| 4 | 42.28 | 41.25 | ----- | 40.66 | 40.08 | 40.76 | 42.45 | 53.05 | 59.75 | 55.02 | 48.25 | 44.65 |
| 5 | 42.32 | 41.20 | ----- | 40.72 | 40.12 | 40.74 | 42.70 | 53.29 | 59.06 | 54.80 | 48.03 | 44.50 |
| 6 | 42.31 | 41.21 | ----- | 40.74 | 40.22 | 40.84 | 43.00 | 53.34 | 58.70 | 54.40 | 47.71 | 44.33 |
| 7 | 42.27 | 41.15 | ----- | 40.68 | 40.22 | 40.78 | 43.35 | 53.19 | 58.40 | 54.14 | 47.61 | 44.34 |
| 8 | 42.23 | 41.11 | ----- | 40.54 | 40.26 | 40.76 | 44.10 | 52.94 | 58.96 | 54.07 | 47.44 | 44.28 |
| 9 | 42.15 | 41.08 | ----- | 40.34 | 40.30 | 40.76 | 44.93 | 52.50 | 60.21 | 54.09 | 47.37 | 44.24 |
| 10 | 42.11 | 41.06 | ----- | 40.30 | 40.26 | 40.74 | 45.32 | 52.12 | 60.25 | 53.89 | 47.30 | 44.22 |
| 11 | 42.06 | ----- | ----- | 40.26 | 40.30 | 40.76 | 45.34 | 51.90 | 61.17 | 53.71 | 47.21 | 44.19 |
| 12 | 42.02 | ----- | 40.25 | 40.18 | 40.30 | 40.78 | 45.44 | 51.75 | 61.01 | 53.73 | 47.17 | 44.10 |
| 13 | 41.99 | ----- | 40.22 | 40.10 | 40.30 | 40.88 | 45.76 | 51.63 | 61.06 | 53.58 | 47.19 | 44.06 |
| 14 | 41.92 | ----- | 40.32 | 40.04 | 40.26 | 40.94 | 46.45 | 51.58 | 60.25 | 53.23 | 47.14 | 44.08 |
| 15 | 41.89 | ----- | 40.71 | 39.98 | 40.26 | 40.92 | 47.45 | 51.65 | 58.98 | 53.10 | 47.05 | 44.09 |
| 16 | 41.86 | ----- | 40.84 | 39.97 | 40.30 | 40.80 | 47.95 | 52.10 | 58.16 | 53.02 | 46.89 | 44.08 |
| 17 | 41.81 | ----- | 40.78 | 39.96 | 40.32 | 40.76 | 48.15 | 52.78 | 57.18 | 52.90 | 46.80 | 44.01 |
| 18 | 41.77 | ----- | 40.70 | 39.94 | 40.36 | 40.72 | 47.95 | 53.50 | 57.46 | 52.63 | 46.73 | 43.96 |
| 19 | 41.74 | ----- | 40.74 | 39.98 | 40.58 | 40.70 | 47.75 | 54.00 | 57.83 | 52.30 | 46.61 | 43.86 |
| 20 | 41.70 | ----- | 40.72 | 39.98 | 41.16 | 40.76 | 47.60 | 54.50 | 57.33 | 51.95 | 46.54 | 43.76 |
| 21 | 41.68 | ----- | 40.62 | 39.94 | 42.36 | 40.72 | 47.80 | 55.23 | 56.77 | 51.61 | 46.44 | 43.71 |
| 22 | 41.69 | ----- | 40.56 | 39.94 | 42.40 | 40.70 | 48.35 | 55.54 | 56.75 | 51.32 | 46.25 | 43.69 |
| 23 | 41.64 | ----- | 40.62 | 39.94 | 41.72 | 40.86 | 49.20 | 55.08 | 56.60 | 51.01 | 46.14 | 43.64 |
| 24 | 41.62 | ----- | 40.64 | 39.88 | 41.54 | 40.82 | 50.15 | 54.33 | 56.38 | 50.70 | 45.98 | 43.56 |
| 25 | 41.58 | ----- | 40.79 | 39.86 | 41.32 | 40.88 | 51.60 | 53.73 | 56.18 | 50.40 | 45.80 | 43.49 |
| 26 | 41.54 | ----- | 40.88 | 39.84 | 41.26 | 40.88 | 52.94 | 53.28 | 55.96 | 50.29 | 45.71 | 43.37 |
| 27 | 41.54 | ----- | 40.92 | 39.91 | 41.10 | 40.92 | 53.64 | 52.90 | 55.93 | 50.21 | 45.61 | 43.29 |
| 28 | 41.55 | ----- | 40.92 | 39.93 | 41.00 | 41.02 | 53.92 | 53.61 | 56.00 | 49.94 | 45.47 | 43.24 |
| 29 | 41.50 | ----- | 40.86 | 39.92 | ----- | 41.32 | 53.80 | 53.43 | 56.10 | 49.61 | 45.34 | 43.14 |
| 30 | 41.45 | ----- | 40.86 | 39.88 | ----- | 41.58 | 53.59 | 53.63 | 56.18 | 49.15 | 45.19 | 43.06 |
| 31 | 41.42 | ----- | 40.82 | 39.90 | ----- | 41.92 | ----- | 56.93 | ----- | 48.84 | 45.03 | ----- |

NOTE.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

KOOTENAI RIVER AT KRAUSE RANCH, NEAR COPELAND, IDAHO

LOCATION.—Staff gage in N. $\frac{1}{2}$ NE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 25, T. 64 N., R. 1 W., at residence of Robert Krause, 5.3 miles upstream from mouth of Mission Creek and 2 miles southwest of Copeland. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum.

RECORDS AVAILABLE.—April, 1929, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 1,760.33 feet June 10; minimum for year occurred during period gage was not read.

1929-30: Maximum water-surface elevation, 1,761.90 feet June 16, 1929; minimum occurred when gage was not read.

REMARKS.—Records good. Elevations for Oct. 4-6, 10-14, 29, May 23, 24, Aug. 3 were estimated by hydrographic comparison with Kootenai River records collected above and below this station. Elevations affected by backwater from Kootenai Lake. Gage not read during winter.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 42.30 | 41.20 | ----- | 41.74 | 52.71 | 58.72 | 55.25 | 48.39 | 44.75 |
| 2 | 42.22 | 41.18 | ----- | 41.73 | 52.32 | 59.76 | 54.84 | 48.25 | 44.66 |
| 3 | 42.16 | 41.14 | ----- | 41.92 | 52.29 | 59.47 | 54.62 | 48.16 | 44.57 |
| 4 | 42.14 | 41.10 | ----- | 42.23 | 52.48 | 58.87 | 54.62 | 48.04 | 44.46 |
| 5 | 42.29 | 41.08 | ----- | 42.38 | 52.66 | 58.30 | 54.44 | 47.82 | 44.34 |
| 6 | 42.20 | 41.05 | ----- | 42.70 | 52.72 | 57.82 | 53.92 | 47.58 | 44.19 |
| 7 | 42.10 | 40.98 | ----- | 42.04 | 52.63 | 57.60 | 53.60 | 47.42 | 44.21 |
| 8 | 42.06 | 40.92 | ----- | 43.68 | 52.44 | 58.12 | 53.67 | 47.30 | 44.16 |
| 9 | 42.04 | 40.88 | ----- | 44.42 | 52.08 | 59.31 | 53.68 | 47.19 | 44.13 |
| 10 | 42.01 | 40.84 | ----- | 44.84 | 51.72 | 60.24 | 53.43 | 47.10 | 44.08 |
| 11 | 41.96 | 40.79 | ----- | 44.88 | 51.56 | 60.23 | 53.29 | 47.04 | 44.05 |
| 12 | 41.91 | 40.76 | ----- | 44.95 | 51.39 | 60.07 | 53.30 | 46.98 | 43.94 |
| 13 | 41.86 | 40.72 | ----- | 45.23 | 51.28 | 60.13 | 53.14 | 46.99 | 43.89 |
| 14 | 41.80 | 40.68 | ----- | 45.98 | 51.19 | 59.56 | 52.85 | 46.96 | 43.94 |
| 15 | 41.75 | 40.67 | ----- | 46.88 | 51.21 | 58.43 | 52.72 | 46.86 | 43.94 |
| 16 | 41.72 | 40.70 | ----- | 47.39 | 51.49 | 57.35 | 52.62 | 46.72 | 43.94 |
| 17 | 41.64 | 40.72 | ----- | 47.64 | 52.14 | 56.64 | 52.52 | 46.62 | 43.86 |
| 18 | 41.61 | 40.68 | ----- | 47.44 | 52.87 | 56.88 | 52.28 | 46.52 | 43.80 |
| 19 | 41.58 | ----- | ----- | 47.22 | 53.40 | 57.16 | 51.95 | 46.45 | 43.74 |
| 20 | 41.58 | ----- | ----- | 47.13 | 53.72 | 56.72 | 51.58 | 46.35 | 43.64 |
| 21 | 41.58 | ----- | ----- | 47.31 | 54.56 | 56.22 | 51.30 | 46.20 | 43.58 |
| 22 | 41.55 | ----- | ----- | 47.85 | 54.89 | 56.17 | 51.03 | 46.08 | 43.55 |
| 23 | 41.50 | ----- | ----- | 48.60 | 54.42 | 56.10 | 50.70 | 45.90 | 43.46 |
| 24 | 41.45 | ----- | ----- | 49.57 | 53.75 | 55.90 | 50.45 | 45.72 | 43.40 |
| 25 | 41.40 | ----- | ----- | 51.14 | 53.24 | 55.65 | 50.32 | 45.60 | 43.34 |
| 26 | 41.38 | ----- | ----- | 52.23 | 52.90 | 55.50 | 50.11 | 45.54 | 43.29 |
| 27 | 41.39 | ----- | ----- | 52.83 | 52.52 | 55.44 | 49.94 | 45.43 | 43.13 |
| 28 | 41.39 | ----- | ----- | 53.19 | 52.18 | 55.52 | 49.70 | 45.30 | 43.06 |
| 29 | 41.34 | ----- | ----- | 53.14 | 52.17 | 55.60 | 49.36 | 45.16 | 43.00 |
| 30 | 41.28 | ----- | 41.40 | 53.04 | 53.06 | 55.66 | 49.00 | 45.04 | 42.96 |
| 31 | 41.23 | ----- | 41.66 | ----- | 55.91 | ----- | 48.64 | 44.89 | ----- |

NOTE.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

KOOTENAI RIVER NEAR COPELAND, IDAHO

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 12, T. 64 N., R. 1 W., at Andrews ranch, three-fourths mile downstream from Mission Creek and $1\frac{1}{2}$ miles northwest of Copeland. Recorder reads elevation above mean sea level, United States Coast and Geodetic Survey datum.

DRAINAGE AREA.—13,400 square miles.

RECORDS AVAILABLE.—October, 1927, to September, 1930. Prior to Nov. 20, 1929, records collected at station three-fourths mile upstream. Gage height records collected by Dominion Water Power and Hydrometric Bureau of Canada from April, 1925, to September, 1927.

EXTREMES.—Maximum mean daily discharge during year, 60,200 second-feet June 3; maximum water-surface elevation, 1,759.32 feet June 10; minimum daily discharge, 2,210 second-feet Dec. 10; minimum water-surface elevation, 1,739.59 feet Jan. 25.

1927-1930: Maximum and minimum discharge not determined; maximum water-surface elevation at site three-fourths mile upstream, 1,766.70 feet May 29, 1928; minimum water-surface elevation, 1,739.59 feet Jan. 25, 1930.

Maximum elevation known, about 1,774.5 feet June, 1894.

REMARKS.—Discharge records good except those for January and February, which are fair. Water-surface elevations excellent Nov. 20 to Sept. 30, when water-stage recorder was in operation; others based on daily staff readings at site three-fourths mile upstream. Elevations affected by backwater from Kootenai Lake.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 42.24 | 41.14 | 40.26 | 40.53 | 39.70 | 40.66 | 41.53 | 52.06 | 57.39 | 54.67 | 48.21 | 44.63 |
| 2 | 42.19 | 41.11 | 40.21 | 40.42 | 39.72 | 40.59 | 41.57 | 51.76 | 58.54 | 54.32 | 48.05 | 44.64 |
| 3 | 42.03 | 41.05 | 40.14 | 40.45 | 39.75 | 40.55 | 41.69 | 51.70 | 58.38 | 54.14 | 47.98 | 44.46 |
| 4 | 42.08 | 40.98 | 40.10 | 40.42 | 39.80 | 40.54 | 41.95 | 51.87 | 57.89 | 54.09 | 47.84 | 44.35 |
| 5 | 42.20 | 40.96 | 40.10 | 40.47 | 39.82 | 40.54 | 42.16 | 52.06 | 57.41 | 53.93 | 47.64 | 44.24 |
| 6 | 42.16 | 40.97 | 40.10 | 40.49 | 39.88 | 40.54 | 42.38 | 52.14 | 56.97 | 53.47 | 47.42 | 44.10 |
| 7 | 42.10 | 40.91 | 40.13 | 40.37 | 39.87 | 40.50 | 42.70 | 52.05 | 56.78 | 53.17 | 47.25 | 44.11 |
| 8 | 42.00 | 40.85 | 40.13 | 40.25 | 39.95 | 40.50 | 43.27 | 51.90 | 57.22 | 53.19 | 47.12 | 44.05 |
| 9 | 41.94 | 40.84 | 40.14 | 40.15 | 39.94 | 40.52 | 43.98 | 51.59 | 58.25 | 53.20 | 47.02 | 44.01 |
| 10 | 41.92 | 40.80 | 40.05 | 40.10 | 39.94 | 40.52 | 44.35 | 51.26 | 59.16 | 52.99 | 46.95 | 43.98 |
| 11 | 41.89 | 40.78 | 40.08 | 40.06 | 39.94 | 40.53 | 44.43 | 51.09 | 59.19 | 52.86 | 46.87 | 43.94 |
| 12 | 41.83 | 40.72 | 40.10 | 40.00 | 39.97 | 40.63 | 44.50 | 50.95 | 59.11 | 52.82 | 46.82 | 43.86 |
| 13 | 41.78 | 40.70 | 40.08 | ----- | 39.93 | 40.60 | 44.75 | 50.84 | 59.15 | 52.70 | 46.81 | 43.84 |
| 14 | 41.72 | 40.63 | 40.17 | ----- | 39.92 | 40.62 | 45.40 | 50.77 | 58.73 | 52.44 | 46.77 | 43.84 |
| 15 | 41.68 | 40.57 | 40.42 | ----- | 39.92 | 40.60 | 46.27 | 50.79 | 57.74 | 52.31 | 46.68 | 43.85 |
| 16 | 41.65 | 40.57 | 40.50 | ----- | 39.92 | 40.53 | 46.77 | 51.03 | 56.72 | 52.19 | 46.54 | 43.82 |
| 17 | 41.59 | 40.62 | 40.49 | 39.74 | 39.94 | 40.50 | 47.02 | 51.63 | 56.15 | 52.09 | 46.47 | 43.74 |
| 18 | 41.52 | 40.65 | 40.46 | 39.72 | 40.00 | 40.44 | 46.90 | 52.30 | 56.25 | 51.90 | 46.36 | 43.71 |
| 19 | 41.48 | 40.61 | 40.46 | 39.71 | 40.24 | 40.50 | 46.71 | 52.73 | 56.52 | 51.62 | 46.31 | 43.65 |
| 20 | 41.43 | 40.54 | 40.44 | 39.70 | 40.66 | 40.50 | 46.66 | 53.09 | 56.17 | 51.25 | 46.20 | 43.55 |
| 21 | 41.46 | 40.44 | 40.34 | 39.68 | 41.04 | 40.46 | 46.87 | 53.76 | 55.73 | 50.97 | 46.04 | 43.60 |
| 22 | 41.46 | 40.42 | 40.30 | 39.66 | 41.16 | 40.50 | 47.32 | 54.06 | 55.61 | 50.71 | 45.93 | 43.46 |
| 23 | 41.41 | 40.34 | 40.36 | 39.65 | 41.02 | 40.60 | 48.02 | 53.77 | 55.56 | 50.42 | 45.76 | 43.36 |
| 24 | 41.40 | 40.31 | 40.39 | 39.64 | 41.04 | 40.60 | 48.92 | 53.15 | 55.36 | 50.19 | 45.59 | 43.31 |
| 25 | 41.36 | 40.32 | 40.45 | 39.61 | 40.92 | 40.63 | 50.34 | 52.70 | 55.11 | 50.04 | 45.43 | 43.23 |
| 26 | 41.32 | 40.31 | 40.54 | 39.63 | 40.89 | 40.63 | 51.31 | 52.39 | 54.93 | 49.88 | 45.43 | 43.17 |
| 27 | 41.31 | 40.28 | 40.59 | 39.63 | 40.80 | 40.65 | 51.97 | 52.06 | 54.86 | 49.70 | 45.32 | 43.03 |
| 28 | 41.30 | 40.30 | 40.62 | 39.61 | 40.74 | 40.74 | 52.32 | 51.78 | 54.93 | 49.44 | 45.17 | 42.96 |
| 29 | 41.26 | 40.27 | 40.54 | 39.63 | ----- | 40.95 | 52.35 | 51.72 | 55.01 | 49.12 | 45.03 | 42.91 |
| 30 | 41.20 | 40.25 | 40.52 | 39.62 | ----- | 41.19 | 52.29 | 52.49 | 55.03 | 48.79 | 44.92 | 42.86 |
| 31 | 41.17 | ----- | 40.53 | 39.63 | ----- | 41.46 | ----- | 54.77 | ----- | 48.44 | 44.77 | ----- |

NOTE.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

Daily and monthly discharge, in second-feet, of Kootenai River near Copeland, Idaho, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----------|---------|-------|-------|--------|--------|-------|---------|--------|--------|--------|----------------------|-------|
| 1 | 4,470 | 3,870 | 3,150 | 3,710 | 3,040 | 3,920 | 7,650 | 28,600 | 57,200 | 28,400 | 11,200 | 6,410 |
| 2 | 4,470 | 3,890 | 3,290 | 3,540 | 3,050 | 3,750 | 7,730 | 26,900 | 59,000 | 27,200 | 11,100 | 6,590 |
| 3 | 4,400 | 3,920 | 2,930 | 3,250 | 3,250 | 3,670 | 8,250 | 26,800 | 60,200 | 26,600 | 11,300 | 6,480 |
| 4 | 4,270 | 3,810 | 2,700 | 3,390 | 3,340 | 3,580 | 8,910 | 26,900 | 48,500 | 27,500 | 11,100 | 6,270 |
| 5 | 4,350 | 3,770 | 2,510 | 3,230 | 3,430 | 3,600 | 9,180 | 27,900 | 44,400 | 26,100 | 10,900 | 6,040 |
| 6 | 4,420 | 3,640 | 2,520 | 2,830 | 3,380 | 3,600 | 9,870 | 27,700 | 41,400 | 24,100 | 10,400 | 5,930 |
| 7 | 4,550 | 3,700 | 2,700 | 2,580 | 3,420 | 3,660 | 10,900 | 26,700 | 40,900 | 23,800 | 10,100 | 5,870 |
| 8 | 4,960 | 3,720 | 2,690 | 2,560 | 3,360 | 3,570 | 13,100 | 25,400 | 44,500 | 24,500 | 9,760 | 5,960 |
| 9 | 4,980 | 3,560 | 2,530 | 2,550 | 3,410 | 3,600 | 14,700 | 24,400 | 52,000 | 24,600 | 9,740 | 5,950 |
| 10 | 4,880 | 3,580 | 2,210 | 2,460 | 3,380 | 3,710 | 14,900 | 23,000 | 55,200 | 23,800 | 9,700 | 6,050 |
| 11 | 4,780 | 3,450 | 2,540 | 2,550 | 3,270 | 3,760 | 14,500 | 22,200 | 53,000 | 23,500 | 9,710 | 6,210 |
| 12 | 4,690 | 3,380 | 2,450 | 2,620 | 3,240 | 3,770 | 14,600 | 21,700 | 52,300 | 24,200 | 9,680 | 6,270 |
| 13 | 4,560 | 3,250 | 2,720 | *2,610 | 3,260 | 4,110 | 15,300 | 21,600 | 50,100 | 23,100 | 9,880 | 6,300 |
| 14 | 4,450 | 3,120 | 3,370 | *2,650 | 3,230 | 3,970 | 17,800 | 21,300 | 44,200 | 22,200 | 9,940 | 6,400 |
| 15 | 4,450 | 3,220 | 3,990 | *2,650 | 3,170 | 3,910 | 19,300 | 21,400 | 36,900 | 22,000 | 9,710 | 6,400 |
| 16 | 4,320 | 3,370 | 3,910 | *2,650 | 3,200 | 3,870 | 20,400 | 22,900 | 32,800 | 21,900 | 9,500 | 6,440 |
| 17 | 4,360 | 3,360 | 4,050 | 2,700 | 3,270 | 3,750 | 20,100 | 26,100 | 31,000 | 21,600 | 9,190 | 6,380 |
| 18 | 4,220 | 3,300 | 4,300 | 2,740 | 3,410 | 3,780 | 19,100 | 28,700 | 34,000 | 20,300 | 9,190 | 5,970 |
| 19 | 4,220 | 3,290 | 4,310 | 2,830 | 3,760 | 3,780 | 17,900 | 30,000 | 35,000 | 19,100 | 8,880 | 5,870 |
| 20 | 4,180 | 3,010 | 4,100 | 2,980 | 3,850 | 3,850 | 17,600 | 31,300 | 31,700 | 18,300 | 8,700 | 5,780 |
| 21 | 4,190 | 2,920 | 3,930 | 2,980 | 5,660 | 4,140 | 17,900 | 33,500 | 30,800 | 17,800 | 8,450 | 5,720 |
| 22 | 4,200 | 2,670 | 3,420 | 2,980 | *6,000 | 4,290 | 19,600 | 34,100 | 31,400 | 17,000 | 8,410 | 5,770 |
| 23 | 4,220 | 2,570 | 3,400 | 2,980 | *5,300 | 4,320 | 21,300 | 31,300 | 30,800 | 16,200 | 8,190 | 5,780 |
| 24 | 4,100 | 2,580 | 3,610 | 2,980 | 4,790 | 4,420 | 24,800 | 28,200 | 30,500 | 15,500 | 7,800 | 5,820 |
| 25 | 4,120 | 2,500 | 4,040 | 3,000 | 4,870 | 4,310 | 29,600 | 26,200 | 29,700 | 15,400 | 7,660 | 5,880 |
| 26 | 4,110 | 2,850 | 4,090 | 2,950 | 4,390 | 4,390 | 32,000 | 24,700 | 28,300 | 15,400 | 7,320 | 5,650 |
| 27 | 4,100 | 2,940 | 4,210 | 2,970 | 4,140 | 4,610 | 33,300 | 23,600 | 29,900 | 15,100 | 7,380 | 5,590 |
| 28 | 4,220 | 3,040 | 4,240 | 2,990 | 3,930 | 5,020 | 32,900 | 22,800 | 30,200 | 14,600 | 7,150 | 5,410 |
| 29 | 4,150 | 3,170 | 4,160 | 2,950 | ----- | 5,760 | 32,200 | 23,000 | 31,200 | 13,400 | 7,160 | 5,290 |
| 30 | 4,140 | 3,230 | 4,080 | 3,000 | ----- | 6,680 | 31,100 | 29,000 | 31,300 | 12,600 | 6,870 | 5,180 |
| 31 | 4,020 | ----- | 3,740 | 3,010 | ----- | 7,070 | ----- | 44,300 | ----- | 11,800 | 6,660 | ----- |
| Month | Maximum | | | | | | Minimum | | Mean | | Run-off in acre-feet | |
| October | 4,980 | | | | | | 4,020 | | 4,370 | | 269,000 | |
| November | 3,890 | | | | | | 2,500 | | 3,290 | | 196,000 | |
| December | 4,310 | | | | | | 2,210 | | 3,420 | | 210,000 | |
| January | 3,710 | | | | | | 2,460 | | 2,900 | | 178,000 | |
| February | 6,000 | | | | | | 3,040 | | 3,790 | | 210,000 | |
| March | 7,070 | | | | | | 3,570 | | 4,200 | | 258,000 | |
| April | 33,300 | | | | | | 7,650 | | 18,500 | | 1,100,000 | |
| May | 44,300 | | | | | | 21,300 | | 26,800 | | 1,650,000 | |
| June | 60,200 | | | | | | 29,300 | | 40,300 | | 2,400,000 | |
| July | 28,400 | | | | | | 11,800 | | 20,600 | | 1,270,000 | |
| August | 11,300 | | | | | | 6,660 | | 9,120 | | 561,000 | |
| September | 6,590 | | | | | | 5,180 | | 5,990 | | 356,000 | |
| The year | 60,200 | | | | | | 2,210 | | 12,000 | | 8,660,000 | |

* Estimated.

KOOTENAI RIVER AT JEROME SLOUGH, NEAR COPELAND, IDAHO

LOCATION.—Staff gage in SW. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 3, T. 64 N., R. 1 W., 200 feet upstream from Jerome Slough, 3.2 miles northwest of Copeland, and 4.7 miles downstream by river from mouth of Mission Creek. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum.

RECORDS AVAILABLE.—April, 1929, to September, 1930.

REMARKS.—Occasional observations made to define river profiles at different stages between Copeland and Lucas Creek stations. Elevations affected by backwater from Kootenai Lake.

Daily elevation, in feet, 1930

| Date | Elevation | Date | Elevation |
|--------------|-----------|---------------|-----------|
| May 10..... | 1,750.98 | July 7..... | 1,752.98 |
| May 16..... | 1,750.80 | July 14..... | 1,746.74 |
| June 3..... | 1,757.27 | Aug. 15..... | 1,746.70 |
| June 6..... | 1,756.04 | Sept. 18..... | 1,743.80 |
| June 16..... | 1,756.43 | | |

KOOTENAI RIVER AT LUCAS CREEK, NEAR PORT HILL, IDAHO

LOCATION.—Staff gage in sec. 28, T. 65 N., R. 1 W., at mouth of Lucas Creek 3 miles southeast of Port Hill. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum.

RECORDS AVAILABLE.—May, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 1,757.83 feet June 13; minimum occurred during period of no record.

1928–1930: Maximum water-surface elevation, 1,764.69 feet May 30, 1928; minimum occurred during period of no record.

REMARKS.—Records reliable. Elevations affected by backwater from Kootenai Lake. Gage not read during winter.

Daily elevation, in feet, 1930

| Day | Apr. | May | June | July | Aug. | Day | Apr. | May | June | July | Aug. |
|---------|-------|-------|--------|--------|-------|---------|-------|-------|--------|-------|-------|
| 1----- | ----- | 51.06 | 56.41 | 53.89 | 47.98 | 16----- | 46.08 | 50.39 | 55.83 | 51.62 | 46.34 |
| 2----- | ----- | 50.86 | 56.83 | 53.63 | 47.84 | 17----- | 46.24 | 50.90 | 55.38 | 51.51 | ----- |
| 3----- | ----- | 50.86 | 56.85 | 53.51 | 47.74 | 18----- | 46.14 | 51.40 | 55.50 | 51.40 | ----- |
| 4----- | ----- | 51.00 | 56.46 | 53.31 | 47.58 | 19----- | 46.04 | 51.64 | 55.63 | 51.13 | ----- |
| 5----- | ----- | 51.20 | 56.11 | 53.26 | 47.41 | 20----- | 45.06 | 52.04 | 55.29 | 50.80 | ----- |
| 6----- | ----- | 51.24 | 55.83 | 52.90 | 47.19 | 21----- | 46.32 | 52.68 | 54.92 | 50.52 | 45.89 |
| 7----- | ----- | 51.20 | 55.67 | 52.62 | 47.03 | 22----- | 46.71 | 53.03 | *54.75 | 50.31 | ----- |
| 8----- | 42.81 | 51.10 | 56.01 | 52.60 | 46.90 | 23----- | 47.40 | 52.74 | 54.66 | 50.04 | ----- |
| 9----- | 43.44 | 50.82 | 56.93 | 52.60 | 46.79 | 24----- | 48.26 | 52.18 | 54.51 | 49.88 | ----- |
| 10----- | 43.76 | 50.58 | 57.69 | 52.38 | 46.72 | 25----- | 49.24 | 51.92 | 54.32 | 49.71 | ----- |
| 11----- | 43.86 | 50.44 | 57.77 | 52.28 | 46.65 | 26----- | 50.12 | 51.72 | 54.21 | 49.52 | ----- |
| 12----- | 43.90 | 50.32 | 57.71 | *52.18 | 46.62 | 27----- | 50.74 | 51.46 | 54.14 | 49.31 | ----- |
| 13----- | 44.20 | 50.28 | 57.83 | 52.09 | 46.59 | 28----- | 51.18 | 51.18 | 54.17 | 49.06 | ----- |
| 14----- | 44.93 | 50.20 | 57.53 | 51.88 | 46.54 | 29----- | 51.30 | 51.18 | 54.25 | 48.82 | ----- |
| 15----- | 46.64 | 50.20 | *56.70 | 51.77 | 46.46 | 30----- | 51.26 | 52.12 | 54.17 | 48.48 | ----- |
| | | | | | | 31----- | ----- | 55.01 | ----- | 48.18 | ----- |

* Estimated.

NOTE.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

KOOTENAI RIVER AT PORT HILL, IDAHO

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec 8, T. 65 N., R. 1 W., 300 feet south of international boundary at Port Hill. Recorder reads elevation above mean sea level, United States Coast and Geodetic Survey datum. To correct published records to agree with datum of Geodetic Survey of Canada, 1928 adjustment, 0.20 foot should be subtracted.

DRAINAGE AREA.—13,700 square miles.

RECORDS AVAILABLE.—May to July, 1904; October, 1927, to September 1930. Gage height records collected by Dominion Water Power and Hydrometric Bureau, Department of the Interior, Canada, October, 1924, to September, 1927, at same site.

EXTREMES.—Maximum mean daily discharge during year, 61,200 second-feet June 3; maximum water-surface elevation, 1,756.77 feet June 13; minimum daily discharge, 2,290 second-feet Dec. 10; minimum water-surface elevation, 1,739.32 feet Jan. 28.

1928-1930: Maximum discharge, 83,000 second-feet May 27, 28, 1928; maximum water-surface elevation, 1,763.32 feet May 30, 1928; minimum discharge and water-surface elevation occurred in 1930.

Maximum elevation known, 1,772.7 feet June, 1894.

REMARKS.—Discharge records good except those for January and February, which are fair; Feb. 22, 23, estimated. Nov. 21 to Mar. 23 staff gage used. Discharge record includes flow of Boundary Creek and represents entire flow passing international boundary. Elevations affected by backwater from Kootenai Lake. One discharge measurement furnished by Dominion Water Power and Hydrometric Bureau, Department of the Interior, Canada.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 42.01 | 40.93 | 40.06 | 40.27 | 39.41 | 40.33 | 41.05 | 50.38 | 54.54 | 53.37 | 47.78 | 44.36 |
| 2..... | 41.95 | 40.93 | 39.98 | 40.11 | 39.46 | 40.28 | 41.09 | 50.25 | 55.49 | 53.13 | 47.64 | 44.27 |
| 3..... | 41.88 | 40.84 | 39.97 | 40.20 | 39.46 | 40.25 | 41.20 | 50.26 | 55.56 | 52.98 | 47.54 | 44.18 |
| 4..... | 41.90 | 40.79 | 39.90 | 40.17 | 39.48 | 40.25 | 41.39 | 50.39 | 55.34 | 52.89 | 47.39 | 44.08 |
| 5..... | 41.88 | 40.75 | 39.87 | 40.19 | 39.50 | 40.25 | 41.57 | 50.52 | 55.12 | 52.73 | 47.20 | 43.98 |
| 6..... | 41.86 | 40.74 | 39.86 | 40.20 | 39.58 | 40.25 | 41.76 | 50.60 | 54.90 | 52.42 | 47.01 | 43.85 |
| 7..... | 41.79 | 40.68 | 39.86 | 40.17 | 39.56 | 40.18 | 42.02 | 50.57 | 54.86 | 52.19 | 46.86 | 43.84 |
| 8..... | 41.75 | 40.64 | 39.86 | 40.09 | 39.65 | 40.23 | 42.43 | 50.50 | 55.20 | 52.15 | 46.74 | 43.78 |
| 9..... | 41.71 | 40.59 | 39.88 | 39.85 | 39.66 | 40.23 | 42.96 | 50.31 | 55.90 | 52.11 | 46.64 | 43.73 |
| 10..... | 41.70 | 40.58 | 39.80 | 39.85 | 39.61 | 40.23 | 43.29 | 50.10 | 56.56 | 51.96 | 46.56 | 43.69 |
| 11..... | 41.67 | 40.54 | 39.84 | 39.81 | 39.68 | 40.20 | 43.41 | 50.00 | 56.66 | 51.84 | 46.48 | 43.63 |
| 12..... | 41.61 | 40.50 | 39.97 | 39.85 | 39.70 | 40.34 | 43.51 | 49.88 | 56.67 | 51.78 | 46.44 | 43.53 |
| 13..... | 41.56 | 40.46 | 39.85 | 39.76 | 39.67 | 40.19 | 43.77 | 49.80 | 56.75 | 51.68 | 46.40 | 43.51 |
| 14..... | 44.51 | 40.40 | 39.95 | 39.67 | 39.66 | 40.29 | 44.31 | 49.76 | 56.56 | 51.49 | 46.35 | 43.49 |
| 15..... | 41.46 | 40.38 | 40.15 | 39.62 | 39.67 | 40.29 | 45.02 | 49.77 | 55.94 | 51.37 | 46.26 | 43.51 |
| 16..... | 41.42 | 40.38 | 40.15 | 39.57 | 39.64 | 40.20 | 45.42 | 49.95 | 55.26 | 51.27 | 46.15 | 43.48 |
| 17..... | 41.35 | 40.41 | 40.18 | 39.54 | 39.67 | 40.20 | 45.66 | 50.33 | 54.87 | 51.19 | 46.08 | 43.42 |
| 18..... | 41.32 | 40.39 | 40.15 | 39.50 | 39.74 | 40.19 | 45.66 | 50.80 | 54.86 | 51.05 | 45.97 | 43.40 |
| 19..... | 41.29 | 40.33 | 40.18 | 39.45 | 39.89 | 40.25 | 45.60 | 51.10 | 54.93 | 50.82 | 45.93 | 43.32 |
| 20..... | 41.27 | 40.29 | 40.13 | 39.44 | 40.18 | 40.18 | 45.62 | 51.41 | 54.69 | 50.52 | 45.82 | 43.23 |
| 21..... | 41.27 | 40.15 | 40.04 | 39.40 | 40.44 | 40.18 | 45.82 | 51.93 | 54.40 | 50.27 | 45.67 | 43.19 |
| 22..... | 41.23 | 40.12 | 40.04 | 39.41 | 40.56 | 40.16 | 46.18 | 52.17 | 54.25 | 50.03 | 45.57 | 43.16 |
| 23..... | 41.19 | 40.08 | 40.10 | 39.37 | 40.58 | 40.34 | 46.75 | 52.02 | 54.13 | 49.78 | 45.43 | 43.06 |
| 24..... | 41.15 | 40.09 | 40.14 | 39.36 | 40.63 | 40.33 | 47.49 | 51.63 | 53.94 | 49.59 | 45.27 | 43.01 |
| 25..... | 41.10 | 40.11 | 40.15 | 39.36 | 40.48 | 40.33 | 48.54 | 51.35 | 53.75 | 49.46 | 45.18 | 42.92 |
| 26..... | 41.09 | 40.03 | 40.24 | 39.36 | 40.46 | 40.33 | 49.32 | 51.12 | 53.65 | 49.28 | 45.12 | 42.86 |
| 27..... | 41.09 | 40.03 | 40.30 | 39.34 | 40.42 | 40.35 | 49.93 | 50.88 | 53.57 | 49.09 | 45.00 | 42.77 |
| 28..... | 41.08 | 40.03 | 40.29 | 39.32 | 40.40 | 40.42 | 50.30 | 50.68 | 53.60 | 48.85 | 44.87 | 42.72 |
| 29..... | 41.03 | 39.99 | 40.23 | 39.39 | ----- | 40.57 | 50.42 | 50.66 | 53.61 | 48.57 | 44.73 | 42.67 |
| 30..... | 41.00 | 40.01 | 40.21 | 39.34 | ----- | 40.76 | 50.45 | 51.15 | 53.56 | 48.28 | 44.62 | 42.60 |
| 31..... | 40.95 | ----- | 40.29 | 39.35 | ----- | 40.97 | ----- | 52.69 | ----- | 47.99 | 44.49 | ----- |

NOTE.—Add 1,700.00 feet to obtain elevations above mean sea level (U. S. Coast and Geodetic Survey datum).

Daily and monthly discharge, in second-feet, of Kootenai River at Port Hill, Idaho, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----------|-------|-------|-------|-------|-------|---------|---------|--------|----------------------|--------|--------|-------|
| 1 | 4,540 | 3,910 | 3,170 | 3,750 | 3,060 | 4,030 | 7,820 | 30,000 | 57,200 | 28,800 | 11,400 | 6,520 |
| 2 | 4,540 | 3,930 | 3,360 | 3,650 | 3,080 | 3,850 | 7,940 | 28,400 | 59,500 | 27,700 | 11,200 | 6,670 |
| 3 | 4,510 | 3,890 | 2,990 | 3,250 | 3,290 | 3,760 | 8,460 | 28,400 | 61,200 | 26,900 | 11,400 | 6,550 |
| 4 | 4,290 | 3,870 | 2,770 | 3,440 | 3,370 | 3,650 | 9,090 | 28,200 | 49,600 | 27,700 | 11,200 | 6,360 |
| 5 | 4,360 | 3,820 | 2,560 | 3,240 | 3,470 | 3,670 | 9,380 | 29,100 | 45,400 | 26,400 | 11,000 | 6,130 |
| 6 | 4,480 | 3,670 | 2,560 | 2,850 | 3,390 | 3,670 | 10,100 | 28,900 | 42,400 | 24,500 | 10,500 | 6,040 |
| 7 | 4,620 | 3,760 | 2,710 | 2,650 | 3,480 | 3,760 | 11,200 | 27,700 | 41,900 | 24,100 | 10,200 | 5,900 |
| 8 | 5,040 | 3,780 | 2,760 | 2,650 | 3,370 | 3,630 | 13,600 | 26,500 | 45,100 | 24,700 | 9,870 | 6,020 |
| 9 | 5,050 | 3,610 | 2,560 | 2,670 | 3,460 | 3,660 | 15,100 | 25,500 | 52,200 | 24,700 | 9,840 | 6,000 |
| 10 | 4,930 | 3,620 | 2,290 | 2,500 | 3,440 | 3,780 | 15,400 | 24,200 | 55,400 | 24,000 | 9,780 | 6,110 |
| 11 | 4,840 | 3,500 | 2,560 | 2,600 | 3,300 | 3,840 | 15,100 | 23,400 | 53,600 | 23,700 | 9,800 | 6,300 |
| 12 | 4,760 | 3,440 | 2,450 | 2,660 | 3,280 | 3,770 | 15,400 | 22,800 | 52,900 | 24,300 | 9,740 | 6,370 |
| 13 | 4,630 | 3,300 | 2,800 | 2,690 | 3,330 | 4,230 | 16,100 | 22,700 | 50,600 | 23,300 | 9,930 | 6,350 |
| 14 | 4,520 | 3,180 | 3,350 | 2,730 | 3,290 | 4,010 | 19,200 | 22,400 | 44,800 | 22,400 | 10,000 | 6,450 |
| 15 | 4,510 | 3,270 | 3,910 | 2,710 | 3,220 | 3,990 | 20,300 | 22,700 | 37,700 | 22,200 | 9,800 | 6,430 |
| 16 | 4,380 | 3,400 | 3,930 | 2,710 | 3,260 | 3,980 | 21,200 | 24,100 | 33,700 | 22,100 | 9,630 | 6,500 |
| 17 | 4,430 | 3,370 | 4,080 | 2,750 | 3,310 | 3,830 | 20,900 | 27,000 | 31,800 | 21,800 | 9,280 | 6,460 |
| 18 | 4,290 | 3,330 | 4,360 | 2,790 | 3,430 | 3,870 | 20,000 | 29,500 | 34,300 | 20,500 | 9,290 | 6,010 |
| 19 | 4,280 | 3,350 | 4,340 | 2,880 | 3,700 | 3,820 | 18,900 | 30,700 | 35,200 | 19,300 | 8,940 | 5,940 |
| 20 | 4,230 | 3,070 | 4,160 | 2,970 | 4,130 | 3,940 | 18,700 | 32,900 | 32,400 | 18,600 | 8,800 | 5,870 |
| 21 | 4,240 | 3,020 | 4,030 | 3,030 | 5,530 | 4,220 | 19,200 | 34,700 | 31,500 | 18,000 | 8,580 | 5,770 |
| 22 | 4,250 | 2,710 | 3,470 | 3,010 | 5,980 | 4,350 | 21,100 | 35,000 | 31,900 | 17,200 | 8,510 | 5,770 |
| 23 | 4,280 | 2,630 | 3,410 | 3,020 | 5,380 | 4,310 | 22,800 | 32,400 | 31,200 | 16,400 | 8,320 | 5,870 |
| 24 | 4,150 | 2,620 | 3,630 | 3,020 | 4,820 | 4,490 | 26,600 | 29,400 | 31,000 | 15,700 | 7,930 | 5,880 |
| 25 | 4,180 | 2,520 | 4,060 | 3,040 | 5,000 | 4,370 | 31,200 | 27,300 | 30,100 | 15,600 | 7,750 | 5,950 |
| 26 | 4,160 | 2,900 | 4,080 | 2,970 | 4,450 | 4,460 | 33,400 | 25,600 | 29,700 | 15,600 | 7,380 | 5,710 |
| 27 | 4,140 | 2,980 | 4,220 | 3,010 | 4,220 | 4,670 | 35,000 | 24,600 | 30,200 | 15,300 | 7,480 | 5,600 |
| 28 | 4,270 | 3,060 | 4,270 | 3,030 | 4,000 | 5,050 | 34,400 | 23,800 | 30,500 | 14,800 | 7,260 | 5,470 |
| 29 | 4,210 | 3,180 | 4,240 | 2,960 | ----- | 5,730 | 33,700 | 24,000 | 31,500 | 13,700 | 7,270 | 5,350 |
| 30 | 4,210 | 3,260 | 4,130 | 3,050 | ----- | 6,640 | 32,400 | 29,800 | 31,500 | 12,900 | 6,960 | 5,250 |
| 31 | 4,080 | ----- | 3,760 | 3,030 | ----- | 7,010 | ----- | 44,600 | ----- | 12,100 | 6,770 | ----- |
| Month | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | | |
| October | | | | | | 5,050 | 4,080 | 4,430 | 272,000 | | | |
| November | | | | | | 3,930 | 2,520 | 3,330 | 198,000 | | | |
| December | | | | | | 4,360 | 2,290 | 3,450 | 212,000 | | | |
| January | | | | | | 3,750 | 2,500 | 2,950 | 181,000 | | | |
| February | | | | | | 5,980 | 3,060 | 3,800 | 212,000 | | | |
| March | | | | | | 7,010 | 3,630 | 4,260 | 262,000 | | | |
| April | | | | | | 35,000 | 7,820 | 19,500 | 1,160,000 | | | |
| May | | | | | | 44,600 | 22,400 | 27,900 | 1,720,000 | | | |
| June | | | | | | 61,200 | 29,700 | 40,900 | 2,430,000 | | | |
| July | | | | | | 28,800 | 12,100 | 20,800 | 1,280,000 | | | |
| August | | | | | | 11,400 | 6,770 | 9,220 | 567,000 | | | |
| September | | | | | | 6,670 | 5,250 | 6,060 | 361,000 | | | |
| The year | | | | | | 61,200 | 2,290 | 12,200 | 8,860,000 | | | |

BOULDER CREEK NEAR LEONIA, IDAHO

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 32, T. 61 N., R. 3 E., half a mile below McGinty Creek, 1 mile above buildings of the Idarount Lead-Zinc Mines Co., 3 miles above mouth, and 3 miles southwest of Leonia.

DRAINAGE AREA.—53 square miles.

RECORDS AVAILABLE.—April, 1928, to September, 1930. Prior to November, 1928, records at staff gage site $\frac{1}{4}$ miles downstream.

EXTREMES.—Maximum discharge during year, 683 second-feet Apr. 14 (gage height, 3.70 feet); minimum, 3 second-feet Nov. 19 (gage height, 1.02 feet).

1928–1930: Maximum discharge (estimated), 1,200 second-feet May 15, 1928 (at staff gage site); minimum, that of Nov. 19, 1929.

REMARKS.—Records excellent except those for periods Nov. 21–29, Jan. 8 to Mar. 6, which are estimated. During year an average flow of about 1 second-foot diverted for mining purposes upstream returns to creek below present gage.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 10 | 9 | 10 | 14 | 25 | 32 | 180 | 246 | 234 | 37 | 8 | 7 |
| 2 | 9 | 9 | 8 | 13 | | 29 | 209 | 266 | 212 | 37 | 8 | 7 |
| 3 | 8 | 10 | 8 | 17 | | 26 | 231 | 282 | 186 | 33 | 8 | 7 |
| 4 | 7 | 12 | 7 | 15 | | 25 | 228 | 228 | 166 | 31 | 8 | 7 |
| 5 | 8 | 11 | 8 | 14 | | 26 | 237 | 209 | 150 | 27 | 7 | 7 |
| 6 | 8 | 11 | 9 | 11 | 15 | 27 | 289 | 200 | 140 | 27 | 7 | 7 |
| 7 | 7 | 10 | 8 | 10 | | 27 | 368 | 172 | 128 | 26 | 7 | 7 |
| 8 | 7 | 9 | 8 | 10 | | 28 | 455 | 161 | 116 | 25 | 7 | 7 |
| 9 | 7 | 10 | 8 | | | 26 | 375 | 153 | 105 | 23 | 6 | 7 |
| 10 | 8 | 10 | 8 | | | 25 | 335 | 146 | 97 | 22 | 8 | 8 |
| 11 | 7 | 7 | 10 | 8 | 15 | 28 | 353 | 150 | 97 | 21 | 9 | 9 |
| 12 | 6 | 9 | 10 | | | 36 | 379 | 140 | 94 | 19 | 8 | 9 |
| 13 | 6 | 8 | 9 | | | 33 | 426 | 140 | 88 | 18 | 7 | 9 |
| 14 | 6 | 9 | 183 | | | 31 | 568 | 143 | 79 | 17 | 6 | 9 |
| 15 | 7 | 9 | 194 | | | 30 | 418 | 143 | 71 | 16 | 6 | 9 |
| 16 | 7 | 9 | 68 | 10 | 25 | 30 | 328 | 136 | 63 | 15 | 7 | 7 |
| 17 | 8 | 9 | 35 | | 35 | 31 | 282 | 121 | 60 | 15 | 7 | 7 |
| 18 | 9 | 8 | 27 | | 50 | 33 | 269 | 105 | 56 | 14 | 6 | 6 |
| 19 | 9 | 4 | 23 | | 125 | 36 | 286 | 105 | 51 | 19 | 6 | 5 |
| 20 | 8 | 4 | 20 | | 165 | 36 | 338 | 292 | 71 | 17 | 7 | 5 |
| 21 | 8 | 4 | 18 | 15 | 125 | 45 | 379 | 256 | 82 | 16 | 8 | 5 |
| 22 | 8 | 5 | 19 | | 100 | 57 | 434 | 194 | 62 | 14 | 7 | 5 |
| 23 | 9 | 7 | 17 | | 85 | 45 | 347 | 166 | 56 | 12 | 7 | 6 |
| 24 | 9 | 8 | 20 | | 70 | 41 | 484 | 172 | 52 | 11 | 6 | 6 |
| 25 | 9 | 9 | 27 | | 55 | 44 | 463 | 175 | 52 | 11 | 6 | 6 |
| 26 | 9 | 9 | 21 | 15 | 42 | 57 | 387 | 150 | 46 | 10 | 6 | 7 |
| 27 | 12 | 10 | 18 | | 38 | 75 | 364 | 138 | 49 | 10 | 6 | 7 |
| 28 | 17 | 11 | 17 | | 35 | 110 | 317 | 133 | 45 | 10 | 6 | 8 |
| 29 | 12 | 11 | 16 | | 177 | 166 | 269 | 143 | 40 | 9 | 6 | 10 |
| 30 | 10 | 11 | 17 | | | 177 | 250 | 189 | 38 | 9 | 6 | 9 |
| 31 | 9 | 16 | 16 | | | 161 | 221 | 221 | 9 | 6 | 6 | 9 |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 17 | 6 | 8.5 | 523 |
| November | 12 | 4 | 8.7 | 518 |
| December | 194 | 7 | 28.0 | 1,720 |
| January | | | 11.4 | 701 |
| February | 165 | | 44.8 | 2,490 |
| March | 177 | 25 | 50.7 | 3,120 |
| April | 568 | 180 | 342 | 20,400 |
| May | 292 | 105 | 177 | 10,900 |
| June | 234 | 38 | 92.9 | 5,530 |
| July | 37 | 9 | 18.7 | 1,150 |
| August | 9 | 6 | 6.9 | 424 |
| September | 10 | 5 | 7.2 | 428 |
| The year | 568 | 4 | 66.0 | 47,900 |

MOYIE RIVER AT EASTPORT, IDAHO

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 10, T. 65 N., R. 2 E., 1,000 feet downstream from international boundary at Eastport.

DRAINAGE AREA.—570 square miles.

RECORDS AVAILABLE.—August, 1929, to September, 1930.

EXTREMES.—Maximum discharge during period, 3,330 second-feet May 31 (gage height, 7.1 feet); minimum (estimated), 34 second-feet Jan. 16.

REMARKS.—Records excellent Mar. 2 to Aug. 15; others good except those estimated Oct. 28–31, Nov. 1–3, 11, 12, 18–30, Dec. 1–31, 1929; Jan. 1 to Feb. 28, Mar. 1, 13, 16, 17, 1930. No regulation or diversions above station. Results of several discharge measurements furnished by Dominion Water Power and Hydrometric Bureau, Department of the Interior, Canada.

Daily discharge, in second-feet, 1929–30

| Day | Aug. | Sept. | Day | Aug. | Sept. | Day | Aug. | Sept. |
|------|-------|-------|-------|-------|-------|-----|-------|-------|
| 1929 | ----- | 66 | 11 | ----- | 67 | 21 | ----- | 63 |
| 1 | ----- | 69 | 12 | ----- | 66 | 22 | ----- | 64 |
| 2 | ----- | 81 | 13 | ----- | 63 | 23 | ----- | 71 |
| 3 | ----- | 72 | 14 | ----- | 61 | 24 | ----- | 72 |
| 4 | ----- | 77 | 15 | ----- | 61 | 25 | ----- | 71 |
| 5 | ----- | 77 | 16 | ----- | 64 | 26 | ----- | 71 |
| 6 | ----- | 75 | 17 | ----- | 66 | 27 | ----- | 69 |
| 7 | ----- | 74 | 18 | ----- | 67 | 28 | ----- | 69 |
| 8 | ----- | 71 | 19 | ----- | 63 | 29 | ----- | 69 |
| 9 | ----- | 69 | 20 | ----- | 63 | 30 | ----- | 66 |
| 10 | ----- | ----- | ----- | ----- | ----- | 31 | ----- | 66 |

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1929-30 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1 | 61 | 65 | 40 | 78 | 61 | 107 | 511 | 2,320 | 3,100 | 605 | 145 | 71 |
| 2 | 58 | 64 | 40 | 77 | 62 | 103 | 570 | 2,180 | 2,880 | 553 | 137 | 69 |
| 3 | 58 | 62 | 41 | 81 | 60 | 110 | 626 | 2,390 | 2,740 | 543 | 131 | 69 |
| 4 | 60 | 60 | 42 | 83 | 62 | 118 | 619 | 2,320 | 2,600 | 499 | 126 | 67 |
| 5 | 61 | 60 | 43 | 81 | 65 | 101 | 605 | 2,120 | 2,320 | 468 | 123 | 66 |
| 6 | 63 | 61 | 42 | 75 | 63 | 98 | 671 | 2,050 | 2,180 | 439 | 120 | 67 |
| 7 | 61 | 60 | 39 | 70 | 60 | 113 | 578 | 1,920 | 2,050 | 411 | 115 | 71 |
| 8 | 60 | 64 | 38 | 65 | 58 | 92 | 1,200 | 1,720 | 1,860 | 384 | 113 | 71 |
| 9 | 63 | 71 | 37 | 60 | 57 | 90 | 1,220 | 1,600 | 1,720 | 369 | 110 | 71 |
| 10 | 71 | 66 | 35 | 55 | 56 | 103 | 1,070 | 1,500 | 1,540 | 353 | 115 | 72 |
| 11 | 64 | 60 | 37 | 50 | 57 | 103 | 1,060 | 1,540 | 1,440 | 334 | 113 | 85 |
| 12 | 66 | 59 | 38 | 45 | 58 | 113 | 1,150 | 1,530 | 1,320 | 319 | 108 | 79 |
| 13 | 63 | 63 | 45 | 41 | 56 | 125 | 1,310 | 1,470 | 1,230 | 310 | 103 | 77 |
| 14 | 63 | 66 | 70 | 38 | 54 | 115 | 1,660 | 1,480 | 1,120 | 291 | 98 | 79 |
| 15 | 61 | 64 | 110 | 36 | 55 | 131 | 1,790 | 1,540 | 1,020 | 269 | 101 | 79 |
| 16 | 61 | 61 | 90 | 34 | 56 | 134 | 1,600 | 1,600 | 934 | 252 | 101 | 75 |
| 17 | 63 | 61 | 80 | 36 | 58 | 131 | 1,420 | 1,660 | 852 | 240 | 94 | 72 |
| 18 | 64 | 54 | 70 | 37 | 70 | 129 | 1,360 | 1,720 | 791 | 228 | 90 | 71 |
| 19 | 63 | 52 | 66 | 38 | 100 | 137 | 1,350 | 1,600 | 741 | 262 | 90 | 69 |
| 20 | 61 | 50 | 65 | 39 | 160 | 154 | 1,400 | 1,980 | 799 | 282 | 90 | 69 |
| 21 | 61 | 50 | 65 | 40 | 140 | 154 | 1,600 | 2,390 | 943 | 252 | 88 | 69 |
| 22 | 61 | 51 | 67 | 42 | 122 | 191 | 1,960 | 2,250 | 878 | 232 | 88 | 71 |
| 23 | 60 | 52 | 70 | 43 | 115 | 184 | 2,120 | 2,050 | 816 | 220 | 86 | 75 |
| 24 | 61 | 53 | 78 | 45 | 112 | 174 | 2,530 | 1,920 | 783 | 209 | 85 | 79 |
| 25 | 63 | 55 | 90 | 47 | 113 | 174 | 2,880 | 1,860 | 758 | 194 | 81 | 79 |
| 26 | 61 | 50 | 86 | 48 | 108 | 187 | 2,740 | 1,720 | 702 | 184 | 79 | 75 |
| 27 | 74 | 45 | 84 | 50 | 110 | 212 | 2,960 | 1,600 | 725 | 177 | 77 | 75 |
| 28 | 85 | 42 | 83 | 52 | 105 | 265 | 2,810 | 1,600 | 733 | 174 | 75 | 75 |
| 29 | 75 | 41 | 82 | 54 | ----- | 400 | 2,740 | 1,660 | 671 | 167 | 74 | 77 |
| 30 | 70 | 40 | 82 | 56 | ----- | 543 | 2,530 | 2,740 | 626 | 161 | 72 | 79 |
| 31 | 67 | ----- | 78 | 59 | ----- | 499 | ----- | 3,180 | ----- | 154 | 71 | ----- |

Monthly discharge, in second-feet, of Moyie River at Eastport, Idaho, 1929-30

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-------------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| 1929 | | | | | | |
| August 26-31..... | 71 | 66 | 68.3 | 0.120 | 0.03 | 813 |
| September..... | 81 | 61 | 68.2 | .120 | .13 | 4,060 |
| The period..... | | | | | | 4,870 |
| 1929-30 | | | | | | |
| October..... | 85 | 58 | 64.0 | .112 | .13 | 3,940 |
| November..... | 71 | 40 | 56.7 | .099 | .11 | 3,370 |
| December..... | 110 | 35 | 62.4 | .109 | .13 | 3,840 |
| January..... | 83 | 34 | 53.4 | .094 | .11 | 3,280 |
| February..... | 160 | 54 | 80.5 | .141 | .15 | 4,470 |
| March..... | 543 | 90 | 171 | .300 | .35 | 10,500 |
| April..... | 2,960 | 511 | 1,560 | 2.74 | 3.06 | 92,800 |
| May..... | 3,180 | 1,460 | 1,910 | 3.35 | 3.86 | 117,000 |
| June..... | 3,100 | 626 | 1,360 | 2.39 | 2.67 | 80,900 |
| July..... | 605 | 154 | 308 | .540 | .62 | 18,900 |
| August..... | 145 | 71 | 100 | .175 | .20 | 6,160 |
| September..... | 85 | 66 | 73.4 | .129 | .14 | 4,370 |
| The year..... | 3,180 | 34 | 484 | .849 | 11.53 | 350,000 |

MOYIE RIVER AT EILEEN, IDAHO

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 35, T. 63 N., R. 2 E., one-fourth mile downstream from Skin Creek, one-fourth mile southeast of Eileen, and 4 miles above junction with Kootenai River.

DRAINAGE AREA.—755 square miles.

RECORDS AVAILABLE.—October, 1925, to September, 1930.

EXTREMES.—Maximum discharge during year, 3,680 second-feet May 31 (gage height, 4.0 feet); minimum discharge (estimated), 60 second-feet Jan. 16; minimum gage height, 0.71 foot Nov. 20.

1925-1930: Maximum discharge, 5,910 second-feet May 17, June 10, 11, 1927, May 13, 17-19, 1928 (gage height, 4.8 feet); minimum discharge (estimated), 60 second-feet Dec. 5, 1928, Jan. 16, 1930; minimum gage height, 0.71 foot Nov. 20, 1929.

REMARKS.—Records excellent except those estimated on account of ice and missing gage heights, Nov. 19 to Mar. 10, 23-31, which are fair. No regulation or diversions above station.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-------|-------|------|------|-------|
| 1..... | 96 | 98 | 70 | 107 | 88 | 166 | 636 | 2,620 | 3,540 | 735 | 202 | 102 |
| 2..... | 96 | 98 | 70 | 105 | 90 | 156 | 677 | 2,530 | 3,280 | 718 | 190 | 102 |
| 3..... | 92 | 96 | 72 | 114 | 88 | 157 | 770 | 2,720 | 3,040 | 669 | 186 | 100 |
| 4..... | 92 | 94 | 74 | 124 | 91 | 160 | 814 | 2,620 | 2,820 | 629 | 179 | 97 |
| 5..... | 94 | 96 | 75 | 122 | 95 | 155 | 796 | 2,440 | 2,620 | 591 | 176 | 95 |
| 6..... | 92 | 96 | 74 | 115 | 93 | 152 | 860 | 2,350 | 2,440 | 554 | 169 | 95 |
| 7..... | 92 | 96 | 72 | 109 | 89 | 157 | 1,100 | 2,180 | 2,260 | 518 | 166 | 95 |
| 8..... | 92 | 94 | 69 | 102 | 87 | 149 | 1,470 | 2,020 | 2,100 | 497 | 159 | 97 |
| 9..... | 94 | 92 | 66 | 95 | 85 | 150 | 1,540 | 1,870 | 1,870 | 471 | 155 | 97 |
| 10..... | 98 | 94 | 63 | 88 | 84 | 170 | 1,350 | 1,770 | 1,800 | 445 | 162 | 100 |
| 11..... | 98 | 88 | 64 | 82 | 85 | 174 | 1,330 | 1,830 | 1,670 | 426 | 159 | 112 |
| 12..... | 98 | 88 | 66 | 77 | 86 | 185 | 1,390 | 1,800 | 1,550 | 414 | 152 | 114 |
| 13..... | 92 | 94 | 75 | 73 | 84 | 185 | 1,580 | 1,740 | 1,450 | 408 | 149 | 112 |
| 14..... | 92 | 98 | 110 | 68 | 82 | 192 | 1,940 | 1,720 | 1,300 | 384 | 143 | 112 |
| 15..... | 90 | 96 | 155 | 63 | 82 | 185 | 2,260 | 1,770 | 1,200 | 361 | 140 | 114 |
| 16..... | 88 | 94 | 130 | 60 | 84 | 177 | 2,020 | 1,860 | 1,110 | 340 | 149 | 112 |
| 17..... | 92 | 94 | 112 | 61 | 90 | 188 | 1,800 | 1,870 | 1,030 | 323 | 143 | 104 |
| 18..... | 92 | 86 | 98 | 62 | 110 | 192 | 1,720 | 1,940 | 946 | 308 | 137 | 102 |
| 19..... | 92 | 84 | 92 | 63 | 150 | 200 | 1,700 | 1,870 | 879 | 334 | 137 | 100 |
| 20..... | 92 | 82 | 88 | 64 | 250 | 221 | 1,730 | 2,180 | 917 | 372 | 140 | 97 |
| 21..... | 92 | 80 | 88 | 65 | 235 | 234 | 1,940 | 2,720 | 1,110 | 345 | 137 | 97 |
| 22..... | 90 | 82 | 92 | 67 | 215 | 271 | 2,180 | 2,440 | 1,050 | 313 | 131 | 106 |
| 23..... | 92 | 82 | 100 | 69 | 200 | 260 | 2,440 | 2,260 | 956 | 298 | 128 | 107 |
| 24..... | 92 | 84 | 112 | 71 | 190 | 250 | 2,820 | 2,100 | 927 | 284 | 125 | 107 |
| 25..... | 96 | 90 | 124 | 73 | 180 | 275 | 3,540 | 2,100 | 907 | 269 | 120 | 107 |
| 26..... | 94 | 88 | 119 | 75 | 173 | 325 | 3,260 | 1,940 | 851 | 256 | 117 | 107 |
| 27..... | 107 | 84 | 114 | 77 | 167 | 375 | 3,410 | 1,810 | 860 | 247 | 114 | 104 |
| 28..... | 127 | 77 | 112 | 79 | 164 | 475 | 3,280 | 1,770 | 888 | 238 | 112 | 104 |
| 29..... | 117 | 74 | 112 | 81 | ----- | 600 | 3,160 | 1,870 | 823 | 229 | 110 | 110 |
| 30..... | 107 | 70 | 112 | 83 | ----- | 700 | 2,930 | 2,820 | 779 | 217 | 107 | 116 |
| 31..... | 100 | ----- | 110 | 86 | ----- | 660 | ----- | 3,540 | ----- | 213 | 104 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 127 | 88 | 96.1 | 0.127 | 0.15 | 5,910 |
| November..... | 98 | 70 | 89.0 | .118 | .13 | 5,300 |
| December..... | 155 | 63 | 93.2 | .123 | .14 | 5,730 |
| January..... | 124 | 60 | 83.2 | .110 | .13 | 5,120 |
| February..... | 250 | 82 | 126 | .167 | .17 | 7,000 |
| March..... | 700 | 149 | 255 | .338 | .39 | 15,700 |
| April..... | 3,540 | 636 | 1,880 | 2.49 | 2.78 | 112,000 |
| May..... | 3,540 | 1,720 | 2,160 | 2.86 | 3.30 | 133,000 |
| June..... | 3,540 | 779 | 1,570 | 2.08 | 2.32 | 93,400 |
| July..... | 735 | 213 | 1,400 | .530 | .61 | 24,600 |
| August..... | 202 | 104 | 145 | .192 | .22 | 8,920 |
| September..... | 114 | 95 | 104 | .138 | .15 | 6,100 |
| The year..... | 3,540 | 60 | 584 | .774 | 10.49 | 423,000 |

COW CREEK NEAR BONNERS FERRY, IDAHO

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 31, T. 62 N., R. 2 E., at footbridge on Goldbeck ranch, 3 miles southeast of Bonners Ferry.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 15 second-feet Apr. 25-27; minimum, 0.7 second-foot Sept. 11-21.

1928-1930: Maximum discharge, 56 second-feet May 23, 1928; minimum, that of Sept. 11-21, 1930.

REMARKS.—Records good for discharge between 4 and 11 second-feet; others poor. Some water diverted above station for irrigation from June 26 to about Aug. 15. Gage not read Oct. 1 to Mar. 16.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-----|------|------|------|-------|
| 1 | | 3.8 | 12 | 10 | 1.5 | 0.9 | 0.8 |
| 2 | | 3.8 | 11 | 10 | 1.5 | .9 | .8 |
| 3 | | 3.9 | 12 | 9.8 | 1.4 | .8 | .8 |
| 4 | | 3.9 | 12 | 9.4 | 1.4 | .8 | .8 |
| 5 | | 3.9 | 12 | 9.0 | 1.3 | .8 | .8 |
| 6 | | 4.0 | 11 | 8.3 | 1.3 | .8 | .8 |
| 7 | | 4.2 | 10 | 8.1 | 1.3 | .8 | .8 |
| 8 | | 4.8 | 9.8 | 7.4 | 1.3 | .8 | .8 |
| 9 | | 5.2 | 9.4 | 7.1 | 1.3 | .8 | .8 |
| 10 | | 5.4 | 8.3 | 6.6 | 1.2 | .8 | .8 |
| 11 | | 5.1 | 8.1 | 6.5 | 1.2 | .8 | .7 |
| 12 | | 5.1 | 7.7 | 6.5 | 1.2 | .8 | .7 |
| 13 | | 5.1 | 7.6 | 6.2 | 1.2 | .8 | .7 |
| 14 | | 5.6 | 7.4 | 6.0 | 1.1 | .8 | .7 |
| 15 | | 9.4 | 7.6 | 6.0 | 1.1 | .8 | .7 |
| 16 | | 9.4 | 7.7 | 5.7 | 1.1 | .9 | .7 |
| 17 | 7.4 | 9.0 | 7.9 | 5.4 | 1.1 | .9 | .7 |
| 18 | 6.0 | 8.8 | 7.9 | 5.0 | 1.1 | .8 | .7 |
| 19 | 4.8 | 8.1 | 7.4 | 4.8 | 1.0 | .8 | .7 |
| 20 | 4.4 | 8.1 | 9.2 | 4.7 | 1.2 | .8 | .7 |
| 21 | 3.9 | 7.7 | 13 | 6.1 | 1.1 | .8 | .7 |
| 22 | 3.9 | 9.6 | 11 | 5.4 | 1.0 | .8 | .8 |
| 23 | 3.5 | 12 | 9.8 | 5.2 | 1.0 | .8 | .9 |
| 24 | 3.4 | 13 | 8.1 | 4.9 | 1.0 | .8 | .9 |
| 25 | 3.2 | 15 | 9.4 | 6.4 | 1.0 | .8 | .9 |
| 26 | 3.2 | 15 | 9.0 | 3.4 | 1.0 | .8 | .9 |
| 27 | 3.3 | 15 | 8.3 | 1.8 | 1.0 | .8 | .9 |
| 28 | 3.2 | 14 | 8.1 | 1.6 | 1.0 | .8 | .9 |
| 29 | 3.5 | 13 | 7.9 | 1.6 | .9 | .8 | 1.0 |
| 30 | 4.0 | 12 | 11 | 1.5 | .9 | .8 | 1.0 |
| 31 | 3.9 | | 10 | | .9 | .8 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-------------|---------|---------|------|----------------------|
| March 17-31 | 7.4 | 3.2 | 4.11 | 122 |
| April | 15 | 3.8 | 8.10 | 482 |
| May | 13 | 7.4 | 9.41 | 579 |
| June | 10 | 1.5 | 6.01 | 358 |
| July | 1.5 | .9 | 1.15 | 71 |
| August | .9 | .8 | .81 | 50 |
| September | 1.0 | .7 | .80 | 48 |
| The period | | | | 1,710 |

DEEP CREEK AT MORAVIA, IDAHO

LOCATION.—Staff gage in sec. 18, T. 61 N., R. 1 E., at concrete highway bridge 1 mile below Ruby Creek and 1 mile southwest of Moravia.

DRAINAGE AREA.—133 square miles.

RECORDS AVAILABLE.—May, 1828, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 403 second-feet Apr. 14 (gage height, 2.1 feet); minimum, 8 second-feet Aug. 10–15, 19, 20, 25–28, Sept. 5–10 (gage height, 0.94 foot).

1928–1930: Maximum discharge, 612 second-feet May 8, 20, 1928 (gage height, 2.60 feet); minimum, 8 second-feet Aug. 17–24, 28–31, 1929, Aug. 10–15, 19, 20, 25–28, Sept. 5–10, 1930.

REMARKS.—Records good except those in excess of 300 second-feet, which are fair. Diurnal fluctuations affect flow at high stages. No diversion above station. Gage not read Oct. 1 to Mar. 18.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-----|------|------|------|-------|
| 1..... | | 194 | 223 | 204 | 65 | 11 | 11 |
| 2..... | | 204 | 232 | 204 | 65 | 11 | 11 |
| 3..... | | 213 | 242 | 185 | 65 | 11 | 10 |
| 4..... | | 232 | 176 | 157 | 60 | 11 | 10 |
| 5..... | | 213 | 185 | 140 | 55 | 11 | 8 |
| 6..... | | 232 | 204 | 140 | 45 | 11 | 8 |
| 7..... | | 270 | 185 | 131 | 45 | 10 | 8 |
| 8..... | | 313 | 157 | 122 | 41 | 10 | 8 |
| 9..... | | 305 | 166 | 105 | 41 | 10 | 8 |
| 10..... | | 260 | 148 | 98 | 37 | 8 | 8 |
| 11..... | | 232 | 157 | 91 | 37 | 8 | 10 |
| 12..... | | 242 | 153 | 91 | 34 | 8 | 11 |
| 13..... | | 270 | 148 | 84 | 34 | 8 | 13 |
| 14..... | | 403 | 148 | 77 | 30 | 8 | 13 |
| 15..... | | 353 | 140 | 77 | 26 | 8 | 13 |
| 16..... | | 296 | 140 | 70 | 23 | 10 | 13 |
| 17..... | | 251 | 131 | 60 | 23 | 10 | 16 |
| 18..... | | 270 | 122 | 60 | 25 | 10 | 16 |
| 19..... | 84 | 242 | 127 | 60 | 30 | 8 | 13 |
| 20..... | 70 | 232 | 232 | 70 | 30 | 8 | 16 |
| 21..... | 70 | 251 | 148 | 112 | 26 | 10 | 11 |
| 22..... | 98 | 274 | 148 | 91 | 26 | 11 | 11 |
| 23..... | 84 | 279 | 140 | 91 | 23 | 10 | 11 |
| 24..... | 77 | 368 | 148 | 84 | 23 | 10 | 11 |
| 25..... | 84 | 368 | 157 | 77 | 21 | 8 | 10 |
| 26..... | 91 | 368 | 140 | 84 | 21 | 8 | 10 |
| 27..... | 105 | 338 | 122 | 105 | 21 | 8 | 10 |
| 28..... | 131 | 305 | 131 | 84 | 18 | 8 | 11 |
| 29..... | 194 | 279 | 140 | 70 | 18 | 10 | 13 |
| 30..... | 232 | 242 | 166 | 65 | 16 | 10 | 16 |
| 31..... | 204 | | 194 | | 16 | 11 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|------------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| March 19–31..... | 232 | 70 | 117 | 0.880 | 0.43 | 3,020 |
| April..... | 403 | 194 | 277 | 2.08 | 2.32 | 16,500 |
| May..... | 242 | 122 | 163 | 1.23 | 1.42 | 10,000 |
| June..... | 204 | 60 | 103 | .774 | .86 | 6,130 |
| July..... | 65 | 16 | 33.5 | .252 | .29 | 2,060 |
| August..... | 11 | 8 | 9.5 | .071 | .08 | 584 |
| September..... | 16 | 8 | 11.3 | .085 | .09 | 672 |
| The period..... | | | | | | 39,000 |

SNOW CREEK NEAR MORAVIA, IDAHO

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 1, T. 61 N., R. 1 W., 2 miles northwest of Moravia and 5 miles southwest of Bonners Ferry.

DRAINAGE AREA.—19.5 square miles.

RECORDS AVAILABLE.—May, 1923, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 202 second-foot Apr. 25 (gage height, 1.68 feet); minimum, 2 second-foot Sept. 20 (gage height, -0.11 foot).

1928-1930: Maximum discharge, 352 second-foot May 27, 26, 1928 (gage height, 1.96 feet); minimum, 2 second-foot Sept. 9-12, 16-30, 1928, Sept. 1-15, 1929, Sept. 20, 1930.

REMARKS.—Records fair. No diversions above station. Gage not read Oct. 1 to Mar. 19.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-----|------|------|------|-------|
| 1 | | 38 | 107 | 120 | 23 | 5 | 4 |
| 2 | | 45 | 116 | 94 | 23 | 5 | 4 |
| 3 | | 49 | 125 | 82 | 22 | 5 | 4 |
| 4 | | 51 | 119 | 75 | 21 | 5 | 3 |
| 5 | | 53 | 113 | 76 | 20 | 4 | 3 |
| 6 | | 62 | 95 | 78 | 18 | 4 | 3 |
| 7 | | 70 | 82 | 85 | 16 | 4 | 3 |
| 8 | | 82 | 78 | 80 | 15 | 4 | 3 |
| 9 | | 75 | 75 | 76 | 15 | 4 | 3 |
| 10 | | 71 | 82 | 78 | 14 | 4 | 3 |
| 11 | | 68 | 89 | 85 | 14 | 4 | 3 |
| 12 | | 75 | 82 | 51 | 13 | 4 | 3 |
| 13 | | 85 | 78 | 46 | 12 | 4 | 3 |
| 14 | | 175 | 83 | 40 | 11 | 4 | 4 |
| 15 | | 107 | 124 | 37 | 11 | 4 | 4 |
| 16 | | 89 | 120 | 35 | 10 | 4 | 3 |
| 17 | | 85 | 107 | 32 | 10 | 4 | 3 |
| 18 | | 81 | 90 | 28 | 9 | 4 | 3 |
| 19 | | 78 | 75 | 27 | 12 | 4 | 3 |
| 20 | | 13 | 94 | 152 | 78 | 10 | 5 |
| 21 | 16 | 118 | 94 | 60 | 9 | 4 | 3 |
| 22 | 19 | 125 | 80 | 41 | 8 | 4 | 3 |
| 23 | 17 | 132 | 71 | 38 | 8 | 4 | 3 |
| 24 | 15 | 190 | 71 | 36 | 7 | 4 | 3 |
| 25 | 17 | 202 | 71 | 33 | 7 | 4 | 3 |
| 26 | 19 | 150 | 71 | 29 | 7 | 4 | 3 |
| 27 | 24 | 162 | 71 | 30 | 6 | 4 | 3 |
| 28 | 30 | 140 | 78 | 27 | 6 | 4 | 3 |
| 29 | 34 | 118 | 85 | 25 | 6 | 4 | 3 |
| 30 | 36 | 103 | 100 | 24 | 6 | 4 | 3 |
| 31 | 30 | | 118 | | 5 | 4 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-------------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| March 20-31 | 36 | 13 | 22.5 | 1.15 | 0.51 | 536 |
| April | 202 | 38 | 99.1 | 5.08 | 5.67 | 5,900 |
| May | 152 | 71 | 93.6 | 4.80 | 5.53 | 5,760 |
| June | 120 | 24 | 54.2 | 2.78 | 3.10 | 3,230 |
| July | 23 | 5 | 12.1 | .621 | .72 | 744 |
| August | 5 | 4 | 4.2 | .215 | .25 | 258 |
| September | 4 | 3 | 3.2 | .164 | .18 | 190 |
| The period | | | | | | 16,600 |

* Discharge estimated or interpolated.

CARIBOU CREEK NEAR MORAVIA, IDAHO¹

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 11, T. 61 N., R. 1 W., 1 mile above road following edge of valley and 2 miles northwest of Moravia.

DRAINAGE AREA.—14 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 113 second-feet Apr. 25; minimum, 2 second-feet Aug. 25-31, Sept. 1-3, 16-30.

1928-1930: Maximum discharge, 234 second-feet May 20, 26, 1928; minimum, 1 second-foot July 31, Aug. 1-31, Sept. 6-10, 1929.

REMARKS.—Records good. Flow at high stages affected by diurnal fluctuations. No diversions above gage. Gage read every other day; discharge estimated on days of missing record; gage not read Oct. 1 to Mar. 21.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-----|------|------|------|-------|
| 1..... | | 41 | 67 | 83 | 16 | 4 | 2 |
| 2..... | | 44 | 73 | 67 | 17 | 4 | 2 |
| 3..... | | 47 | 80 | 59 | 16 | 4 | 2 |
| 4..... | | 54 | 73 | 52 | 15 | 4 | 2 |
| 5..... | | 54 | 70 | 50 | 14 | 3 | 2 |
| 6..... | | 66 | 63 | 51 | 13 | 3 | 2 |
| 7..... | | 77 | 56 | 56 | 12 | 3 | 2 |
| 8..... | | 80 | 48 | 47 | 11 | 3 | 2 |
| 9..... | | 67 | 49 | 40 | 11 | 3 | 2 |
| 10..... | | 64 | 52 | 40 | 10 | 3 | 2 |
| 11..... | | 63 | 56 | 37 | 10 | 3 | 2 |
| 12..... | | 66 | 58 | 34 | 9 | 3 | 2 |
| 13..... | | 80 | 56 | 30 | 9 | 3 | 2 |
| 14..... | | 106 | 62 | 26 | 8 | 3 | 2 |
| 15..... | | 89 | 75 | 24 | 8 | 3 | 2 |
| 16..... | | 74 | 72 | 22 | 7 | 3 | 2 |
| 17..... | | 65 | 67 | 22 | 7 | 3 | 2 |
| 18..... | | 62 | 60 | 21 | 7 | 3 | 2 |
| 19..... | | 60 | 52 | 20 | 6 | 3 | 2 |
| 20..... | | 66 | 85 | 29 | 7 | 4 | 2 |
| 21..... | | 75 | 65 | 35 | 7 | 3 | 2 |
| 22..... | 17 | 82 | 55 | 28 | 6 | 3 | 2 |
| 23..... | 15 | 89 | 47 | 27 | 6 | 3 | 2 |
| 24..... | 14 | 110 | 50 | 26 | 5 | 3 | 2 |
| 25..... | 15 | 113 | 52 | 22 | 5 | 2 | 2 |
| 26..... | 17 | 100 | 51 | 21 | 5 | 2 | 2 |
| 27..... | 26 | 106 | 49 | 22 | 4 | 2 | 2 |
| 28..... | 35 | 92 | 52 | 19 | 4 | 2 | 2 |
| 29..... | 37 | 77 | 56 | 18 | 4 | 2 | 2 |
| 30..... | 38 | 67 | 70 | 17 | 4 | 2 | 2 |
| 31..... | 36 | | 80 | | 4 | 2 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|------------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| March 22-31..... | 38 | 14 | 25.0 | 1.79 | 0.67 | 496 |
| April..... | 113 | 41 | 74.5 | 5.32 | 5.94 | 4,430 |
| May..... | 85 | 47 | 61.3 | 4.38 | 5.07 | 3,770 |
| June..... | 83 | 17 | 34.8 | 2.49 | 2.75 | 2,070 |
| July..... | 17 | 4 | 8.7 | .621 | .72 | 535 |
| August..... | 4 | 2 | 2.9 | .207 | .24 | 175 |
| September..... | 3 | 2 | 2.1 | .150 | .17 | 125 |
| The period..... | | | | | | 11,600 |

¹ Estimated.

MYRTLE CREEK NEAR BONNERS FERRY, IDAHO

LOCATION.—Staff gage in sec. 23, T. 62 N., R. 1 W., 80 feet upstream from power plant of Bonners Ferry Light & Water Co. and $5\frac{1}{2}$ miles west of Bonners Ferry.

DRAINAGE AREA.—37 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 393 second-feet Apr. 24, 25 (gage height, 3.1 feet); minimum, 2.6 second-feet Aug. 13 (gage height, 0.96 foot).
1928–1930: Maximum discharge, 830 second-feet May 21, 24–27, 1928 (gage height, 4.0 feet); minimum, 0.4 second-foot Sept. 6–22, 30, 1929.

REMARKS.—Records good Mar. 31 to June 13; others fair. No flow diverted above station during year for power purposes; a negligible amount is diverted for Bonners Ferry water supply. Gage not read Oct. 1 to Mar. 30.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-----|------|------|------|-------|
| 1..... | | 51 | 206 | 220 | 46 | 10 | 4.4 |
| 2..... | | 55 | 220 | 206 | 48 | 8.8 | 4.6 |
| 3..... | | 60 | 235 | 179 | 46 | 11 | 4.2 |
| 4..... | | 64 | 206 | 164 | 41 | 7.4 | 4.2 |
| 5..... | | 65 | 206 | 147 | 36 | 7.1 | 4.2 |
| 6..... | | 71 | 206 | 154 | 34 | 7.4 | 3.8 |
| 7..... | | 92 | 179 | 166 | 32 | 7.1 | 5.0 |
| 8..... | | 122 | 152 | 154 | 28 | 6.5 | 4.2 |
| 9..... | | 116 | 166 | 138 | 26 | 5.9 | 3.6 |
| 10..... | | 97 | 164 | 142 | 26 | 7.7 | 4.8 |
| 11..... | | 112 | 192 | 124 | 25 | 7.4 | 8.8 |
| 12..... | | 122 | 166 | 104 | 25 | 8.4 | 9.6 |
| 13..... | | 144 | 179 | 103 | 25 | 3.6 | 7.4 |
| 14..... | | 299 | 192 | 84 | 21 | 5.9 | 12 |
| 15..... | | 206 | 250 | 72 | 18 | 4.4 | 11 |
| 16..... | | 166 | 235 | 68 | 16 | 12 | 7.4 |
| 17..... | | 156 | 206 | 70 | 15 | 6.8 | 4.6 |
| 18..... | | 131 | 179 | 66 | 14 | 7.4 | 4.2 |
| 19..... | | 140 | 166 | 59 | 22 | 8.4 | 4.6 |
| 20..... | | 164 | 353 | 114 | 18 | 18 | 4.8 |
| 21..... | | 206 | 206 | 125 | 16 | 10 | 7.7 |
| 22..... | | 250 | 166 | 92 | 14 | 9.2 | 5.6 |
| 23..... | | 266 | 147 | 86 | 12 | 5.9 | 9.2 |
| 24..... | | 353 | 156 | 81 | 12 | 5.3 | 6.8 |
| 25..... | | 373 | 162 | 73 | 11 | 6.2 | 7.1 |
| 26..... | | 299 | 135 | 64 | 11 | 5.0 | 8.4 |
| 27..... | | 334 | 135 | 64 | 10 | 4.0 | 5.0 |
| 28..... | | 282 | 142 | 59 | 9.6 | 5.0 | 6.2 |
| 29..... | | 250 | 166 | 50 | 9.2 | 5.0 | 10 |
| 30..... | | 192 | 206 | 44 | 9.2 | 5.0 | 10 |
| 31..... | 40 | | 220 | | 8.4 | 5.9 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| April..... | 373 | 51 | 175 | 4.73 | 5.28 | 10,400 |
| May..... | 353 | 135 | 180 | 5.14 | 5.93 | 11,700 |
| June..... | 220 | 44 | 109 | 2.95 | 3.29 | 6,490 |
| July..... | 48 | 8.4 | 22.1 | .597 | .69 | 1,360 |
| August..... | 18 | 3.6 | 7.35 | .199 | .23 | 452 |
| September..... | 12 | 3.6 | 6.45 | .174 | .19 | 384 |
| The period..... | | | | | | 30,800 |

BALL CREEK NEAR BONNERS FERRY, IDAHO

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 24, T. 63 N., R. 1 W., three-fourths mile above mouth of creek and 8.2 miles northwest of Bonners Ferry.

DRAINAGE AREA.—27 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 254 second-feet Apr. 24, 25 (gage height, 3.45 feet); minimum, 4 second-feet Aug. 19, 23–31, Sept. 1–10, 13, 14, 16–30 (minimum gage height, 1.94 feet Sept. 4–10).

1928–1930: Maximum discharge, 418 second-feet May 21, 26, 1928; minimum, 4 second-feet Sept. 13, 22–30, Oct. 1, 1928, Aug. 20–31, 1929, Aug. 19, 23–31, Sept. 1–10, 13, 14, 16–30, 1930.

REMARKS.—Records good March to June; others fair. Channel loses water in vicinity of gage by seepage. Diversions for irrigation above station negligible. Gage not read Oct. 1 to Mar. 22.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|-------|
| 1 | | 18 | 142 | 147 | 29 | 6 | 4 |
| 2 | | 21 | 147 | *140 | 29 | 6 | 4 |
| 3 | | 24 | *170 | *132 | 26 | 6 | 4 |
| 4 | | 25 | 142 | 127 | 23 | 6 | 4 |
| 5 | | 24 | 139 | 122 | 23 | 6 | 4 |
| 6 | | 28 | 137 | *125 | 21 | 6 | 4 |
| 7 | | 39 | 127 | *135 | 18 | 6 | 4 |
| 8 | | 51 | 122 | 105 | 18 | 6 | 4 |
| 9 | | 62 | 129 | 92 | 16 | 6 | 4 |
| 10 | | 59 | 132 | 87 | 15 | 6 | 4 |
| 11 | | 56 | 150 | 77 | 15 | 5 | *6 |
| 12 | | 62 | 142 | 70 | 13 | 5 | *5 |
| 13 | | 72 | 134 | 62 | 13 | 6 | 4 |
| 14 | | 145 | 142 | 53 | 12 | 6 | 4 |
| 15 | | 134 | 147 | 50 | 11 | 6 | *5 |
| 16 | | 98 | *160 | 47 | 11 | 6 | 4 |
| 17 | | 90 | 145 | 44 | 10 | 6 | 4 |
| 18 | | 83 | 137 | 39 | 10 | 5 | 4 |
| 19 | | 79 | 134 | 36 | 14 | 4 | 4 |
| 20 | | 90 | 177 | 62 | 12 | 6 | 4 |
| 21 | | 115 | 147 | 58 | 11 | 5 | 4 |
| 22 | | 137 | 127 | 47 | 10 | 5 | 4 |
| 23 | | 8 | 152 | 117 | 45 | 9 | 4 |
| 24 | | 8 | 239 | *105 | 43 | 10 | 4 |
| 25 | | 8 | 239 | 105 | 39 | 9 | 4 |
| 26 | | 8 | 210 | 98 | 39 | 9 | 4 |
| 27 | | 10 | 224 | 101 | 47 | 8 | 4 |
| 28 | | 12 | 177 | 110 | 36 | 8 | 4 |
| 29 | | 15 | 152 | 134 | 32 | 7 | 4 |
| 30 | | 18 | 147 | 152 | 32 | 7 | 4 |
| 31 | | 19 | *170 | | 6 | 4 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| March 23–31 | 19 | 8 | 11.8 | 0.437 | 0.15 | 211 |
| April | 239 | 18 | 102 | 3.78 | 4.22 | 6,070 |
| May | 177 | 98 | 136 | 5.04 | 5.81 | 8,360 |
| June | 147 | 32 | 72.3 | 2.68 | 2.99 | 4,300 |
| July | 29 | 6 | 14.0 | .519 | .60 | 861 |
| August | 6 | 4 | 5.2 | .193 | .22 | 320 |
| September | 6 | 4 | 4.1 | .152 | .17 | 244 |
| The period | | | | | | 20,400 |

* Estimated.

TROUT CREEK NEAR COPELAND, IDAHO

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 10, T. 63 N., R. 1 W., $2\frac{1}{4}$ miles above mouth and $5\frac{1}{2}$ miles southwest of Copeland.

DRAINAGE AREA.—20 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 157 second-feet Apr. 24; minimum (estimated), 2 second-feet Aug. 23-31, Sept. 1-9, 17-22.

1928-1930: Maximum discharge (estimated), 270 second-feet May 23, 1929; minimum, 2 second-feet Sept. 19-30, 1928, Aug. 23-31, Sept. 1-9, 17-22, 1930.

REMARKS.—Records for April fair; others poor. Except on Apr. 4, 5, 7, 9, 11, 12, 14, 17, 24, May 2, 15, July 26, Sept. 22, when gage was read, discharge was estimated on basis of graphical comparison with flow of near-by streams.

Daily and monthly discharge, in second-feet, 1930

| Day | Apr. | May | June | July | Aug. | Sept. | Day | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-----|------|------|------|-------|---------|------|-----|------|------|------|-------|
| 1----- | 20 | 98 | 81 | 19 | 4 | 2 | 16----- | 72 | 85 | 29 | 6 | 4 | 3 |
| 2----- | 23 | 100 | 77 | 19 | 4 | 2 | 17----- | 62 | 82 | 27 | 6 | 3 | 2 |
| 3----- | 25 | 120 | 75 | 16 | 4 | 2 | 18----- | 60 | 81 | 24 | 7 | 3 | 2 |
| 4----- | 26 | 98 | 73 | 14 | 3 | 2 | 19----- | 60 | 80 | 20 | 10 | 3 | 2 |
| 5----- | 30 | 96 | 72 | 14 | 3 | 2 | 20----- | 70 | 90 | 40 | 8 | 4 | 2 |
| 6----- | 34 | 94 | 74 | 12 | 3 | 2 | 21----- | 85 | 81 | 38 | 6 | 3 | 2 |
| 7----- | 39 | 90 | 77 | 10 | 3 | 2 | 22----- | 105 | 75 | 35 | 6 | 3 | 2 |
| 8----- | 50 | 80 | 68 | 10 | 3 | 2 | 23----- | 125 | 69 | 31 | 5 | 2 | 3 |
| 9----- | 54 | 81 | 61 | 9 | 3 | 2 | 24----- | 157 | 66 | 28 | 6 | 2 | 3 |
| 10----- | 50 | 82 | 56 | 8 | 3 | 3 | 25----- | 145 | 66 | 23 | 5 | 2 | 3 |
| 11----- | 55 | 84 | 49 | 8 | 3 | 4 | 26----- | 125 | 64 | 23 | 4 | 2 | 3 |
| 12----- | 57 | 81 | 43 | 7 | 3 | 3 | 27----- | 135 | 66 | 30 | 4 | 2 | 3 |
| 13----- | 70 | 78 | 39 | 7 | 3 | 3 | 28----- | 115 | 70 | 27 | 4 | 2 | 3 |
| 14----- | 94 | 80 | 35 | 7 | 3 | 3 | 29----- | 105 | 75 | 24 | 4 | 2 | 4 |
| 15----- | 82 | 81 | 32 | 7 | 3 | 3 | 30----- | 100 | 81 | 24 | 4 | 2 | 4 |
| | | | | | | | 31----- | | 88 | | 4 | 2 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| April----- | 157 | 20 | 74.3 | 3.72 | 4.15 | 4,420 |
| May----- | 120 | 64 | 82.6 | 4.13 | 4.76 | 5,080 |
| June----- | 81 | 20 | 44.2 | 2.21 | 2.47 | 2,630 |
| July----- | 19 | 4 | 8.3 | .415 | .48 | 510 |
| August----- | 4 | 2 | 2.9 | .145 | .17 | 178 |
| September----- | 4 | 2 | 2.6 | .130 | .14 | 155 |
| The period----- | | | | | | 13,000 |

MISSION CREEK AT COPELAND, IDAHO

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 18, T. 64 N., R. 1 E., 400 feet upstream from trestle on Kootenai Valley branch of Great Northern Railway, and 0.8 mile south of Copeland.

DRAINAGE AREA.—31 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 130 second-feet Apr. 25, 27 (gage height, 1.94 feet); minimum, 4 second-feet Aug. 17, 18, 20–31, Sept. 1–10, 16–22, 24–28; minimum gage height, 0.66 foot Sept. 7–10.

1928–1930: Maximum discharge, 256 second-feet May 12, 1928 (gage height, 3.35 feet); minimum, 3.1 second-feet Sept. 1, 15–18, 1929 (gage height, 0.65 foot).

REMARKS.—Records good. No regulation or diversions above station except as Round Prairie Creek, which flows into Moyie River basin, taps Mission Creek at divide 5 miles above gage and diverts a variable flow dependent upon amount of drift which collects at junction of these creeks. Gage not read Oct. 1 to Mar. 29.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-----|------|------|------|-------|
| 1 | | 25 | 96 | 85 | 20 | 6 | 4 |
| 2 | | 31 | 91 | 83 | 20 | 6 | 4 |
| 3 | | 38 | 92 | 80 | 18 | 6 | 4 |
| 4 | | 40 | 89 | 73 | 18 | 6 | 4 |
| 5 | | 40 | 83 | 65 | 17 | 6 | 4 |
| 6 | | 47 | 78 | 61 | 16 | 6 | 4 |
| 7 | | 65 | 70 | 57 | 15 | 6 | 4 |
| 8 | | 75 | 64 | 50 | 15 | 5 | 4 |
| 9 | | 75 | 61 | 47 | 14 | 5 | 4 |
| 10 | | 62 | 56 | 44 | 13 | 6 | 4 |
| 11 | | 58 | 65 | 40 | 13 | 6 | 6 |
| 12 | | 59 | 58 | 38 | 13 | 6 | 6 |
| 13 | | 82 | 53 | 35 | 13 | 5 | 5 |
| 14 | | 119 | 52 | 33 | 12 | 5 | 5 |
| 15 | | 113 | 50 | 28 | 12 | 5 | 5 |
| 16 | | 96 | 49 | 26 | 11 | 5 | 4 |
| 17 | | 82 | 49 | 24 | 11 | 4 | 4 |
| 18 | | 78 | 47 | 22 | 10 | 4 | 4 |
| 19 | | 75 | 47 | 21 | 15 | 5 | 4 |
| 20 | | 75 | 56 | 34 | 12 | 4 | 4 |
| 21 | | 82 | 65 | 33 | 11 | 4 | 4 |
| 22 | | 91 | 61 | 28 | 10 | 4 | 4 |
| 23 | | 96 | 56 | 25 | 9 | 4 | 5 |
| 24 | | 113 | 52 | 23 | 9 | 4 | 4 |
| 25 | | 126 | 53 | 23 | 8 | 4 | 4 |
| 26 | | 113 | 48 | 22 | 8 | 4 | 4 |
| 27 | | 128 | 45 | 26 | 7 | 4 | 4 |
| 28 | | 117 | 41 | 23 | 7 | 4 | 4 |
| 29 | | 119 | 45 | 23 | 7 | 4 | 5 |
| 30 | 23 | 106 | 67 | 21 | 6 | 4 | 5 |
| 31 | 22 | | 75 | | 6 | 4 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-------------|---------|---------|------|----------------------|
| March 30–31 | | | 22.5 | 89 |
| April | 128 | 25 | 80.9 | 4,810 |
| May | 96 | 41 | 61.7 | 3,790 |
| June | 85 | 21 | 39.8 | 2,370 |
| July | 20 | 6 | 12.1 | 744 |
| August | 6 | 4 | 4.9 | 301 |
| September | 6 | 4 | 4.3 | 256 |
| The period | | | | 12,400 |

ROCK CREEK NEAR COPELAND, IDAHO

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 5, T. 63 N., R. 1 E., at trestle on Kootenai Valley branch of Great Northern Railway 4.7 miles south of Copeland.

DRAINAGE AREA.—14.3 square miles.

RECORDS AVAILABLE.—May, 1928, to August, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 26 second-feet Mar. 29; minimum, 0.3 second-foot Aug. 26-31, Sept. 1, 5, 6, 15-17, 25, 29, 30.

1928-1930: Maximum discharge, 37 second-feet Apr. 27, 1929; minimum, 0.2 second-foot Aug. 20, 1928.

REMARKS.—Records fair. Discharge estimated because of discredited gage heights Mar. 31, Apr. 1, 3-7, 12-14, 16, 17, 26-30, May 21-23. No diversions above station. Gage not read Oct. 1 to Mar. 22.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-----|------|------|------|-------|
| 1. | | 19 | 6 | 6 | 1 | 0.4 | 0.3 |
| 2. | | 18 | 5 | 6 | 2 | .4 | .4 |
| 3. | | 18 | 6 | 6 | 1 | .4 | .4 |
| 4. | | 18 | 9 | 6 | 1 | .4 | .4 |
| 5. | | 18 | 8 | 5 | 1 | .4 | .3 |
| 6. | | 18 | 6 | 4 | 1 | .4 | .3 |
| 7. | | 19 | 5 | 3 | .8 | .4 | .4 |
| 8. | | 20 | 5 | 3 | 1 | .4 | .4 |
| 9. | | 18 | 4 | 2 | .8 | .4 | .3 |
| 10. | | 15 | 4 | 2 | .8 | .4 | .4 |
| 11. | | 13 | 4 | 2 | .7 | .4 | .4 |
| 12. | | 11 | 5 | 2 | .6 | .4 | .4 |
| 13. | | 12 | 5 | 2 | .6 | .4 | .4 |
| 14. | | 16 | 4 | 2 | .6 | .4 | .4 |
| 15. | | 14 | 3 | 2 | .5 | .4 | .3 |
| 16. | | 12 | 3 | 2 | .5 | .4 | .3 |
| 17. | | 10 | 3 | 2 | .5 | .4 | .3 |
| 18. | | 8 | 3 | 2 | .4 | .4 | .4 |
| 19. | | 7 | 4 | 1 | .5 | .4 | .4 |
| 20. | | 7 | 5 | 2 | .9 | .5 | .4 |
| 21. | | 6 | 13 | 3 | .7 | .5 | .4 |
| 22. | | 6 | 7 | 2 | .6 | .4 | .4 |
| 23. | | 10 | 5 | 2 | .5 | .4 | .4 |
| 24. | | 10 | 6 | 4 | 2 | .5 | .4 |
| 25. | | 11 | 8 | 4 | 2 | .4 | .4 |
| 26. | | 11 | 9 | 4 | 2 | .4 | .3 |
| 27. | | 12 | 10 | 3 | 2 | .4 | .3 |
| 28. | | 15 | 9 | 3 | 2 | .4 | .3 |
| 29. | | 26 | 9 | 3 | 2 | .4 | .3 |
| 30. | | 22 | 8 | 7 | 1 | .4 | .3 |
| 31. | | 21 | | 16 | | .4 | .3 |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| March 23-31 | 26 | 10 | 15.3 | 1.07 | 0.36 | 273 |
| April | 20 | 5 | 12.2 | .853 | .95 | 726 |
| May | 16 | 3 | 5.4 | .378 | .44 | 332 |
| June | 6 | 1 | 2.7 | .189 | .21 | 161 |
| July | 2 | .4 | .69 | .048 | .06 | 42 |
| August | .5 | .3 | .39 | .027 | .03 | 24 |
| September | .4 | .3 | .37 | .026 | .03 | 22 |
| The period | | | | | | 1,580 |

BRUSH CREEK NEAR COPELAND, IDAHO

LOCATION.—Staff gage in SE. $\frac{1}{4}$ sec. 19, T. 64 N., R. 1 E., at wooden bridge on valley road paralleling Kootenai Valley branch of Great Northern Railway 1.8 miles south of Copeland.

DRAINAGE AREA.—7.2 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year (estimated), 25 second-feet Mar. 30; minimum discharge (estimated), 0.1 foot Aug. 1 to Sept. 30.

1928-1930: Maximum discharge, 28 second-feet May 1, 1929; no flow June 2, 1929.

REMARKS.—Records poor. Because of unreliable gage-height record daily discharge was estimated from results of discharge measurements for large part of period, especially July to September, and by comparison with records of flow of nearby streams. Small amount of water diverted for irrigation from Brush Lake, about 2 miles above gage; some regulation at outlet of Brush Lake. No records Oct. 1 to Mar. 22.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-------------|---------|---------|------|-------------------------|------|------------|-------|
| 1 | | a 15 | a 1 | 5 | 1 | a .5 .3 | |
| 2 | | 13 | a 1 | 5 | 1 | | |
| 3 | | a 13 | 1 | 2 | 1 | | |
| 4 | | a 14 | a 1 | 9 | 1 | | |
| 5 | | a 14 | a 1 | 7 | | | |
| 6 | | 15 | a 1 | 5 | | | |
| 7 | | 16 | a 1 | 7 | | | |
| 8 | | a 16 | a 1 | 3 | | | |
| 9 | | a 14 | a 1 | a 3 | | | |
| 10 | | a 11 | a 1 | a 2 | | | |
| 11 | | 9 | a 1 | 2 | | a .1 | |
| 12 | | 8 | 1 | 2 | | | |
| 13 | | 7 | 1 | 2 | | | |
| 14 | | 6 | a 1 | 2 | | | |
| 15 | | 5 | a 1 | 2 | | | |
| 16 | | 5 | 1 | 2 | a .2 | a .1 | |
| 17 | | 5 | 1 | 2 | | | |
| 18 | | 8 | 1 | 1 | | | |
| 19 | | a 5 | 1 | 2 | | | |
| 20 | | a 2 | 1 | 2 | | | |
| 21 | | a 3 | 2 | 2 | | .2 | .1 |
| 22 | | a 4 | 2 | 2 | | | |
| 23 | | a 5 | 1 | 2 | | | |
| 24 | | 16 | a 6 | 1 | | | |
| 25 | | 18 | 7 | 2 | | | |
| 26 | | 19 | 6 | 1 | 2 | a .2 | a .1 |
| 27 | | 20 | a 5 | 1 | 2 | | |
| 28 | | 20 | a 4 | 1 | 2 | | |
| 29 | | 21 | a 2 | 2 | 2 | | |
| 30 | | 25 | a 1 | 2 | 2 | | |
| 31 | | a 20 | | 2 | | | |
| Month | Maximum | Minimum | Mean | Run-off in acre-feet | | | |
| March 23-31 | 25 | 14 | 19.2 | 343 | | | |
| April | 16 | 1 | 8.1 | 482 | | | |
| May | 2 | 1 | 1.2 | 74 | | | |
| June | 9 | 1 | 2.9 | 173 | | | |
| July | 1 | | .35 | 20 | | | |
| August | | | .10 | 6.1 | | | |
| September | | | .10 | 6.0 | | | |
| The period | | | | 1,100 | | | |

a Estimated.

PARKER CREEK NEAR COPELAND, IDAHO

LOCATION.—Staff gage in SW. $\frac{1}{4}$ sec. 8, T. 64 N., R. 1 W., at Forest Service bridge $4\frac{1}{4}$ miles west of Copeland.

DRAINAGE AREA.—16.5 square miles.

RECORDS AVAILABLE.—May, 1928, to August, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 133 second-feet Apr. 24 (gage height, 1.60 feet); minimum discharge (estimated), 1 second-foot Sept. 4–6.

1928–1930: Maximum discharge, 162 second-feet May 24, 1928 (gage height 1.65 feet); minimum, that of Sept. 4–6, 1930.

REMARKS.—Records poor. No diversions above station. Gage read about every other day except for period Apr. 24 to May 11, when daily observations were made; discharge estimated for days of missing gage heights by comparison with flow of Long Canyon, Smith, and other near-by creeks. No records Oct. 1 to Mar. 31.

Daily and monthly discharge, in second-feet, 1930

| Day | Apr. | May | June | July | Aug. | Sept. | Day | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|------|------|------|------|-------|-----|-------|------|------|------|------|-------|
| 1 | • 17 | 67 | 72 | 20 | • 4 | 3 | 16 | 95 | 67 | 39 | 11 | 7 | 4 |
| 2 | 18 | 72 | • 66 | • 23 | 4 | • 2 | 17 | • 92 | 67 | • 36 | • 9 | 4 | • 4 |
| 3 | • 22 | 83 | 62 | 20 | 4 | 3 | 18 | 89 | 62 | 34 | 8 | 4 | 3 |
| 4 | • 24 | 72 | • 60 | • 18 | 4 | 1 | 19 | • 89 | • 56 | • 33 | 12 | • 4 | • 3 |
| 5 | • 26 | 62 | 62 | 16 | • 4 | • 1 | 20 | • 90 | 72 | 95 | 11 | 4 | 3 |
| 6 | • 33 | 62 | 72 | 14 | 4 | 1 | 21 | • 100 | • 60 | • 80 | • 10 | • 4 | 3 |
| 7 | • 45 | 59 | 83 | • 14 | • 4 | 4 | 22 | • 112 | 53 | 72 | 9 | 4 | • 3 |
| 8 | • 70 | 53 | 39 | 14 | 4 | • 3 | 23 | • 125 | • 48 | • 55 | • 9 | 4 | 4 |
| 9 | • 65 | 53 | • 80 | • 14 | 3 | 3 | 24 | 133 | 45 | 38 | 8 | • 4 | • 4 |
| 10 | 60 | 53 | 72 | 14 | 4 | • 4 | 25 | 120 | 42 | • 35 | • 8 | 4 | 3 |
| 11 | • 59 | 52 | • 67 | 14 | • 4 | 8 | 26 | 114 | • 43 | 32 | 8 | • 4 | • 3 |
| 12 | • 58 | • 49 | 62 | 12 | 4 | • 6 | 27 | 107 | 48 | • 33 | 6 | 4 | 3 |
| 13 | • 80 | • 47 | • 53 | 12 | • 4 | 4 | 28 | 95 | • 56 | 31 | • 6 | • 4 | 3 |
| 14 | 114 | • 48 | 45 | 12 | 4 | 4 | 29 | 89 | 64 | 24 | 5 | 4 | • 4 |
| 15 | • 100 | 50 | 39 | • 11 | • 3 | • 4 | 30 | 78 | • 72 | • 22 | • 5 | • 3 | 4 |
| | | | | | | | 31 | | 83 | | 5 | • 3 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| April | 133 | 17 | 77.3 | 4.68 | 5.22 | 4,600 |
| May | 83 | 42 | 58.7 | 3.56 | 4.10 | 3,610 |
| June | 95 | 22 | 54.8 | 3.32 | 3.70 | 3,260 |
| July | 23 | 5 | 11.5 | .697 | .80 | 707 |
| August | 7 | 3 | 4.0 | .242 | .28 | 246 |
| September | 8 | 1 | 3.4 | .206 | .23 | 202 |
| The period | | | | | | 12,600 |

• Estimated.

LONG CANYON CREEK NEAR PORT HILL, IDAHO

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 36, T. 65 N., R. 2 W., on Forest Service bridge at mouth of canyon 4 miles southwest of Port Hill.

DRAINAGE AREA.—29 square miles.

RECORDS AVAILABLE.—May, 1923, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 347 second-feet Apr. 24 (gage height, 2.81 feet); minimum, 5.9 second-feet Sept. 5, 6, 20 (gage height, 1.00 foot).

1928-1930: Maximum discharge, 580 second-feet May 23, 1929 (gage height, 3.00 feet); minimum (estimated), 5 second-feet Sept. 13-21, 1929.

REMARKS.—Records good except those estimated June 20-25, which are fair. No diversions above gage. No records obtained Oct. 1 to Mar. 19.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|-----|------|------|------|-------|
| 1..... | | 26 | 181 | 166 | 47 | 12 | 6.4 |
| 2..... | | 29 | 201 | 150 | 51 | 11 | 6.4 |
| 3..... | | 33 | 238 | 138 | 43 | 11 | 6.2 |
| 4..... | | 36 | 198 | 130 | 38 | 11 | 6.2 |
| 5..... | | 37 | 187 | 134 | 36 | 11 | 5.9 |
| 6..... | | | 42 | 184 | 143 | 34 | 10 |
| 7..... | | | 60 | 158 | 158 | 32 | 10 |
| 8..... | | | 86 | 148 | 146 | 30 | 9.8 |
| 9..... | | | 92 | 150 | 130 | 29 | 9.8 |
| 10..... | | | 94 | 153 | 126 | 28 | 10 |
| 11..... | | | | | | | |
| 12..... | | | 95 | 160 | 121 | 28 | 10 |
| 13..... | | | 106 | 146 | 108 | 26 | 9.4 |
| 14..... | | | 130 | 148 | 101 | 25 | 8.7 |
| 15..... | | | 201 | 163 | 89 | 23 | 8.7 |
| 16..... | | | 178 | 190 | 84 | 22 | 8.4 |
| 17..... | | | | | | | |
| 18..... | | | 153 | 198 | 84 | 20 | 9.8 |
| 19..... | | | 138 | 190 | 80 | 20 | 8.7 |
| 20..... | | | 130 | 172 | 73 | 19 | 8.2 |
| 21..... | | | 130 | 153 | 67 | 25 | 7.9 |
| 22..... | | 11 | 143 | 220 | 105 | 22 | 7.9 |
| 23..... | | | | | | | |
| 24..... | | 13 | 175 | 178 | 115 | 20 | 7.9 |
| 25..... | | 15 | 217 | 148 | 92 | 18 | 7.6 |
| 26..... | | 13 | 253 | 134 | 82 | 18 | 7.2 |
| 27..... | | 13 | 328 | 132 | 74 | 16 | 6.9 |
| 28..... | | 13 | 328 | 130 | 66 | 16 | 6.9 |
| 29..... | | | | | | | |
| 30..... | | 14 | 297 | 115 | 60 | 15 | 6.9 |
| 31..... | | 16 | 315 | 115 | 63 | 14 | 6.9 |
| | | 21 | 258 | 134 | 58 | 14 | 6.9 |
| | | 29 | 217 | 155 | 53 | 13 | 6.6 |
| | | 30 | 190 | 178 | 50 | 13 | 6.4 |
| | | 26 | | 184 | | 12 | 6.4 |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|------------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| March 20-31..... | 30 | 11 | 17.8 | 0.614 | 0.27 | 424 |
| April..... | 328 | 26 | 151 | 5.21 | 5.81 | 8,980 |
| May..... | 238 | 115 | 166 | 5.72 | 6.60 | 10,200 |
| June..... | 166 | 60 | 102 | 3.52 | 3.63 | 6,070 |
| July..... | 51 | 12 | 24.7 | .852 | .98 | 1,520 |
| August..... | 12 | 6.4 | 8.71 | .300 | .35 | 536 |
| September..... | 11 | 5.9 | 6.80 | .234 | .26 | 405 |
| The period..... | | | | | | 28,100 |

SMITH CREEK NEAR PORT HILL, IDAHO

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 26, T. 65 N., R. 2 W., at Forest Service bridge 1 mile south of Smith Creek ranger station and 4 miles southwest of Port Hill.

DRAINAGE AREA.—70 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters).

EXTREMES.—Maximum discharge during year, 1,210 second-feet Apr. 24 (gage height, 4.95 feet); minimum, 6.0 second-feet Sept. 10 (gage height, 0.80 foot).
1928-1930: Maximum discharge, 1,480 second-feet May 22, 1929 (gage height, 5.35 feet); minimum, 5.5 second-feet Sept. 15-18, 1929 (gage height, 0.80 foot).

REMARKS.—Records excellent between 20 and 800 second-feet; others good. No diversions above gage. No records Oct. 1 to Nov. 3, Nov. 5 to Mar. 20.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Nov. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-------|-----|------|------|------|-------|
| 1 | | | 90 | 505 | 538 | 82 | 15 | 7.0 |
| 2 | | | 101 | 572 | 439 | 91 | 15 | 7.0 |
| 3 | | | 116 | 695 | 369 | 77 | 14 | 6.8 |
| 4 | | 7.2 | 125 | 548 | 325 | 70 | 14 | 6.6 |
| 5 | | | 132 | 528 | 309 | 66 | 13 | 6.4 |
| 6 | | | 155 | 519 | 312 | 60 | 13 | 6.4 |
| 7 | | | 227 | 403 | 322 | 55 | 12 | 6.8 |
| 8 | | | 373 | 373 | 284 | 52 | 11 | 6.6 |
| 9 | | | 348 | 399 | 245 | 49 | 11 | 6.4 |
| 10 | | | 287 | 392 | 239 | 48 | 11 | 7.2 |
| 11 | | | 315 | 456 | 210 | 47 | 12 | 17 |
| 12 | | | 380 | 395 | 189 | 45 | 11 | 13 |
| 13 | | | 469 | 407 | 173 | 41 | 10 | 11 |
| 14 | | | 829 | 478 | 154 | 38 | 9.5 | 11 |
| 15 | | | 662 | 543 | 144 | 35 | 9.2 | 13 |
| 16 | | | 487 | 519 | 133 | 33 | 13 | 11 |
| 17 | | | 392 | 473 | 125 | 31 | 13 | 8.6 |
| 18 | | | 388 | 411 | 115 | 29 | 10 | 7.6 |
| 19 | | | 407 | 352 | 103 | 37 | 9.8 | 7.0 |
| 20 | | | 500 | 799 | 140 | 36 | 9.8 | 7.0 |
| 21 | | 46 | 646 | 587 | 174 | 35 | 9.8 | 7.0 |
| 22 | | 43 | 770 | 431 | 140 | 29 | 9.5 | 7.4 |
| 23 | | 35 | 829 | 359 | 129 | 26 | 8.3 | 7.6 |
| 24 | | 32 | 1,040 | 345 | 125 | 24 | 7.8 | 7.6 |
| 25 | | 32 | 1,010 | 352 | 112 | 22 | 7.4 | 7.4 |
| 26 | | 36 | 829 | 302 | 103 | 21 | 7.2 | 7.4 |
| 27 | | 44 | 920 | 306 | 103 | 20 | 7.2 | 7.4 |
| 28 | | 57 | 718 | 352 | 97 | 19 | 7.2 | 7.6 |
| 29 | | 76 | 598 | 395 | 83 | 18 | 7.2 | 8.6 |
| 30 | | 92 | 533 | 435 | 83 | 17 | 7.0 | 9.5 |
| 31 | | 86 | | 582 | | 16 | 6.8 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acro-feet |
| March 21-31 | 92 | 32 | 52.6 | 0.751 | 0.31 | 1,150 |
| April | 1,040 | 90 | 489 | 6.99 | 7.80 | 29,100 |
| May | 799 | 302 | 458 | 6.54 | 7.54 | 28,200 |
| June | 538 | 83 | 201 | 2.87 | 3.20 | 12,000 |
| July | 91 | 16 | 40.9 | .584 | .67 | 2,510 |
| August | 15 | 6.8 | 10.4 | .149 | .17 | 640 |
| September | 17 | 6.4 | 8.36 | .119 | .13 | 497 |
| The period | | | | | | 74,100 |

BOUNDARY CREEK NEAR PORT HILL, IDAHO

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 11, T. 65 N., R. 2 W., 140 feet below bridge at mouth of canyon, one-fifth mile south of international boundary, and 3 miles west of Port Hill.

DRAINAGE AREA.—97 square miles.

RECORDS AVAILABLE.—May, 1928, to September, 1930 (except winters). Prior to March, 1929, records were collected at staff-gage site 140 feet upstream.

EXTREMES.—Maximum discharge during year, 950 second-feet Apr. 24 (gage height, 3.50 feet); minimum, 9 second-feet Oct. 31, (gage height, 0.33 foot).

1928-1930: Maximum discharge, 1,600 second-feet May 20, 1928 (gage height, about 4.4 feet present gage or 5.2 feet former gage); minimum, that of Oct. 31, 1929.

REMARKS.—Records good except those estimated Nov. 2, 3, June 7-25 Aug. 30 to Sept. 11, which are fair. No diversions above gage. No records Nov. 5 to Mar. 20.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|-------|-----|-------|------|------|-------|
| 1 | 15 | 16 | ----- | 73 | 510 | 473 | 92 | 21 | 13 |
| 2 | 15 | 16 | ----- | 87 | 539 | 416 | 104 | 20 | 13 |
| 3 | 15 | 15 | ----- | 108 | 613 | 374 | 86 | 21 | 13 |
| 4 | 15 | 14 | ----- | 113 | 539 | 335 | 77 | 20 | 13 |
| 5 | 16 | ----- | ----- | 115 | 534 | 309 | 71 | 20 | 13 |
| 6 | 16 | ----- | ----- | 129 | 496 | 302 | 66 | 20 | 12 |
| 7 | 15 | ----- | ----- | 179 | 420 | 310 | 61 | 20 | 13 |
| 8 | 16 | ----- | ----- | 236 | 395 | 285 | 57 | 18 | 13 |
| 9 | 20 | ----- | ----- | 242 | 395 | 245 | 54 | 18 | 12 |
| 10 | 22 | ----- | ----- | 224 | 399 | 230 | 52 | 20 | 18 |
| 11 | 18 | ----- | ----- | 230 | 424 | 210 | 51 | 20 | 18 |
| 12 | 17 | ----- | ----- | 262 | 395 | 190 | 50 | 20 | 18 |
| 13 | 17 | ----- | ----- | 328 | 407 | 175 | 45 | 18 | 18 |
| 14 | 16 | ----- | ----- | 524 | 446 | 160 | 41 | 17 | 19 |
| 15 | 16 | ----- | ----- | 464 | 487 | 150 | 38 | 18 | 18 |
| 16 | 15 | ----- | ----- | 358 | 482 | 140 | 36 | 26 | 17 |
| 17 | 18 | ----- | ----- | 306 | 451 | 130 | 35 | 23 | 16 |
| 18 | 21 | ----- | ----- | 299 | 412 | 120 | 34 | 18 | 15 |
| 19 | 18 | ----- | ----- | 306 | 366 | 110 | 39 | 18 | 14 |
| 20 | 16 | ----- | ----- | 355 | 671 | 160 | 38 | 18 | 14 |
| 21 | 16 | ----- | 24 | 451 | 634 | 175 | 34 | 18 | 14 |
| 22 | 15 | ----- | 26 | 568 | 469 | 155 | 33 | 18 | 15 |
| 23 | 15 | ----- | 24 | 618 | 412 | 140 | 31 | 16 | 15 |
| 24 | 15 | ----- | 23 | 799 | 378 | 130 | 29 | 16 | 14 |
| 25 | 15 | ----- | 24 | 799 | 386 | 120 | 26 | 15 | 14 |
| 26 | 15 | ----- | 26 | 687 | 347 | 111 | 26 | 15 | 14 |
| 27 | 20 | ----- | 32 | 799 | 324 | 115 | 25 | 14 | 15 |
| 28 | 19 | ----- | 41 | 660 | 343 | 110 | 25 | 14 | 15 |
| 29 | 14 | ----- | 55 | 578 | 374 | 101 | 24 | 14 | 16 |
| 30 | 16 | ----- | 63 | 534 | 416 | 92 | 23 | 14 | 17 |
| 31 | 11 | ----- | 65 | ----- | 492 | ----- | 22 | 14 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|--------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 22 | 11 | 16.4 | 0.169 | 0.19 | 1,010 |
| November 1-4 | 16 | 14 | 15.2 | .167 | .02 | 121 |
| March 21-31 | 65 | 23 | 36.6 | .377 | .15 | 799 |
| April | 799 | 73 | 381 | 3.93 | 4.38 | 22,700 |
| May | 671 | 324 | 450 | 4.64 | 5.35 | 27,700 |
| June | 473 | 92 | 202 | 2.08 | 2.32 | 12,000 |
| July | 104 | 22 | 46.0 | .474 | .55 | 2,830 |
| August | 26 | 14 | 18.1 | .187 | .22 | 1,110 |
| September | 28 | 12 | 15.3 | .158 | .18 | 910 |

CLARK FORK BASIN

CLARK FORK ABOVE MISSOULA, MONT.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 19, T. 13 N., R. 18 W., $1\frac{1}{2}$ miles below mouth of Blackfoot River and 4 miles east of Missoula.

RECORDS AVAILABLE.—March, 1929, to September, 1930.

EXTREMES.—Maximum discharge, 9,200 second-foot Apr. 28 (gauge height, 6.54 feet); minimum, 86 second-foot Jan. 8 (gauge height, 0.52 foot; ice jammed above gauge).

1929-30: Maximum discharge, 10,600 second-feet May 28, 1929 (gauge height, 7.08 feet); minimum, 86 second-feet Jan. 8, 1930 (gauge height, 0.52 foot; ice jammed above gauge).

REMARKS.—Records good except those for ice period, Jan. 9 to Feb. 17, which are fair. Several diversions for irrigation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 1,240 | 1,320 | 1,330 | 843 | 1,010 | 1,480 | 2,380 | 7,610 | 7,100 | 2,100 | 1,170 | 875 |
| 2 | 1,190 | 1,330 | 1,120 | 740 | 1,070 | 1,060 | 2,380 | 7,350 | 6,350 | 2,100 | 1,250 | 1,080 |
| 3 | 1,190 | 1,330 | 1,100 | 660 | 1,010 | 1,370 | 2,600 | 7,870 | 5,870 | 2,100 | 1,190 | 828 |
| 4 | 1,220 | 1,330 | 1,060 | 748 | 1,130 | 1,170 | 3,050 | 8,390 | 5,870 | 2,040 | 975 | 690 |
| 5 | 1,220 | 1,320 | 716 | 843 | 1,200 | 1,400 | 3,290 | 8,390 | 5,420 | 1,840 | 1,170 | 856 |
| 6 | 1,200 | 1,330 | 782 | 555 | 1,370 | 1,370 | 3,290 | 8,130 | 5,000 | 1,840 | 1,100 | 874 |
| 7 | 1,240 | 1,330 | 897 | 224 | 1,450 | 1,260 | 3,530 | 7,610 | 4,800 | 1,730 | 1,100 | 875 |
| 8 | 1,260 | 1,570 | 843 | 239 | 1,690 | 1,400 | 3,700 | 7,100 | 4,800 | 1,660 | 1,090 | 1,080 |
| 9 | 1,330 | 1,450 | 861 | 825 | 1,820 | 1,370 | 3,880 | 6,600 | 5,210 | 1,720 | 1,060 | 1,080 |
| 10 | 1,330 | 1,300 | 915 | 757 | 1,950 | 1,420 | 3,970 | 6,110 | 5,000 | 1,660 | 1,090 | 1,090 |
| 11 | 1,570 | 1,150 | 1,030 | 630 | 1,950 | 1,400 | 3,970 | 5,640 | 5,000 | 1,600 | 1,080 | 1,190 |
| 12 | 1,450 | 1,280 | 1,010 | 660 | 1,950 | 1,660 | 4,060 | 5,320 | 4,900 | 1,720 | 1,030 | 1,300 |
| 13 | 1,310 | 1,320 | 1,060 | 630 | 2,080 | 2,170 | 4,240 | 5,100 | 4,610 | 1,540 | 1,190 | 1,360 |
| 14 | 1,450 | 1,240 | 1,110 | 645 | 2,220 | 2,170 | 4,610 | 5,000 | 4,150 | 1,600 | 1,300 | 1,330 |
| 15 | 1,330 | 1,320 | 1,010 | 622 | 2,220 | 2,040 | 5,210 | 5,100 | 3,790 | 1,540 | 1,300 | 1,280 |
| 16 | 1,330 | 1,330 | 1,050 | 615 | 2,360 | 1,540 | 5,210 | 5,210 | 3,530 | 1,540 | 1,290 | 1,290 |
| 17 | 1,330 | 1,390 | 1,120 | 573 | 2,800 | 1,480 | 5,100 | 5,420 | 3,530 | 1,540 | 1,330 | 1,360 |
| 18 | 1,320 | 1,310 | 1,020 | 585 | 2,750 | 1,540 | 4,700 | 5,640 | 3,370 | 1,480 | 1,330 | 1,190 |
| 19 | 1,330 | 1,390 | 934 | 608 | 2,980 | 1,480 | 4,700 | 5,870 | 3,290 | 1,540 | 1,290 | 1,190 |
| 20 | 1,300 | 1,160 | 934 | 757 | 3,620 | 1,720 | 4,900 | 5,870 | 3,130 | 1,540 | 1,170 | 1,190 |
| 21 | 1,240 | 1,030 | 915 | 740 | 3,290 | 1,910 | 4,900 | 6,110 | 3,130 | 1,480 | 1,200 | 1,190 |
| 22 | 1,190 | 897 | 861 | 740 | 2,820 | 2,170 | 5,210 | 6,350 | 2,820 | 1,420 | 1,100 | 1,190 |
| 23 | 1,260 | 1,100 | 843 | 740 | 2,600 | 2,170 | 5,870 | 6,110 | 2,900 | 1,420 | 1,190 | 1,320 |
| 24 | 1,210 | 1,120 | 934 | 825 | 2,240 | 1,910 | 6,600 | 5,640 | 2,750 | 1,400 | 895 | 1,540 |
| 25 | 1,280 | 1,330 | 906 | 740 | 1,910 | 2,040 | 7,610 | 5,420 | 2,680 | 1,360 | 1,070 | 1,720 |
| 26 | 1,220 | 1,450 | 934 | 660 | 1,720 | 2,450 | 8,390 | 5,320 | 2,520 | 1,340 | 1,040 | 1,600 |
| 27 | 1,310 | 1,510 | 879 | 660 | 1,660 | 2,450 | 8,390 | 5,100 | 2,380 | 1,250 | 1,060 | 1,540 |
| 28 | 1,390 | 1,390 | 808 | 740 | 1,540 | 2,450 | 8,390 | 5,320 | 2,310 | 1,330 | 1,050 | 1,480 |
| 29 | 1,450 | 1,390 | 816 | 791 | ----- | 2,380 | 8,390 | 5,870 | 2,310 | 1,140 | 1,190 | 1,390 |
| 30 | 1,390 | 1,450 | 825 | 825 | ----- | 2,520 | 7,870 | 6,850 | 2,240 | 1,300 | 875 | 1,390 |
| 31 | 1,390 | ----- | 870 | 825 | ----- | 2,680 | ----- | 7,350 | ----- | 1,120 | 875 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|----------------------|
| October | 1,570 | 1,190 | 1,310 | 80,600 |
| November | 1,570 | 897 | 1,310 | 78,000 |
| December | 1,330 | 716 | 961 | 58,500 |
| January | 843 | 224 | 679 | 41,800 |
| February | 3,620 | 1,010 | 2,010 | 112,000 |
| March | 2,680 | 1,060 | 1,790 | 111,000 |
| April | 8,390 | 2,380 | 5,010 | 298,000 |
| May | 8,390 | 5,000 | 6,280 | 386,000 |
| June | 7,100 | 2,240 | 4,030 | 240,000 |
| July | 2,100 | 1,120 | 1,580 | 97,200 |
| August | 1,330 | 875 | 1,130 | 69,500 |
| September | 1,720 | 674 | 1,200 | 71,400 |
| The year | 8,390 | 224 | 2,270 | 1,640,000 |

CLARK FORK BELOW MISSOULA, MONT.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 21, T. 13 N., R. 20 W., 2 miles below mouth of Bitterroot River and 6 miles west of Missoula.

RECORDS AVAILABLE.—October, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 17,500 second-feet Apr. 26 (gage height, 6.32 feet); minimum, 710 second-feet Jan. 16 (gage height, 0.68 foot).

REMARKS.—Records excellent for open water and good for other periods. Numerous diversions above station.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|-------|-------|-------|-------|-------|-------|---------|---------|--------|-------|-------------------------|-------|
| 1..... | 1,800 | 2,160 | 2,160 | 2,240 | 1,810 | 2,410 | 3,700 | 13,000 | 15,200 | 4,640 | 1,570 | 1,230 |
| 2..... | 2,090 | 2,240 | 1,890 | 2,110 | 1,990 | 2,240 | 4,040 | 12,600 | 13,000 | 4,520 | 1,690 | 1,420 |
| 3..... | 2,020 | 2,160 | 1,690 | 1,880 | 2,110 | 1,990 | 4,160 | 13,400 | 11,700 | 4,400 | 1,630 | 1,380 |
| 4..... | 2,060 | 2,240 | 1,600 | 2,010 | 2,240 | 2,020 | 4,770 | 15,200 | 10,900 | 4,400 | 1,460 | 1,060 |
| 5..... | 2,020 | 2,160 | 1,640 | 2,240 | 2,320 | 2,240 | 5,020 | 14,800 | 10,100 | 4,160 | 1,560 | 1,230 |
| 6..... | 2,060 | 2,160 | 1,940 | 1,990 | 2,670 | 2,320 | 5,160 | 13,900 | 9,720 | 3,920 | 1,540 | 1,220 |
| 7..... | 1,990 | 2,240 | 2,240 | 1,390 | 2,670 | 2,410 | 5,700 | 13,400 | 10,500 | 3,260 | 1,560 | 1,200 |
| 8..... | 2,020 | 2,320 | 2,160 | 1,150 | 2,760 | 2,240 | 6,760 | 12,600 | 12,100 | 3,470 | 1,520 | 1,300 |
| 9..... | 2,090 | 2,320 | 2,240 | 1,200 | 2,860 | 2,240 | 7,580 | 11,300 | 12,600 | 3,260 | 1,480 | 1,500 |
| 10..... | 2,240 | 2,320 | 2,320 | 1,240 | 2,670 | 2,240 | 7,920 | 10,100 | 12,100 | 3,260 | 1,540 | 1,630 |
| 11..... | 2,040 | 1,890 | 2,670 | 1,100 | 2,760 | 2,240 | 7,920 | 9,340 | 12,100 | 3,260 | 1,540 | 1,770 |
| 12..... | 2,240 | 2,110 | 2,670 | 1,190 | 2,500 | 2,580 | 8,090 | 8,790 | 12,600 | 3,260 | 1,560 | 2,010 |
| 13..... | 2,070 | 2,140 | 2,860 | 1,120 | 2,410 | 3,150 | 8,610 | 8,610 | 10,900 | 3,360 | 1,660 | 2,320 |
| 14..... | 1,990 | 2,090 | 2,950 | 1,080 | 2,240 | 3,050 | 9,720 | 8,970 | 9,340 | 2,860 | 1,930 | 2,410 |
| 15..... | 2,020 | 2,060 | 3,050 | 1,060 | 2,240 | 2,950 | 10,900 | 9,720 | 8,440 | 2,860 | 1,990 | 2,410 |
| 16..... | 2,070 | 2,130 | 3,260 | 1,060 | 2,580 | 2,500 | 10,900 | 10,500 | 7,920 | 2,760 | 1,990 | 2,320 |
| 17..... | 2,040 | 2,160 | 3,360 | 1,020 | 3,260 | 2,500 | 9,720 | 10,900 | 8,260 | 2,680 | 2,020 | 2,320 |
| 18..... | 2,040 | 2,160 | 2,950 | 1,010 | 3,580 | 2,410 | 8,790 | 11,700 | 8,090 | 2,600 | 2,020 | 2,410 |
| 19..... | 2,020 | 2,130 | 2,670 | 1,040 | 4,400 | 2,320 | 8,440 | 12,100 | 7,420 | 2,410 | 1,990 | 2,010 |
| 20..... | 2,070 | 2,020 | 2,670 | 1,090 | 4,520 | 2,670 | 8,610 | 11,700 | 6,920 | 2,410 | 1,910 | 2,090 |
| 21..... | 2,010 | 1,710 | 2,580 | 1,090 | 4,520 | 2,860 | 8,790 | 12,600 | 6,920 | 2,320 | 1,860 | 2,060 |
| 22..... | 1,990 | 1,500 | 2,500 | 1,090 | 3,920 | 3,260 | 9,720 | 13,400 | 6,920 | 2,240 | 1,810 | 2,010 |
| 23..... | 1,990 | 1,620 | 2,410 | 1,100 | 3,700 | 3,470 | 12,100 | 12,100 | 6,600 | 2,160 | 1,770 | 2,160 |
| 24..... | 2,010 | 1,780 | 2,580 | 1,170 | 3,470 | 3,360 | 14,300 | 10,900 | 6,300 | 2,090 | 1,680 | 2,320 |
| 25..... | 2,020 | 2,070 | 2,500 | 1,250 | 3,050 | 3,260 | 16,600 | 10,500 | 6,000 | 1,990 | 1,540 | 2,580 |
| 26..... | 2,020 | 2,240 | 2,500 | 1,290 | 2,760 | 4,040 | 17,500 | 10,100 | 5,700 | 1,990 | 1,480 | 2,500 |
| 27..... | 2,110 | 2,320 | 2,410 | 1,390 | 2,580 | 4,040 | 16,600 | 9,720 | 5,420 | 1,940 | 1,450 | 2,500 |
| 28..... | 2,160 | 2,240 | 2,320 | 1,460 | 2,500 | 3,920 | 16,100 | 10,900 | 5,290 | 1,930 | 1,390 | 2,410 |
| 29..... | 2,160 | 2,160 | 2,240 | 1,500 | ----- | 3,810 | 15,700 | 12,600 | 5,290 | 1,750 | 1,360 | 2,410 |
| 30..... | 2,160 | 2,190 | 2,240 | 1,570 | ----- | 3,920 | 14,300 | 15,200 | 4,900 | 1,800 | 1,300 | 2,320 |
| 31..... | 2,240 | ----- | 2,240 | 1,680 | ----- | 3,920 | ----- | 16,600 | ----- | 1,680 | 1,300 | ----- |
| Month | | | | | | | Maximum | Minimum | Mean | | Run-off in acre-feet | |
| October..... | | | | | | | 2,240 | 1,800 | 2,060 | | 127,000 | |
| November..... | | | | | | | 2,320 | 1,500 | 2,100 | | 125,000 | |
| December..... | | | | | | | 3,360 | 1,600 | 2,440 | | 150,000 | |
| January..... | | | | | | | 2,240 | 1,010 | 1,380 | | 84,800 | |
| February..... | | | | | | | 4,520 | 1,810 | 2,900 | | 161,000 | |
| March..... | | | | | | | 4,040 | 1,990 | 2,860 | | 176,000 | |
| April..... | | | | | | | 17,500 | 3,700 | 9,610 | | 572,000 | |
| May..... | | | | | | | 16,600 | 8,610 | 11,800 | | 726,000 | |
| June..... | | | | | | | 15,200 | 4,900 | 8,980 | | 534,000 | |
| July..... | | | | | | | 4,640 | 1,680 | 2,890 | | 178,000 | |
| August..... | | | | | | | 2,020 | 1,300 | 1,650 | | 101,000 | |
| September..... | | | | | | | 2,580 | 1,060 | 1,950 | | 116,000 | |
| The year..... | | | | | | | 17,500 | 1,010 | 4,220 | | 3,050,000 | |

CLARK FORK AT ST. REGIS, MONT.

LOCATION.—Staff gage in sec. 19, T. 18 N., R. 27 W., at St. Regis, half a mile below mouth of St. Regis River.

DRAINAGE AREA.—10,500 square miles.

RECORDS AVAILABLE.—October, 1910, to September, 1923; February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 21,800 second-feet Apr. 27 (gage height, 11.20 feet); minimum (estimated), 1,430 second-feet Jan. 22; ice on control.

1910-1923, 1929-30: Maximum discharge, 62,800 second-feet May 20-31, 1913 (gage height, 19.1 feet); minimum, 1,060 second-feet Feb. 19-22, 1929; ice on control.

REMARKS.—Records for open channel good; others fair. Discharge estimated Jan. 6 to Feb. 28 because of ice. Numerous diversions from tributaries above station.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|-------|-------|-------|-------|-------|-------|---------|---------|--------|----------------------|-------|-------|
| 1..... | 2,210 | 2,700 | 2,440 | 2,700 | 2,700 | 3,130 | 5,900 | 17,000 | 18,800 | 6,340 | 2,440 | 2,100 |
| 2..... | 2,320 | 2,570 | 2,440 | 2,700 | 2,840 | 2,980 | 6,120 | 16,600 | 16,200 | 6,120 | 2,320 | 1,890 |
| 3..... | 2,440 | 2,570 | 2,440 | 2,700 | 2,980 | 2,840 | 6,340 | 17,300 | 14,800 | 5,900 | 2,320 | 2,210 |
| 4..... | 2,440 | 2,570 | 2,440 | 2,570 | 3,130 | 2,840 | 6,560 | 18,400 | 13,800 | 5,680 | 2,210 | 1,990 |
| 5..... | 2,440 | 2,700 | 2,570 | 2,440 | 3,280 | 2,980 | 7,000 | 18,800 | 13,200 | 5,470 | 2,210 | 1,790 |
| 6..... | 2,440 | 2,570 | 2,440 | 2,320 | 3,610 | 2,980 | 7,720 | 18,000 | 12,600 | 5,260 | 2,210 | 1,890 |
| 7..... | 2,440 | 2,570 | 2,700 | 2,210 | 3,780 | 2,980 | 9,200 | 17,300 | 12,000 | 5,050 | 2,210 | 1,890 |
| 8..... | 2,440 | 2,570 | 2,700 | 2,100 | 4,120 | 2,980 | 10,200 | 16,600 | 12,900 | 4,850 | 2,100 | 1,890 |
| 9..... | 2,440 | 2,440 | 2,700 | 2,100 | 3,950 | 2,840 | 11,100 | 15,200 | 13,800 | 4,480 | 2,100 | 1,890 |
| 10..... | 2,440 | 2,440 | 2,700 | 2,210 | 3,610 | 2,980 | 11,400 | 13,800 | 14,500 | 4,480 | 2,100 | 1,990 |
| 11..... | 2,840 | 2,440 | 2,980 | 2,210 | 3,440 | 3,130 | 11,700 | 12,900 | 14,500 | 4,300 | 2,100 | 2,320 |
| 12..... | 2,980 | 2,440 | 3,280 | 2,210 | 3,280 | 3,280 | 12,000 | 12,000 | 14,800 | 4,300 | 2,210 | 2,440 |
| 13..... | 2,700 | 2,440 | 3,610 | 2,210 | 3,130 | 3,440 | 12,000 | 11,400 | 13,800 | 3,950 | 2,320 | 2,570 |
| 14..... | 2,440 | 2,440 | 3,950 | 2,100 | 2,980 | 3,610 | 13,800 | 11,700 | 12,600 | 3,780 | 2,700 | 2,840 |
| 15..... | 2,210 | 2,440 | 4,120 | 1,990 | 3,280 | 3,780 | 14,800 | 12,300 | 10,800 | 3,950 | 2,700 | 2,980 |
| 16..... | 2,210 | 2,440 | 3,950 | 1,890 | 3,610 | 3,610 | 15,200 | 13,500 | 9,970 | 3,780 | 2,570 | 2,980 |
| 17..... | 2,210 | 2,440 | 3,780 | 1,790 | 3,950 | 3,440 | 13,800 | 13,800 | 9,970 | 3,610 | 2,570 | 2,840 |
| 18..... | 2,210 | 2,380 | 3,610 | 1,790 | 4,480 | 3,130 | 12,900 | 14,500 | 9,700 | 3,440 | 2,700 | 2,840 |
| 19..... | 2,320 | 2,320 | 3,440 | 1,700 | 4,850 | 3,280 | 12,300 | 14,800 | 9,700 | 3,280 | 2,570 | 2,840 |
| 20..... | 2,320 | 2,260 | 3,280 | 1,600 | 4,660 | 3,610 | 12,000 | 15,200 | 8,950 | 3,280 | 2,570 | 2,700 |
| 21..... | 2,210 | 2,210 | 3,130 | 1,520 | 4,660 | 3,780 | 12,300 | 15,200 | 8,700 | 3,280 | 2,440 | 2,700 |
| 22..... | 2,210 | 2,210 | 2,980 | 1,430 | 4,480 | 3,950 | 13,500 | 15,600 | 8,950 | 3,280 | 2,440 | 2,700 |
| 23..... | 2,320 | 2,100 | 2,980 | 1,580 | 4,300 | 4,120 | 14,800 | 15,600 | 8,200 | 2,980 | 2,440 | 2,700 |
| 24..... | 2,440 | 1,990 | 2,980 | 1,720 | 4,120 | 4,120 | 18,000 | 13,800 | 7,960 | 2,980 | 2,210 | 2,840 |
| 25..... | 2,440 | 2,210 | 2,980 | 1,860 | 3,950 | 4,300 | 19,900 | 13,200 | 7,720 | 2,980 | 1,990 | 2,980 |
| 26..... | 2,440 | 2,320 | 2,840 | 1,990 | 3,950 | 4,660 | 21,800 | 12,900 | 7,480 | 2,840 | 1,990 | 2,980 |
| 27..... | 2,440 | 2,440 | 2,840 | 2,100 | 3,780 | 4,120 | 21,800 | 12,300 | 7,240 | 2,700 | 1,990 | 2,980 |
| 28..... | 2,440 | 2,320 | 2,840 | 2,210 | 3,440 | 5,260 | 20,300 | 12,600 | 7,000 | 2,700 | 1,990 | 2,980 |
| 29..... | 2,570 | 2,320 | 2,700 | 2,320 | ----- | 5,900 | 20,600 | 14,500 | 6,780 | 2,700 | 1,990 | 2,840 |
| 30..... | 2,700 | 2,440 | 2,700 | 2,320 | ----- | 5,900 | 18,800 | 15,500 | 6,560 | 2,570 | 1,990 | 2,980 |
| 31..... | 2,440 | ----- | 2,700 | 2,440 | ----- | 6,120 | ----- | 17,700 | ----- | 2,440 | 1,990 | ----- |
| Month | | | | | | | Maximum | Minimum | Mean | Run-off in acre-feet | | |
| October..... | | | | | | | 2,980 | 2,210 | 2,430 | 149,000 | | |
| November..... | | | | | | | 2,700 | 1,990 | 2,410 | 143,000 | | |
| December..... | | | | | | | 4,120 | 2,440 | 3,010 | 185,000 | | |
| January..... | | | | | | | 2,700 | 1,430 | 2,100 | 129,000 | | |
| February..... | | | | | | | 4,850 | 2,700 | 3,730 | 207,000 | | |
| March..... | | | | | | | 6,120 | 2,840 | 3,740 | 230,000 | | |
| April..... | | | | | | | 21,800 | 5,900 | 13,100 | 780,000 | | |
| May..... | | | | | | | 18,800 | 11,400 | 14,800 | 910,000 | | |
| June..... | | | | | | | 18,800 | 6,560 | 11,100 | 660,000 | | |
| July..... | | | | | | | 6,340 | 2,440 | 3,960 | 243,000 | | |
| August..... | | | | | | | 2,700 | 1,990 | 2,280 | 140,000 | | |
| September..... | | | | | | | 2,980 | 1,790 | 2,520 | 150,000 | | |
| The year..... | | | | | | | 21,800 | 1,430 | 5,430 | 3,930,000 | | |

CLARK FORK NEAR PLAINS, MONT.

LOCATION.—Water-stage recorder on lot 7, sec. 7, T. 19 N., R. 26 W., 3 miles above Plains and 7 miles below mouth of Flathead River.

DRAINAGE AREA.—19,900 square miles.

RECORDS AVAILABLE.—October, 1910, to September, 1930.

EXTREMES.—Maximum discharge during year, 47,300 second-feet June 1 (gage height, 10.80 feet); minimum (estimated), 3,860 second-feet Jan. 18; ice on control.

1910-1930: Maximum discharge, 126,000 second-feet May 28, 1928 (gage height, 18.4 feet); minimum, that of Jan. 18, 1930.

REMARKS.—Records good except those during period Jan. 11 to Feb. 24, which are estimated and are fair. Numerous diversions for irrigation above station. Flow somewhat regulated by natural storage in Flathead Lake.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| 1..... | 5,690 | 5,180 | 4,750 | 5,070 | 4,550 | 5,420 | 8,020 | 42,200 | 47,300 | 27,400 | 11,000 | 6,470 |
| 2..... | 5,690 | 5,070 | 4,750 | 5,180 | 4,550 | 5,420 | 7,810 | 42,200 | 46,400 | 26,700 | 10,500 | 6,140 |
| 3..... | 5,560 | 4,960 | 4,650 | 5,070 | 4,650 | 5,180 | 7,810 | 42,200 | 44,700 | 26,000 | 10,000 | 6,300 |
| 4..... | 5,420 | 5,070 | 4,460 | 4,850 | 4,960 | 5,070 | 8,230 | 43,900 | 43,900 | 24,700 | 10,300 | 6,140 |
| 5..... | 5,420 | 4,960 | 4,460 | 4,850 | 5,180 | 5,070 | 9,120 | 46,400 | 43,900 | 24,000 | 10,000 | 5,990 |
| 6..... | 5,420 | 5,070 | 4,460 | 4,850 | 5,990 | 5,180 | 9,810 | 45,600 | 43,000 | 24,000 | 9,580 | 5,990 |
| 7..... | 5,420 | 4,960 | 4,460 | 4,750 | 6,300 | 5,180 | 10,700 | 46,400 | 42,200 | 22,700 | 9,580 | 5,840 |
| 8..... | 5,420 | 4,960 | 4,650 | 4,460 | 6,640 | 5,180 | 12,000 | 45,600 | 43,000 | 22,000 | 9,350 | 5,990 |
| 9..... | 5,420 | 4,960 | 4,750 | 4,370 | 6,470 | 5,180 | 14,000 | 43,900 | 43,900 | 21,400 | 9,120 | 5,840 |
| 10..... | 5,420 | 4,960 | 4,750 | 4,280 | 6,140 | 5,070 | 15,600 | 42,200 | 45,600 | 20,800 | 8,900 | 5,990 |
| 11..... | 5,420 | 4,960 | 4,750 | 4,200 | 6,140 | 5,070 | 16,100 | 40,600 | 44,700 | 20,100 | 8,670 | 6,140 |
| 12..... | 5,300 | 4,860 | 5,070 | 4,120 | 5,840 | 5,180 | 17,200 | 39,800 | 44,700 | 19,500 | 8,670 | 6,470 |
| 13..... | 5,300 | 4,750 | 5,180 | 4,120 | 5,990 | 5,180 | 18,400 | 39,000 | 44,700 | 18,900 | 8,670 | 6,300 |
| 14..... | 5,420 | 4,750 | 5,300 | 4,050 | 5,840 | 5,560 | 20,100 | 38,200 | 43,000 | 18,900 | 8,450 | 6,300 |
| 15..... | 5,300 | 4,750 | 5,690 | 3,920 | 5,690 | 5,840 | 22,700 | 38,200 | 42,200 | 17,800 | 8,450 | 6,470 |
| 16..... | 5,300 | 4,750 | 5,990 | 3,920 | 5,690 | 5,690 | 24,700 | 38,230 | 40,600 | 17,200 | 8,450 | 6,470 |
| 17..... | 5,180 | 4,750 | 6,140 | 3,920 | 6,140 | 5,840 | 25,300 | 38,200 | 39,000 | 16,700 | 8,670 | 6,470 |
| 18..... | 5,180 | 4,750 | 6,140 | 3,860 | 6,640 | 5,180 | 25,300 | 39,000 | 38,200 | 16,100 | 8,450 | 6,470 |
| 19..... | 5,180 | 4,860 | 5,990 | 3,920 | 7,200 | 5,300 | 25,300 | 39,800 | 37,500 | 15,600 | 8,230 | 6,470 |
| 20..... | 5,180 | 4,750 | 5,690 | 3,980 | 7,200 | 5,180 | 25,300 | 39,800 | 36,000 | 15,000 | 8,230 | 6,300 |
| 21..... | 5,180 | 4,750 | 5,560 | 3,980 | 7,200 | 5,300 | 26,000 | 40,600 | 35,200 | 15,000 | 8,020 | 6,300 |
| 22..... | 5,180 | 4,550 | 5,420 | 4,010 | 7,010 | 5,690 | 27,400 | 41,400 | 34,500 | 15,000 | 7,810 | 6,140 |
| 23..... | 5,180 | 4,460 | 5,300 | 4,050 | 6,640 | 5,840 | 28,700 | 42,200 | 34,500 | 14,500 | 7,810 | 6,300 |
| 24..... | 5,180 | 4,650 | 5,180 | 4,120 | 6,640 | 6,140 | 32,300 | 41,400 | 33,000 | 14,000 | 7,400 | 6,470 |
| 25..... | 5,180 | 4,550 | 5,300 | 4,200 | 6,300 | 6,140 | 36,000 | 40,600 | 32,300 | 13,500 | 7,400 | 6,640 |
| 26..... | 5,180 | 4,650 | 5,300 | 4,200 | 5,990 | 6,300 | 39,000 | 39,800 | 31,600 | 13,000 | 7,010 | 6,820 |
| 27..... | 5,300 | 4,750 | 5,300 | 4,200 | 5,840 | 6,820 | 41,400 | 39,800 | 30,100 | 12,400 | 6,820 | 6,820 |
| 28..... | 5,420 | 4,750 | 5,300 | 4,370 | 5,560 | 7,400 | 42,200 | 39,000 | 29,400 | 12,400 | 6,820 | 6,640 |
| 29..... | 5,300 | 4,750 | 5,180 | 4,460 | ----- | 7,600 | 43,000 | 39,800 | 28,700 | 12,000 | 6,820 | 6,640 |
| 30..... | 5,300 | 4,750 | 5,180 | 4,550 | ----- | 7,810 | 43,000 | 42,200 | 28,000 | 12,000 | 6,640 | 6,640 |
| 31..... | 5,180 | ----- | 5,070 | 4,550 | ----- | 8,230 | ----- | 44,700 | ----- | 11,500 | 6,470 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|--------|-------------------------|
| October..... | 5,690 | 5,180 | 5,330 | 328,000 |
| November..... | 5,180 | 4,460 | 4,820 | 287,000 |
| December..... | 6,140 | 4,460 | 5,160 | 317,000 |
| January..... | 5,180 | 3,860 | 4,340 | 267,000 |
| February..... | 7,200 | 4,550 | 6,040 | 335,000 |
| March..... | 8,230 | 5,070 | 5,780 | 355,000 |
| April..... | 43,000 | 7,810 | 22,800 | 1,360,000 |
| May..... | 46,400 | 38,200 | 41,400 | 2,550,000 |
| June..... | 47,300 | 28,000 | 39,100 | 2,330,000 |
| July..... | 27,400 | 11,500 | 18,100 | 1,110,000 |
| August..... | 11,000 | 6,470 | 8,460 | 520,000 |
| September..... | 6,820 | 5,840 | 6,330 | 377,000 |
| The year..... | 47,300 | 3,860 | 14,000 | 10,100,000 |

CLARK FORK NEAR HERON, MONT.

LOCATION.—Water-stage recorder in sec. 28, T. 27 N., R. 34 E., 600 feet above Dead Horse Creek and $1\frac{1}{2}$ miles northwest of Heron.

RECORDS AVAILABLE.—September, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 51,400 second-feet June 2 (gage height, 16.3 feet); minimum, 1,640 second-feet as measured Jan. 13 during period of ice effect (gage height, -1.19 feet).

1928-1930: Maximum discharge, 72,600 second-feet May 27, 1929 (gage height, 21.5 feet); minimum, that of Jan. 13, 1930.

Maximum stage known, 49.1 feet June, 1894.

REMARKS.—Records excellent for October and April to August; others good except those estimated Nov. 12-25, Jan. 14-31, Feb. 1-19, which are fair. Power-plant operation at Thompson Falls causes considerable diurnal fluctuation during low-water periods. Considerable water diverted for irrigation from tributaries upstream.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----------------|-------|-------|-------|-------|--------|---------|---------|--------|--------|----------------------|--------|-------|
| 1.----- | 6,710 | 6,370 | 5,560 | 6,880 | 5,000 | 7,980 | 11,800 | 46,800 | 50,200 | 29,900 | 12,900 | 7,180 |
| 2.----- | 6,710 | 6,370 | 5,260 | 5,410 | | 7,060 | 12,000 | 46,100 | 50,600 | 28,600 | 12,500 | 6,670 |
| 3.----- | 6,710 | 5,880 | 5,560 | 6,710 | 5,500 | 5,410 | 12,000 | 46,400 | 49,800 | 27,000 | 11,800 | 6,500 |
| 4.----- | 6,540 | 5,260 | 5,560 | 6,040 | | 6,710 | 12,200 | 48,300 | 48,300 | 26,700 | 11,800 | 6,500 |
| 5.----- | 6,710 | 6,040 | 5,110 | 6,040 | 6,500 | 6,710 | 12,900 | 50,200 | 48,000 | 26,400 | 11,600 | 7,010 |
| 6.----- | 6,200 | 6,200 | 5,110 | 4,960 | | 6,370 | 13,600 | 50,600 | 47,200 | 26,100 | 11,300 | 7,540 |
| 7.----- | 5,260 | 6,200 | 6,040 | 6,710 | 6,000 | 6,710 | 15,400 | 49,800 | 46,400 | 25,200 | 11,100 | 7,010 |
| 8.----- | 6,200 | 5,880 | 6,040 | 6,200 | | 7,240 | 18,000 | 49,500 | 46,100 | 24,000 | 10,700 | 6,180 |
| 9.----- | 6,540 | 7,060 | 5,560 | 5,560 | 6,500 | 7,420 | 19,300 | 48,300 | 46,800 | 23,400 | 10,500 | 6,500 |
| 10.----- | 6,040 | 6,040 | 5,720 | 4,820 | | 6,040 | 20,200 | 46,800 | 48,000 | 22,800 | 10,700 | 6,670 |
| 11.----- | 6,540 | 6,040 | 6,200 | 4,400 | 7,000 | 6,040 | 21,000 | 45,700 | 48,000 | 22,500 | 10,300 | 6,500 |
| 12.----- | 6,880 | 5,560 | 4,680 | 4,140 | | 6,880 | 21,900 | 44,600 | 48,000 | 21,600 | 9,650 | 6,840 |
| 13.----- | 6,370 | | 3,640 | 3,180 | 6,500 | 6,710 | 23,700 | 42,700 | 48,000 | 21,600 | 9,650 | 7,360 |
| 14.----- | 5,720 | | 6,540 | | | 7,060 | 26,700 | 42,000 | 47,200 | 20,700 | 10,100 | 7,360 |
| 15.----- | 6,200 | 5,500 | 7,240 | | 9,780 | 7,060 | 28,600 | 41,300 | 45,700 | 20,200 | 9,650 | 6,840 |
| 16.----- | 6,200 | | 6,880 | 4,300 | | 7,240 | 29,600 | 42,000 | 44,200 | 19,100 | 9,450 | 7,180 |
| 17.----- | 6,200 | | 6,880 | | 6,600 | 7,240 | 30,200 | 46,400 | 42,400 | 18,500 | 9,850 | 7,010 |
| 18.----- | 6,200 | 5,400 | 6,880 | | 7,000 | 7,060 | 29,600 | 42,700 | 41,600 | 17,700 | 9,850 | 7,010 |
| 19.----- | 6,200 | | 7,420 | | 8,000 | 6,880 | 29,600 | 43,500 | 40,900 | 17,700 | 9,650 | 7,360 |
| 20.----- | 6,040 | | 7,420 | | 9,780 | 6,370 | 29,300 | 44,600 | 40,200 | 17,200 | 9,250 | 7,720 |
| 21.----- | 5,720 | | 7,240 | | 11,300 | 6,540 | 29,900 | 45,700 | 39,100 | 16,900 | 9,450 | 7,010 |
| 22.----- | 6,200 | 5,200 | 4,960 | | 12,200 | 7,420 | 31,600 | 45,700 | 38,100 | 16,600 | 9,250 | 6,180 |
| 23.----- | 6,040 | | 5,880 | | 9,780 | 7,980 | 34,600 | 46,400 | 37,700 | 16,400 | 9,450 | 7,360 |
| 24.----- | 6,040 | 5,000 | 7,240 | | 9,780 | 7,600 | 37,700 | 46,400 | 36,700 | 15,900 | 8,550 | 7,540 |
| 25.----- | 5,720 | 5,000 | 5,560 | 4,000 | 9,160 | 8,560 | 40,900 | 45,300 | 35,600 | 15,400 | 7,900 | 6,840 |
| 26.----- | 6,370 | 5,410 | 5,720 | | 8,760 | 8,360 | 44,200 | 43,800 | 34,600 | 14,800 | 7,720 | 6,500 |
| 27.----- | 6,040 | 5,560 | 6,710 | | 8,960 | 8,760 | 46,400 | 43,500 | 33,600 | 14,400 | 7,900 | 7,720 |
| 28.----- | 5,560 | 5,260 | 6,540 | | 8,960 | 9,960 | 47,600 | 43,100 | 32,900 | 14,100 | 7,720 | 7,360 |
| 29.----- | 6,040 | 5,410 | 6,540 | | ----- | 10,400 | 48,000 | 43,100 | 31,600 | 13,900 | 7,900 | 6,840 |
| 30.----- | 6,200 | 5,560 | 5,560 | 4,400 | ----- | 11,300 | 47,600 | 45,000 | 30,900 | 13,600 | 9,050 | 7,540 |
| 31.----- | 6,540 | ----- | 6,040 | ----- | ----- | 11,100 | ----- | 47,600 | ----- | 13,400 | 8,090 | ----- |
| Month | | | | | | Maximum | Minimum | Mean | | Run-off in acre-feet | | |
| October.----- | | | | | | 6,880 | 5,260 | 6,210 | | 382,000 | | |
| November.----- | | | | | | 7,060 | 5,000 | 5,640 | | 336,000 | | |
| December.----- | | | | | | 7,420 | 3,640 | 6,040 | | 371,000 | | |
| January.----- | | | | | | 6,880 | 3,180 | 4,720 | | 290,000 | | |
| February.----- | | | | | | 12,200 | ----- | 7,430 | | 413,000 | | |
| March.----- | | | | | | 11,300 | 5,410 | 7,550 | | 464,000 | | |
| April.----- | | | | | | 48,000 | 11,800 | 27,500 | | 1,640,000 | | |
| May.----- | | | | | | 50,600 | 41,300 | 45,600 | | 2,800,000 | | |
| June.----- | | | | | | 50,600 | 30,900 | 42,600 | | 2,530,000 | | |
| July.----- | | | | | | 29,900 | 13,400 | 20,100 | | 1,240,000 | | |
| August.----- | | | | | | 12,900 | 7,720 | 9,860 | | 606,000 | | |
| September.----- | | | | | | 7,720 | 6,180 | 6,990 | | 416,000 | | |
| The year.----- | | | | | | 50,600 | 3,180 | 15,900 | | 11,500,000 | | |

PEND OREILLE LAKE AT HOPE, IDAHO

LOCATION.—Water-stage recorder in lot 2, sec. 35, T. 57 N., R. 1 E., at floating dock near Northern Pacific Railway station at Hope. Recorder reads elevation above mean sea level, United States Coast and Geodetic Survey datum.

DRAINAGE AREA.—22,900 square miles.

RECORDS AVAILABLE.—September, 1921, to September, 1930; March, 1914, to September, 1922, at Sandpoint.

EXTREMES.—Maximum water-surface elevation during year, 2,055.99 feet June 5; minimum, 2,046.59 feet Jan. 28.

1921-1930: Maximum water-surface elevation, 2,068.67 feet May 31, June 1, 1928; minimum, that of Jan. 28, 1930.

Maximum known water-surface elevation, 2,076.08 feet¹ June, 1894.

REMARKS.—Records good. Considerable water diverted from tributaries of Clark Fork for irrigation.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 47.25 | 47.05 | 46.74 | 47.23 | 46.71 | 47.86 | 47.91 | 54.62 | 55.68 | 53.81 | 49.72 | 47.91 |
| 2..... | 47.25 | 47.06 | 46.74 | 47.23 | 46.74 | 47.81 | 47.99 | 54.81 | 55.80 | 53.68 | 49.63 | 47.86 |
| 3..... | 47.23 | 47.05 | 46.73 | 47.20 | 46.76 | 47.75 | 48.08 | 54.97 | 55.91 | 53.51 | 49.53 | 47.81 |
| 4..... | 47.23 | 47.03 | 46.74 | 47.20 | 46.79 | 47.69 | 48.16 | 55.14 | 55.97 | 53.34 | 49.44 | 47.75 |
| 5..... | 47.23 | 47.00 | 46.73 | 47.19 | 46.83 | 47.67 | 48.25 | 55.31 | 55.98 | 53.17 | 49.37 | 47.71 |
| 6..... | 47.22 | 46.99 | 46.72 | 47.15 | 46.88 | 47.65 | 48.33 | 55.48 | 55.98 | 53.02 | 49.28 | 47.69 |
| 7..... | 47.21 | 47.00 | 46.72 | 47.19 | 46.90 | 47.60 | 48.44 | 55.62 | 55.96 | 52.88 | 49.21 | 47.65 |
| 8..... | 47.17 | 46.99 | 46.75 | 47.10 | 46.99 | 47.59 | 48.58 | 55.71 | 55.93 | 52.70 | 49.14 | 47.59 |
| 9..... | 47.19 | 46.98 | 46.81 | 47.09 | 47.03 | 47.59 | 48.82 | 55.77 | 55.89 | 52.53 | 49.07 | 47.59 |
| 10..... | 47.19 | 47.00 | 46.87 | 47.10 | 47.08 | 47.57 | 49.03 | 55.82 | 55.88 | 52.40 | 48.99 | 47.56 |
| 11..... | 47.16 | 46.99 | 46.93 | 47.08 | 47.14 | 47.53 | 49.23 | 55.84 | 55.90 | 52.25 | 48.93 | 47.56 |
| 12..... | 47.16 | 46.98 | 46.94 | 47.03 | 47.20 | 47.51 | 49.43 | 55.83 | 55.91 | 52.09 | 48.87 | 47.55 |
| 13..... | 47.16 | 46.97 | 46.90 | 46.98 | 47.18 | 47.49 | 49.64 | 55.77 | 55.91 | 51.96 | 48.79 | 47.52 |
| 14..... | 47.13 | 46.95 | 46.98 | 46.89 | 47.19 | 47.47 | 49.91 | 55.69 | 55.88 | 51.82 | 48.74 | 47.50 |
| 15..... | 47.13 | 46.94 | 47.05 | 46.85 | 47.19 | 47.45 | 50.24 | 55.61 | 55.83 | 51.69 | 48.67 | 47.49 |
| 16..... | 47.14 | 46.93 | 47.13 | 46.83 | 47.20 | 47.43 | 50.57 | 55.55 | 55.76 | 51.56 | 48.64 | 47.49 |
| 17..... | 47.14 | 46.93 | 47.19 | 46.81 | 47.21 | 47.42 | 50.84 | 55.50 | 55.69 | 51.41 | 48.57 | 47.48 |
| 18..... | 47.13 | 46.90 | 47.20 | 46.81 | 47.21 | 47.42 | 51.07 | 55.48 | 55.57 | 51.25 | 48.53 | 47.49 |
| 19..... | 47.12 | 46.87 | 47.21 | 46.82 | 47.30 | 47.43 | 51.27 | 55.44 | 55.44 | 51.11 | 48.49 | 47.46 |
| 20..... | 47.11 | 46.85 | 47.22 | 46.82 | 47.41 | 47.43 | 51.44 | 55.53 | 55.34 | 50.99 | 48.45 | 47.46 |
| 21..... | 47.07 | 46.84 | 47.23 | 46.78 | 47.54 | 47.42 | 51.60 | 55.60 | 55.26 | 50.87 | 48.41 | 47.49 |
| 22..... | 47.05 | 46.82 | 47.26 | 46.72 | 47.65 | 47.46 | 51.80 | 55.63 | 55.13 | 50.76 | 48.36 | 47.45 |
| 23..... | 47.05 | 46.82 | 47.27 | 46.66 | 47.74 | 47.47 | 52.01 | 55.64 | 55.00 | 50.64 | 48.32 | 47.46 |
| 24..... | 47.05 | 46.80 | 47.29 | 46.64 | 47.82 | 47.49 | 52.33 | 55.67 | 54.86 | 50.54 | 48.28 | 47.44 |
| 25..... | 47.04 | 46.78 | 47.30 | 46.63 | 47.83 | 47.52 | 52.67 | 55.70 | 54.72 | 50.44 | 48.26 | 47.42 |
| 26..... | 47.03 | 46.75 | 47.28 | 46.63 | 47.85 | 47.56 | 53.04 | 55.68 | 54.57 | 50.32 | 48.17 | 47.40 |
| 27..... | 47.08 | 46.75 | 47.27 | 46.62 | 47.86 | 47.57 | 53.42 | 55.62 | 54.45 | 50.19 | 48.11 | 47.38 |
| 28..... | 47.08 | 46.75 | 47.26 | 46.60 | 47.86 | 47.61 | 53.78 | 55.57 | 54.31 | 50.08 | 48.06 | 47.41 |
| 29..... | 47.05 | 46.74 | 47.25 | 46.62 | ----- | 47.67 | 54.11 | 55.53 | 54.16 | 49.98 | 48.01 | 47.40 |
| 30..... | 47.06 | 46.73 | 47.24 | 46.63 | ----- | 47.75 | 54.39 | 55.53 | 53.98 | 49.89 | 47.99 | 47.38 |
| 31..... | 47.06 | ----- | 47.22 | 46.65 | ----- | 47.83 | ----- | 55.59 | ----- | 49.80 | 47.95 | ----- |

NOTE.—Add 2,000 feet to obtain elevation above mean sea level (U. S. Coast and Geodetic Survey datum).

¹ Elevation 2,079.29 feet, previously published for this flood, is referred to the original datum of U. S. Geological Survey bench mark at Hope.

CLARK FORK AT PRIEST RIVER, IDAHO

LOCATION.—Water-stage recorder in lot 4, sec. 26, T. 56 N., R. 5 W., at Priest River.

DRAINAGE AREA.—24,200 square miles.

RECORDS AVAILABLE.—June, 1903, to April, 1905; October, 1921, to September, 1929; June, 1903, to September, 1921. Comparable records at Newport, Wash., 6 miles below present site.

EXTREMES.—Maximum discharge during year, 50,100 second-feet June 5, 6 (gage height, 12.29 feet); minimum (estimated), less than 4,400 second-feet Jan. 17, when stage-discharge relation was affected by ice.

1903-1930: Maximum discharge, 136,000 second-feet June 15, 1913; minimum, 2,200 second-feet Dec. 12, 1919. Flood at Newport during June, 1894 (estimated), 217,000 second-feet (gage height, 38.9 feet, from high-water marks referred to Newport gage).

REMARKS.—Records excellent except those for Jan. 15-29, which were estimated because of ice. Numerous small diversions from upper tributaries for irrigation. Flow subject to natural regulation in several lakes and to slight regulation during log-driving seasons, due to operation of flash dam on tributary of Priest River.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|-------|
| 1..... | 6,880 | 6,410 | 5,840 | 7,040 | 5,440 | 9,880 | 10,600 | 42,400 | 48,000 | 37,400 | 16,800 | 9,540 |
| 2..... | 6,720 | 6,260 | 5,840 | 7,200 | 5,440 | 9,880 | 10,900 | 43,100 | 48,700 | 36,800 | 16,800 | 9,330 |
| 3..... | 6,720 | 6,560 | 5,840 | 7,040 | 5,570 | 9,670 | 11,100 | 43,800 | 49,400 | 35,600 | 16,300 | 9,120 |
| 4..... | 6,560 | 6,560 | 5,700 | 7,040 | 5,700 | 9,040 | 11,300 | 45,200 | 49,400 | 35,000 | 16,300 | 8,910 |
| 5..... | 6,720 | 6,560 | 5,700 | 7,200 | 5,700 | 9,040 | 12,000 | 45,900 | 50,100 | 33,800 | 16,300 | 8,700 |
| 6..... | 6,880 | 6,560 | 5,570 | 7,370 | 5,980 | 8,840 | 12,400 | 46,600 | 50,100 | 33,200 | 15,800 | 8,300 |
| 7..... | 7,040 | 6,410 | 5,570 | 6,880 | 6,120 | 8,840 | 12,400 | 48,000 | 49,400 | 32,600 | 15,300 | 8,300 |
| 8..... | 7,040 | 6,560 | 5,840 | 6,880 | 6,260 | 8,640 | 12,900 | 48,700 | 49,400 | 31,400 | 15,300 | 8,300 |
| 9..... | 6,720 | 6,560 | 6,260 | 5,740 | 6,410 | 8,640 | 13,800 | 49,400 | 49,400 | 30,800 | 14,300 | 8,500 |
| 10..... | 6,560 | 6,410 | 6,410 | 4,720 | 6,560 | 8,640 | 15,300 | 49,400 | 49,400 | 30,200 | 14,300 | 7,900 |
| 11..... | 6,720 | 6,410 | 6,260 | 5,080 | 6,720 | 8,260 | 15,800 | 49,400 | 49,400 | 29,600 | 13,800 | 7,900 |
| 12..... | 6,560 | 6,410 | 6,260 | 5,570 | 6,720 | 8,080 | 16,800 | 49,400 | 48,700 | 29,000 | 13,400 | 7,700 |
| 13..... | 6,720 | 6,410 | 6,410 | 5,570 | 6,880 | 8,450 | 17,800 | 49,400 | 48,700 | 28,400 | 12,900 | 7,510 |
| 14..... | 6,720 | 6,410 | 6,720 | 5,440 | 6,880 | 8,450 | 18,400 | 48,700 | 49,400 | 27,200 | 12,900 | 7,510 |
| 15..... | 6,560 | 6,260 | 7,040 | | 6,880 | 8,450 | 20,000 | 48,000 | 49,400 | 26,600 | 12,400 | 7,510 |
| 16..... | 6,720 | 6,260 | 7,200 | 4,600 | 7,040 | 8,260 | 21,800 | 48,000 | 48,000 | 25,400 | 12,000 | 7,510 |
| 17..... | 6,560 | 6,120 | 7,040 | | 7,200 | 8,260 | 23,000 | 46,600 | 48,000 | 25,400 | 12,000 | 7,510 |
| 18..... | 6,560 | 6,260 | 7,370 | | 7,040 | 8,260 | 24,200 | 46,600 | 47,300 | 24,800 | 12,000 | 7,320 |
| 19..... | 6,560 | 6,260 | 7,200 | | 7,540 | 7,370 | 25,400 | 46,600 | 46,600 | 24,200 | 11,600 | 7,320 |
| 20..... | 6,560 | 6,260 | 7,200 | | 7,900 | 8,260 | 26,000 | 47,300 | 45,900 | 23,600 | 11,600 | 7,510 |
| 21..... | 6,560 | 6,120 | 7,370 | 4,600 | 8,260 | 8,080 | 27,200 | 48,000 | 45,200 | 23,000 | 11,300 | 7,320 |
| 22..... | 6,880 | 5,980 | 7,370 | | 8,840 | 7,720 | 27,800 | 43,000 | 45,200 | 22,400 | 11,300 | 7,320 |
| 23..... | 6,720 | 5,980 | 7,370 | | 9,040 | 8,260 | 29,000 | 48,000 | 43,800 | 21,800 | 11,100 | 7,140 |
| 24..... | 6,560 | 5,840 | 7,540 | | 9,460 | 8,450 | 30,800 | 48,000 | 43,100 | 20,600 | 10,900 | 7,140 |
| 25..... | 6,410 | 5,840 | 7,200 | | 9,670 | 8,450 | 32,000 | 48,000 | 42,400 | 20,600 | 10,600 | 7,140 |
| 26..... | 6,410 | 5,700 | 7,200 | 5,000 | 10,100 | 8,840 | 33,800 | 48,000 | 41,000 | 19,500 | 10,400 | 7,140 |
| 27..... | 6,560 | 5,700 | 7,200 | | 9,880 | 8,840 | 36,200 | 48,000 | 40,400 | 19,500 | 10,200 | 7,140 |
| 28..... | 6,720 | 5,840 | 7,370 | | 9,670 | 9,040 | 37,400 | 48,000 | 39,800 | 19,000 | 10,200 | 7,140 |
| 29..... | 6,560 | 5,840 | 7,200 | | | 9,460 | 39,800 | 47,300 | 39,200 | 18,400 | 9,760 | 7,320 |
| 30..... | 6,560 | 5,840 | 7,040 | 5,200 | | 10,100 | 41,000 | 47,300 | 38,000 | 17,800 | 9,330 | 7,320 |
| 31..... | 6,560 | | 7,040 | 5,200 | | 10,100 | | 47,300 | | 17,300 | 9,440 | |

Monthly discharge in second-feet, of Clark Fork at Priest River, Idaho, 1929-30

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|--------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October..... | 7,040 | 6,410 | 6,660 | 0.275 | 0.32 | 410,000 |
| November..... | 6,560 | 5,700 | 6,220 | .257 | .29 | 370,000 |
| December..... | 7,540 | 5,570 | 6,680 | .276 | .32 | 411,000 |
| January..... | 7,370 | ----- | 5,490 | .227 | .26 | 338,000 |
| February..... | 10,100 | 5,440 | 7,320 | .302 | .31 | 407,000 |
| March..... | 10,100 | 7,370 | 8,730 | .361 | .42 | 537,000 |
| April..... | 41,000 | 10,600 | 22,200 | .917 | 1.02 | 1,320,000 |
| May..... | 49,400 | 42,400 | 47,400 | 1.96 | 2.26 | 2,910,000 |
| June..... | 50,100 | 38,000 | 46,400 | 1.92 | 2.14 | 2,760,000 |
| July..... | 37,400 | 17,300 | 26,600 | 1.10 | 1.27 | 1,630,000 |
| August..... | 16,800 | 9,330 | 12,800 | .529 | .61 | 787,000 |
| September..... | 9,540 | 7,140 | 7,810 | .323 | .36 | 465,000 |
| The year..... | 50,100 | ----- | 17,100 | .707 | 9.58 | 12,300,000 |

CLARK FORK BELOW Z CANYON, NEAR METALINE FALLS, WASH.

LOCATION.—Water-stage recorder in lot 2, sec. 11, T. 40 N., P. 43 E., three-fourths mile below Z Canyon and 10 miles below Metaline Falls.

DRAINAGE AREA.—25,200 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1930; November, 1908, to September, 1910; October, 1912, to September, 1928, for station at Metaline Falls.

EXTREMES.—Maximum discharge during year, 51,200 second-feet June 7 (gage height, 25.28 feet); minimum, 3,870 second-feet Jan. 11 (gage height, 8.98 feet).

1912-1930: Maximum discharge, 139,000 second-feet June 16, 1913 (gage height, 41.2 feet, Metaline Falls gage); minimum, 2,500 second-feet Dec. 12, 1919 (gage height, -2.4 feet, Metaline Falls gage).

REMARKS.—Records excellent. Numerous small diversions from upper tributaries for irrigation. No artificial regulation of any consequence.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|-------|
| 1 | 7,010 | 6,720 | 5,880 | 7,010 | 5,310 | 10,000 | 10,800 | 41,400 | 48,800 | 39,600 | 17,900 | 9,540 |
| 2 | 6,830 | 6,720 | 5,790 | 7,010 | 5,310 | 9,800 | 11,100 | 42,600 | 49,400 | 38,700 | 17,500 | 9,540 |
| 3 | 6,960 | 6,480 | 5,790 | 7,190 | 5,470 | 10,000 | 11,100 | 44,100 | 50,000 | 38,100 | 16,800 | 9,300 |
| 4 | 6,960 | 6,600 | 5,950 | 7,190 | 5,630 | 9,800 | 11,300 | 44,700 | 50,600 | 37,200 | 16,800 | 9,070 |
| 5 | 6,840 | 6,600 | 5,790 | 7,190 | 5,630 | 9,300 | 11,300 | 46,000 | 50,600 | 36,100 | 16,200 | 8,840 |
| 6 | 6,840 | 6,600 | 5,630 | 7,010 | 5,790 | 9,050 | 11,900 | 47,200 | 50,900 | 35,500 | 15,900 | 8,620 |
| 7 | 6,960 | 6,600 | 5,630 | 7,190 | 5,950 | 8,800 | 12,800 | 47,200 | 50,800 | 34,600 | 15,500 | 8,400 |
| 8 | 7,080 | 6,480 | 5,630 | 7,010 | 6,110 | 8,800 | 13,100 | 48,100 | 50,600 | 34,000 | 15,200 | 8,400 |
| 9 | 7,220 | 6,480 | 5,630 | 5,600 | 6,110 | 8,800 | 13,700 | 49,400 | 50,300 | 33,100 | 14,900 | 8,400 |
| 10 | 7,080 | 6,480 | 6,110 | 5,310 | 6,290 | 8,550 | 14,000 | 50,000 | 50,300 | 32,500 | 14,600 | 7,980 |
| 11 | 6,840 | 6,480 | 6,650 | 4,350 | 6,650 | 8,550 | 14,900 | 50,300 | 50,000 | 31,600 | 14,300 | 7,980 |
| 12 | 6,840 | 6,480 | 6,470 | 4,850 | 6,830 | 8,300 | 16,200 | 50,300 | 50,000 | 30,600 | 14,000 | 7,780 |
| 13 | 6,840 | 6,480 | 6,470 | 5,470 | 6,830 | 8,050 | 17,200 | 50,300 | 49,700 | 29,900 | 13,700 | 7,780 |
| 14 | 6,840 | 6,480 | 6,650 | 5,630 | 7,010 | 8,300 | 18,500 | 50,300 | 49,700 | 29,200 | 13,400 | 7,580 |
| 15 | 6,840 | 6,480 | 6,830 | 5,150 | 7,010 | 8,550 | 19,200 | 50,000 | 49,300 | 28,600 | 13,100 | 7,580 |
| 16 | 6,720 | 6,480 | 7,010 | 5,000 | 7,010 | 8,550 | 20,300 | 49,400 | 50,300 | 27,500 | 12,800 | 7,580 |
| 17 | 6,840 | 6,480 | 7,370 | 4,850 | 7,010 | 8,550 | 21,700 | 49,100 | 49,400 | 26,800 | 12,500 | 7,580 |
| 18 | 6,840 | 6,240 | 7,190 | 4,360 | 7,370 | 8,550 | 23,100 | 48,100 | 48,400 | 26,000 | 12,200 | 7,580 |
| 19 | 6,720 | 6,240 | 7,370 | 4,450 | 7,550 | 8,300 | 24,600 | 47,800 | 48,400 | 25,300 | 11,900 | 7,390 |
| 20 | 6,720 | 6,480 | 7,370 | 4,700 | 8,350 | 7,800 | 25,700 | 47,800 | 48,100 | 24,600 | 11,900 | 7,580 |
| 21 | 6,720 | 6,240 | 7,370 | 4,850 | 8,800 | 7,800 | 26,400 | 48,400 | 47,800 | 24,200 | 11,600 | 7,580 |
| 22 | 6,720 | 6,120 | 7,550 | 4,700 | 9,300 | 8,300 | 27,500 | 48,400 | 46,900 | 23,500 | 11,600 | 7,580 |
| 23 | 6,840 | 6,120 | 7,550 | 4,700 | 9,550 | 7,800 | 28,200 | 48,800 | 46,000 | 22,800 | 11,600 | 7,580 |
| 24 | 6,960 | 6,120 | 7,550 | 5,000 | 10,000 | 8,050 | 29,200 | 49,100 | 46,300 | 22,400 | 11,300 | 7,580 |
| 25 | 6,720 | 6,120 | 7,550 | 5,150 | 9,800 | 8,550 | 30,900 | 49,100 | 44,400 | 21,300 | 11,100 | 7,390 |
| 26 | 6,600 | 6,000 | 7,370 | 5,310 | 10,000 | 8,800 | 32,500 | 49,100 | 43,800 | 21,000 | 10,800 | 7,390 |
| 27 | 6,600 | 6,000 | 7,370 | 5,150 | 10,000 | 9,050 | 34,300 | 49,100 | 42,900 | 20,300 | 10,500 | 7,390 |
| 28 | 6,600 | 5,880 | 7,190 | 5,150 | 10,000 | 9,300 | 36,100 | 49,100 | 42,000 | 19,900 | 10,300 | 7,580 |
| 29 | 6,720 | 5,880 | 7,370 | 5,310 | ----- | 9,550 | 37,800 | 48,800 | 41,100 | 19,600 | 10,300 | 7,390 |
| 30 | 6,840 | 6,000 | 7,370 | 5,150 | ----- | 9,800 | 39,900 | 48,400 | 40,500 | 19,200 | 10,000 | 7,580 |
| 31 | 6,720 | ----- | 7,190 | 5,150 | ----- | 10,600 | ----- | 48,800 | ----- | 18,500 | 9,540 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|--------|-----------------|---------|------------|
| | | | | | Inches | Acre-feet |
| October | 7,220 | 6,600 | 6,830 | 0.271 | 0.31 | 420,000 |
| November | 6,720 | 5,880 | 6,350 | .262 | .28 | 378,000 |
| December | 7,550 | 5,630 | 6,730 | .267 | .31 | 414,000 |
| January | 7,190 | 4,350 | 5,550 | .220 | .25 | 341,000 |
| February | 10,000 | 5,310 | 7,380 | .293 | .31 | 410,000 |
| March | 10,600 | 7,800 | 8,840 | .351 | .40 | 544,000 |
| April | 39,900 | 10,800 | 21,500 | .853 | .95 | 1,288,000 |
| May | 50,300 | 41,400 | 48,100 | 1.91 | 2.20 | 2,960,000 |
| June | 50,900 | 40,500 | 47,900 | 1.90 | 2.12 | 2,850,000 |
| July | 39,600 | 18,500 | 28,100 | 1.12 | 1.29 | 1,730,000 |
| August | 17,900 | 9,540 | 13,200 | .524 | .60 | 812,000 |
| September | 9,540 | 7,980 | 7,980 | .317 | .35 | 475,000 |
| The year | 50,900 | 4,350 | 17,400 | .690 | 9.37 | 12,600,000 |

FLATHEAD RIVER NEAR TRAIL CREEK, MONT.

LOCATION.—Staff-gage at highway bridge 500 feet north of international boundary, 1,000 feet northwest of intersection of international boundary with line between secs. 4 and 5, T. 37 N., R. 22 W., and 7 miles northwest of Trail Creek post office.

DRAINAGE AREA.—450 square miles.

RECORDS AVAILABLE.—March, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 4,760 second-feet May 31 (gage height, 4.78 feet); minimum recorded, 140 second-feet Nov. 6-8 (gage height, 1.03 feet). Lower discharge occurred during winter when gage was not read.

1929-30: Maximum discharge, 7,750 second-feet May 24, 1929 (gage height, 6.1 feet); minimum recorded, 65 second-feet Apr. 9, 1929 (gage height, 0.76 foot). Probably not actual minimum.

REMARKS.—Records good. No records Nov. 9 to Mar. 29. Results of several discharge measurements furnished by Dominion Water Power and Hydro-metric Bureau, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 191 | 157 | ----- | 301 | 1,980 | 3,780 | 972 | 387 | 227 |
| 2 | 187 | 154 | ----- | 327 | 2,120 | 3,240 | 972 | 387 | 219 |
| 3 | 183 | 150 | ----- | 342 | 2,420 | 3,240 | 880 | 370 | 210 |
| 4 | 183 | 147 | ----- | 359 | 3,070 | 2,900 | 835 | 359 | 210 |
| 5 | 191 | 144 | ----- | 364 | 2,740 | 2,740 | 792 | 348 | 202 |
| 6 | 194 | 140 | ----- | 376 | 2,580 | 2,900 | 792 | 337 | 202 |
| 7 | 194 | 140 | ----- | 428 | 2,270 | 3,240 | 710 | 322 | 202 |
| 8 | 191 | 140 | ----- | 492 | 2,120 | 3,420 | 710 | 322 | 202 |
| 9 | 191 | ----- | ----- | 492 | 1,980 | 3,070 | 670 | 306 | 202 |
| 10 | 194 | ----- | ----- | 459 | 1,840 | 2,740 | 670 | 301 | 210 |
| 11 | 191 | ----- | ----- | 524 | 1,640 | 2,900 | 632 | 301 | 231 |
| 12 | 187 | ----- | ----- | 595 | 1,580 | 2,580 | 632 | 301 | 244 |
| 13 | 187 | ----- | ----- | 750 | 1,710 | 2,270 | 595 | 291 | 236 |
| 14 | 183 | ----- | ----- | 925 | 1,980 | 1,980 | 595 | 291 | 236 |
| 15 | 183 | ----- | ----- | 1,070 | 2,120 | 1,710 | 560 | 282 | 227 |
| 16 | 179 | ----- | ----- | 1,120 | 2,270 | 1,710 | 524 | 282 | 219 |
| 17 | 179 | ----- | ----- | 1,070 | 2,420 | 1,710 | 524 | 272 | 210 |
| 18 | 179 | ----- | ----- | 1,020 | 2,740 | 1,580 | 524 | 272 | 210 |
| 19 | 175 | ----- | ----- | 972 | 2,420 | 1,460 | 632 | 272 | 202 |
| 20 | 175 | ----- | ----- | 972 | 2,580 | 1,460 | 632 | 272 | 202 |
| 21 | 172 | ----- | ----- | 1,120 | 2,900 | 1,640 | 632 | 272 | 194 |
| 22 | 172 | ----- | ----- | 1,400 | 2,740 | 1,580 | 595 | 272 | 194 |
| 23 | 168 | ----- | ----- | 1,640 | 2,420 | 1,520 | 560 | 258 | 198 |
| 24 | 164 | ----- | ----- | 2,120 | 2,120 | 1,340 | 524 | 253 | 202 |
| 25 | 161 | ----- | ----- | 2,420 | 2,120 | 1,280 | 524 | 244 | 202 |
| 26 | 161 | ----- | ----- | 2,580 | 1,980 | 1,230 | 492 | 236 | 202 |
| 27 | 164 | ----- | ----- | 2,580 | 1,980 | 1,120 | 459 | 227 | 194 |
| 28 | 164 | ----- | ----- | 2,580 | 2,420 | 1,180 | 428 | 227 | 191 |
| 29 | 161 | ----- | ----- | 2,420 | 3,240 | 1,120 | 428 | 227 | 187 |
| 30 | 161 | ----- | 291 | 2,120 | 3,970 | 1,070 | 398 | 227 | 187 |
| 31 | 161 | ----- | 296 | ----- | 4,560 | ----- | 392 | 227 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|--------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 194 | 161 | 178 | 0.396 | 0.46 | 10,900 |
| November 1-8 | 157 | 140 | 146 | .324 | .10 | 2,320 |
| March 29-30 | 296 | 291 | 294 | .653 | .05 | 1,170 |
| April | 2,580 | 301 | 1,130 | 2.51 | 2.80 | 67,200 |
| May | 4,560 | 1,580 | 2,420 | 5.38 | 6.20 | 149,000 |
| June | 3,780 | 1,070 | 2,120 | 4.71 | 5.26 | 126,000 |
| July | 972 | 392 | 622 | 1.38 | 1.59 | 38,200 |
| August | 387 | 227 | 289 | .642 | .74 | 17,800 |
| September | 244 | 187 | 208 | .462 | .52 | 12,400 |

FLATHEAD RIVER NEAR COLUMBIA FALLS, MONT.¹

LOCATION.—Water-stage recorder in sec. 7, T. 31 N., R. 19 W., at Potter's ranch, three-fourths mile above junction with Middle Fork and 10 miles northeast of Columbia Falls.

DRAINAGE AREA.—1,620 square miles.

RECORDS AVAILABLE.—September, 1910, to September, 1917; April, 1929, to September, 1930, incomplete.

EXTREMES.—Maximum discharge during year, 11,800 second-feet May 31 (gage height, 7.96 feet); minimum occurred during winter, when gage was not read. 1910-1917, 1929-30: Maximum discharge, 29,500 second-feet June 20, 1916 (gage height, 9.8 feet); minimum, 350 second-feet Nov. 10, 1911, Feb. 5-16, 1914 (gage height, 0.70 foot).

REMARKS.—Records good except those for estimated periods. No diversions or regulation. No records Oct. 1 to Mar. 31.

Daily and monthly discharge, in second-feet, 1930

| Day | May | June | July | Aug. | Sept. | Day | May | June | July | Aug. | Sept. |
|---------|-------|--------|-------|-------|-------|---------|--------|-------|-------|-------|-------|
| 1----- | 6,800 | 10,800 | 3,740 | 1,850 | 920 | 16----- | 6,090 | 5,320 | 2,680 | 1,380 | 920 |
| 2----- | 6,560 | 9,600 | 3,580 | | | 17----- | 6,320 | 5,420 | | | |
| 3----- | 7,300 | 9,300 | 3,500 | | | 18----- | 6,800 | 5,320 | | | |
| 4----- | 9,300 | 9,300 | 3,340 | | | 19----- | 7,050 | 5,000 | | | |
| 5----- | 9,000 | 8,700 | 3,110 | | | 20----- | 7,300 | 4,800 | | | |
| 6----- | 8,110 | 8,400 | 3,040 | 898 | 920 | 21----- | 9,900 | 5,320 | 2,540 | 1,110 | 940 |
| 7----- | 7,560 | 8,400 | 2,960 | | | 22----- | 9,600 | 5,640 | | | |
| 8----- | 6,800 | 9,300 | 2,890 | | | 23----- | 8,110 | 5,420 | | | |
| 9----- | 6,320 | 9,300 | 2,820 | | | 24----- | 7,050 | 5,000 | | | |
| 10----- | 5,860 | 9,000 | 2,750 | | | 25----- | 6,560 | 4,700 | | | |
| 11----- | 5,530 | 9,000 | 2,890 | 1,380 | 920 | 26----- | 6,090 | 4,520 | 2,300 | 975 | 935 |
| 12----- | 5,210 | 8,700 | 2,820 | | | 27----- | 5,640 | 4,330 | | | |
| 13----- | 5,000 | 7,560 | 2,680 | | | 28----- | 5,860 | 4,240 | | | |
| 14----- | 5,000 | 6,560 | | | | 29----- | 7,560 | 4,240 | | | |
| 15----- | 5,420 | 5,640 | | | | 30----- | 9,600 | 3,980 | | | |
| | | | | | | 31----- | 11,200 | | | | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| May----- | 11,200 | 5,000 | 7,110 | 4.39 | 5.06 | 437,000 |
| June----- | 10,800 | 3,980 | 6,760 | 4.17 | 4.65 | 402,000 |
| July----- | 3,740 | ----- | 2,720 | 1.68 | 1.94 | 167,000 |
| August----- | ----- | 935 | 1,410 | .870 | 1.00 | 86,700 |
| September----- | ----- | 898 | 923 | .570 | .64 | 54,900 |
| The period----- | ----- | ----- | ----- | ----- | ----- | 1,150,000 |

¹ Formerly published as North Fork of Flathead River at Potter's ranch, near Columbia Falls.

FLATHEAD RIVER AT COLUMBIA FALLS, MONT.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 17, T. 30 N., R. 20 W., about 200 feet below highway bridge on Roosevelt Highway at Columbia Falls.

RECORDS AVAILABLE.—May, 1922, to September, 1923 (fragmentary); June, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 38,800 second-feet May 31 (gage height, 10.80 feet); minimum, 798 second-feet Dec. 9 (gage height, -0.08 foot).

1922-23, 1928-1930: Maximum discharge, 102,000 second-feet June 5, 1923 (gage height, 17.3 feet); minimum, that of Dec. 9, 1929.

REMARKS.—Records excellent except those for winter periods, which are fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|-------|
| 1 | 1,660 | 1,460 | 1,230 | 1,720 | 1,410 | 1,720 | 3,380 | 24,800 | 34,500 | 10,800 | 3,810 | 2,070 |
| 2 | 1,660 | 1,460 | 1,070 | 1,660 | 1,410 | 1,610 | 4,270 | 25,400 | 28,200 | 10,500 | 3,720 | 2,070 |
| 3 | 1,660 | 1,410 | 955 | 1,660 | 1,460 | 1,460 | 5,400 | 31,200 | 27,600 | 10,500 | 3,550 | 2,010 |
| 4 | 1,660 | 1,410 | 913 | 1,610 | 1,460 | 1,190 | 6,990 | 34,500 | 27,000 | 9,840 | 3,550 | 1,950 |
| 5 | 1,660 | 1,360 | 1,070 | 1,560 | 1,510 | 1,110 | 7,520 | 30,600 | 24,800 | 8,930 | 3,460 | 1,950 |
| 6 | 1,720 | 1,410 | 1,150 | 1,460 | 1,510 | 1,070 | 9,530 | 28,700 | 24,300 | 8,640 | 3,380 | 1,950 |
| 7 | 1,720 | 1,360 | 1,190 | 1,410 | 1,460 | 1,030 | 12,800 | 25,900 | 25,900 | 8,350 | 3,300 | 1,890 |
| 8 | 1,720 | 1,320 | 1,190 | 1,410 | 1,410 | 1,030 | 14,300 | 22,800 | 28,700 | 8,070 | 3,220 | 1,890 |
| 9 | 1,720 | 1,320 | 871 | 1,410 | 1,360 | 1,070 | 19,200 | 20,900 | 30,000 | 7,790 | 3,140 | 1,890 |
| 10 | 1,720 | 1,320 | 864 | 1,360 | 1,230 | 1,150 | 17,900 | 19,200 | 28,200 | 7,520 | 3,060 | 1,890 |
| 11 | 1,720 | 1,320 | 1,030 | 1,320 | 1,150 | 1,190 | 17,000 | 17,400 | 29,300 | 7,520 | 3,060 | 2,010 |
| 12 | 1,720 | 1,250 | 1,070 | 1,320 | 1,110 | 1,230 | 18,700 | 16,200 | 27,600 | 7,520 | 3,060 | 2,140 |
| 13 | 1,720 | 1,150 | 1,190 | 1,230 | 1,070 | 1,320 | 20,500 | 15,800 | 23,800 | 6,990 | 2,980 | 2,200 |
| 14 | 1,660 | 1,190 | 1,280 | 1,280 | 1,070 | 1,460 | 25,400 | 17,000 | 20,000 | 6,730 | 2,910 | 2,330 |
| 15 | 1,610 | 1,190 | 1,360 | 1,280 | 1,110 | 1,410 | 29,300 | 18,700 | 17,000 | 6,480 | 2,840 | 2,400 |
| 16 | 1,580 | 1,320 | 1,460 | 1,230 | 1,190 | 1,360 | 24,800 | 20,900 | 16,600 | 6,230 | 2,840 | 2,330 |
| 17 | 1,560 | 1,320 | 1,410 | 1,190 | 1,320 | 1,410 | 20,500 | 22,300 | 18,300 | 5,990 | 2,760 | 2,200 |
| 18 | 1,560 | 1,320 | 1,320 | 1,230 | 1,610 | 1,720 | 18,700 | 24,800 | 17,400 | 5,640 | 2,680 | 2,070 |
| 19 | 1,510 | 1,230 | 1,230 | 1,290 | 2,140 | 1,660 | 17,400 | 24,300 | 15,800 | 5,990 | 2,610 | 2,070 |
| 20 | 1,510 | 1,150 | 1,190 | 1,280 | 2,910 | 1,660 | 17,400 | 23,300 | 15,000 | 6,480 | 2,540 | 2,010 |
| 21 | 1,510 | 1,070 | 1,150 | 1,230 | 2,910 | 1,660 | 19,200 | 30,600 | 16,200 | 6,230 | 2,540 | 1,950 |
| 22 | 1,510 | 1,070 | 1,150 | 1,190 | 2,680 | 1,830 | 21,800 | 28,700 | 16,200 | 5,750 | 2,540 | 2,010 |
| 23 | 1,460 | 1,150 | 1,320 | 1,150 | 2,360 | 1,780 | 25,400 | 24,300 | 15,400 | 5,520 | 2,470 | 2,470 |
| 24 | 1,460 | 1,280 | 1,410 | 1,110 | 2,200 | 1,780 | 31,800 | 21,800 | 14,300 | 5,290 | 2,400 | 2,470 |
| 25 | 1,410 | 1,360 | 1,510 | 1,150 | 2,070 | 1,830 | 35,200 | 20,900 | 13,600 | 5,070 | 2,330 | 2,470 |
| 26 | 1,410 | 1,410 | 1,660 | 1,190 | 2,010 | 1,890 | 34,500 | 20,500 | 12,800 | 4,860 | 2,330 | 2,330 |
| 27 | 1,610 | 1,360 | 1,780 | 1,230 | 1,830 | 2,010 | 33,800 | 19,200 | 12,500 | 4,560 | 2,260 | 2,200 |
| 28 | 1,610 | 1,320 | 1,950 | 1,280 | 1,830 | 2,200 | 33,200 | 21,400 | 12,500 | 4,360 | 2,200 | 2,070 |
| 29 | 1,560 | 1,280 | 2,010 | 1,320 | ----- | 2,610 | 30,600 | 28,700 | 12,500 | 4,180 | 2,140 | 2,010 |
| 30 | 1,510 | 1,230 | 1,950 | 1,360 | ----- | 2,840 | 27,600 | 34,500 | 11,400 | 3,990 | 2,140 | 1,950 |
| 31 | 1,510 | ----- | 1,890 | 1,360 | ----- | 3,060 | ----- | 38,000 | ----- | 3,900 | 2,070 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|--------|----------------------|
| October | 1,720 | 1,410 | 1,600 | 98,400 |
| November | 1,460 | 1,070 | 1,290 | 76,800 |
| December | 2,010 | 864 | 1,320 | 81,200 |
| January | 1,720 | 1,110 | 1,340 | 82,400 |
| February | 2,910 | 1,070 | 1,670 | 92,800 |
| March | 3,060 | 1,030 | 1,620 | 99,600 |
| April | 35,200 | 3,380 | 20,100 | 1,200,000 |
| May | 38,000 | 15,800 | 24,300 | 1,490,000 |
| June | 34,500 | 11,400 | 20,600 | 1,230,000 |
| July | 10,800 | 3,900 | 6,780 | 417,000 |
| August | 3,810 | 2,070 | 2,840 | 175,000 |
| September | 2,470 | 1,890 | 2,110 | 126,000 |
| The year | 38,000 | 864 | 7,130 | 5,170,000 |

FLATHEAD RIVER NEAR KALISPELL, MONT.

LOCATION.—Chain gage in NE. $\frac{1}{4}$ sec. 10, T. 28 N., R. 21 W., at highway bridge 3 miles east of Kalispell. Gage readings adjusted to elevation above mean sea level, Somers datum.

RECORDS AVAILABLE.—May, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 2,909.52 feet May 21; minimum, 2,902.84 feet Sept. 6, 8.

1928-1930: Maximum water-surface elevation, 2,913.95 feet May 27, 1928; minimum, 2,902.84 feet Sept. 6, 8, 1930.

REMARKS.—Records collected for river profile study. Records fragmentary, but reliable.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 3.37 | 3.22 | 3.07 | 3.44 | 4.63 | 4.63 | 4.78 | 8.58 | 9.19 | ----- | 3.99 | 2.98 |
| 2 | 3.36 | ----- | 3.07 | 3.38 | 4.88 | 4.58 | ----- | 8.53 | 8.66 | ----- | 3.93 | ----- |
| 3 | 3.32 | 3.20 | 3.13 | 3.34 | 4.88 | 4.18 | 4.93 | ----- | ----- | ----- | ----- | 2.95 |
| 4 | 3.35 | 3.20 | 3.13 | 3.26 | ----- | ----- | 5.18 | 8.48 | 8.41 | ----- | 3.83 | 2.91 |
| 5 | 3.35 | 3.19 | 3.16 | 3.17 | 5.00 | 4.02 | 5.68 | 8.38 | 8.34 | 5.77 | 3.75 | 2.88 |
| 6 | ----- | ----- | 3.18 | 3.10 | ----- | 3.78 | ----- | 8.33 | ----- | 5.67 | ----- | 2.84 |
| 7 | 3.37 | 3.18 | 3.19 | 3.22 | 4.98 | ----- | 6.38 | 8.28 | 8.33 | 5.55 | 3.69 | ----- |
| 8 | 3.40 | 3.14 | ----- | 3.28 | ----- | 3.54 | 7.68 | 8.20 | 8.41 | 5.45 | 3.65 | 2.84 |
| 9 | 3.37 | 3.12 | 3.27 | 3.38 | 4.98 | ----- | ----- | 8.15 | ----- | 5.34 | 3.63 | ----- |
| 10 | 3.33 | 3.11 | 3.31 | 3.48 | 4.93 | 3.45 | 7.77 | ----- | 8.43 | 5.20 | 3.61 | 2.88 |
| 11 | 3.33 | 3.08 | ----- | ----- | ----- | ----- | 7.86 | 8.08 | ----- | ----- | 3.69 | 2.94 |
| 12 | ----- | 3.05 | 3.43 | ----- | 4.96 | 3.39 | 7.93 | 7.98 | 8.53 | 5.14 | ----- | ----- |
| 13 | ----- | 3.01 | 3.48 | 4.18 | 4.93 | ----- | ----- | 7.91 | 8.15 | 5.08 | 3.67 | 3.04 |
| 14 | 3.31 | ----- | 3.51 | ----- | 4.68 | 3.39 | 8.70 | 7.78 | ----- | ----- | 3.66 | ----- |
| 15 | 3.30 | 2.96 | ----- | 4.18 | 4.38 | 3.37 | 8.68 | 7.73 | 7.40 | 5.03 | 3.53 | 3.15 |
| 16 | 3.30 | ----- | 3.54 | ----- | 4.28 | 3.33 | 8.66 | ----- | ----- | ----- | 3.47 | 3.13 |
| 17 | 3.30 | 2.96 | 3.53 | 4.18 | 4.24 | 3.34 | 8.66 | 7.78 | 7.35 | 4.86 | ----- | 3.11 |
| 18 | 3.29 | 2.96 | ----- | ----- | 4.33 | ----- | 8.53 | ----- | 7.33 | 4.71 | 3.38 | ----- |
| 19 | 3.28 | 2.98 | 3.58 | ----- | 4.38 | 3.33 | ----- | 8.48 | 7.30 | 4.77 | 3.38 | 2.98 |
| 20 | 3.27 | 2.98 | 3.58 | 4.18 | 4.50 | ----- | 8.48 | ----- | 7.25 | 5.05 | 3.35 | ----- |
| 21 | 3.27 | 2.98 | 3.58 | 4.28 | 4.58 | 3.38 | 8.45 | 8.57 | ----- | 4.85 | 3.33 | 2.94 |
| 22 | 3.25 | 2.98 | 3.58 | ----- | 4.68 | 3.42 | ----- | ----- | 7.26 | 4.78 | ----- | 2.92 |
| 23 | 3.25 | 2.98 | 3.58 | ----- | ----- | ----- | 8.40 | 8.42 | 6.95 | 4.67 | 3.28 | ----- |
| 24 | 3.24 | 2.98 | 3.62 | 4.48 | 4.78 | 3.40 | 8.43 | 8.27 | ----- | 4.58 | 3.19 | 3.25 |
| 25 | 3.22 | 2.98 | 3.64 | ----- | 4.73 | 3.43 | ----- | 8.07 | 6.91 | 4.50 | ----- | ----- |
| 26 | 3.22 | 3.00 | 3.64 | 4.68 | 4.68 | 3.43 | 8.43 | 7.93 | 6.64 | ----- | 3.14 | 3.12 |
| 27 | 3.22 | 3.01 | 3.58 | ----- | 4.66 | ----- | 8.48 | 7.81 | ----- | 4.35 | 3.09 | ----- |
| 28 | 3.22 | 3.01 | 3.59 | 4.68 | ----- | 3.78 | 8.48 | 7.97 | 6.34 | ----- | 3.07 | 3.08 |
| 29 | 3.22 | 3.04 | 3.53 | ----- | ----- | 4.15 | 8.53 | 8.27 | ----- | 4.16 | 3.05 | 3.05 |
| 30 | 3.23 | 3.05 | 3.51 | 4.68 | ----- | 4.63 | 8.58 | ----- | 6.24 | 4.09 | ----- | ----- |
| 31 | 3.23 | ----- | 3.48 | ----- | ----- | 4.58 | ----- | 9.52 | ----- | 4.06 | 3.02 | ----- |

NOTE.—Add 2,900.00 feet to obtain elevation above mean sea level, Somers datum.

FLATHEAD RIVER AT DEMERSVILLE, NEAR KALISPELL, MONT.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 28, T. 28 N., R. 21 W., at Demersville, 3 miles southeast of Kalispell.

RECORDS AVAILABLE.—April, 1909, to July, 1912; April, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation reported during year, 2,893.60 feet May 31, June 1; minimum, 2,882.7 feet Oct. 30 to Dec. 31 (ice), Sept. 23.

1909–1912, 1928–1930: Maximum water-surface elevation, 2,904.4 feet May 27, 1928; minimum, 2,882.6 feet Oct. 1, 1910.

REMARKS.—Records good except those for October to December 31, 1929. Records for profile study of Flathead River between Kalispell and Flathead Lake. Gage not read Jan. 1 to May 18.

Daily elevation, in feet, 1929–30

| Day | Oct. | Nov. | Dec. | May | June | July | Aug. | Sept. |
|---------|------|------|------|-------|-------|------|------|-------|
| 1..... | 82.8 | 82.7 | 82.7 | ----- | 93.6 | 87.9 | 84.4 | 83.0 |
| 2..... | 82.8 | 82.7 | 82.7 | ----- | 92.5 | 87.8 | 84.4 | 83.0 |
| 3..... | 82.8 | 82.7 | 82.7 | ----- | 92.1 | 87.7 | 84.3 | 83.0 |
| 4..... | 82.8 | 82.7 | 82.7 | ----- | 92.1 | 87.5 | 84.2 | 83.0 |
| 5..... | 82.8 | 82.7 | 82.7 | ----- | 92.0 | 87.3 | 84.1 | 83.0 |
| 6..... | 82.8 | 82.7 | 82.7 | ----- | 91.7 | 87.0 | 84.0 | 83.0 |
| 7..... | 82.8 | 82.7 | 82.7 | ----- | 92.0 | 87.0 | 84.0 | 82.9 |
| 8..... | 82.8 | 82.7 | 82.7 | ----- | 92.5 | 86.8 | 83.9 | 82.9 |
| 9..... | 82.8 | 82.7 | 82.7 | ----- | 92.9 | 86.7 | 83.8 | 82.9 |
| 10..... | 82.8 | 82.7 | 82.7 | ----- | 92.6 | 86.6 | 83.8 | 82.9 |
| 11..... | 82.8 | 82.7 | 82.7 | ----- | 92.6 | 86.4 | 83.7 | 82.9 |
| 12..... | 82.8 | 82.7 | 82.7 | ----- | 92.7 | 86.3 | 83.7 | 82.9 |
| 13..... | 82.8 | 82.7 | 82.7 | ----- | 92.1 | 86.2 | 83.7 | 82.9 |
| 14..... | 82.8 | 82.7 | 82.7 | ----- | 91.5 | 86.1 | 83.6 | 82.9 |
| 15..... | 82.8 | 82.7 | 82.7 | ----- | 91.5 | 86.0 | 83.6 | 82.9 |
| 16..... | 82.8 | 82.7 | 82.7 | ----- | 91.4 | 85.9 | 83.6 | 82.9 |
| 17..... | 82.8 | 82.7 | 82.7 | ----- | 91.3 | 85.7 | 83.5 | 82.9 |
| 18..... | 82.8 | 82.7 | 82.7 | ----- | 91.2 | 85.5 | 83.5 | 82.9 |
| 19..... | 82.8 | 82.7 | 82.7 | 91.0 | 90.0 | 85.5 | 83.5 | 82.8 |
| 20..... | 82.7 | 82.7 | 82.7 | 90.9 | 89.6 | 85.4 | 83.4 | 82.8 |
| 21..... | 82.7 | 82.7 | 82.7 | 91.8 | 89.5 | 85.5 | 83.4 | 82.8 |
| 22..... | 82.7 | 82.7 | 82.7 | 92.5 | 89.5 | 85.4 | 83.3 | 82.8 |
| 23..... | 82.7 | 82.7 | 82.7 | 91.7 | 89.5 | 85.2 | 83.3 | 82.7 |
| 24..... | 82.7 | 82.7 | 82.7 | 91.0 | 89.4 | 85.2 | 83.3 | 83.0 |
| 25..... | 82.7 | 82.7 | 82.7 | 90.8 | 89.1 | 85.1 | 83.2 | 82.9 |
| 26..... | 82.7 | 82.7 | 82.7 | 90.6 | 88.8 | 85.0 | 83.1 | 82.8 |
| 27..... | 82.7 | 82.7 | 82.7 | 90.4 | 88.6 | 84.9 | 83.1 | 82.8 |
| 28..... | 82.7 | 82.7 | 82.7 | 90.3 | 88.5 | 84.7 | 83.1 | 82.8 |
| 29..... | 82.7 | 82.7 | 82.7 | 91.5 | 88.5 | 84.6 | 83.1 | 82.8 |
| 30..... | 82.7 | 82.7 | 82.7 | 82.7 | 88.2 | 84.6 | 83.1 | 82.8 |
| 31..... | 82.7 | 82.7 | 82.7 | 93.6 | ----- | 84.5 | 83.0 | ----- |

NOTE.—Gage readings Oct. 1 to Dec. 31, 1929, do not represent true river profile on account of riffle and sand bar below gage. Add 2,800.00 feet to obtain elevation above mean sea level, Somers datum.

FLATHEAD RIVER AT DAMON RANCH, NEAR KALISPELL, MONT.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 32, T. 28 N., R. 20 W., at Damon ranch, 7 miles below Kalispell.

RECORDS AVAILABLE.—April, 1909, to July, 1912; May, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation, 2,891.22 feet May 31; minimum, 2,881.50 feet Jan. 20–26.

1909–1912, 1928–1930: Maximum water-surface elevation, 2,899.6 feet (determined from flood mark) May 26–27, 1928; minimum, 2,881.50 feet Jan. 20–26, 1930.

REMARKS.—Records good. Records used for river profile studies on Flathead River above Flathead Lake.

Daily elevation in feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 82.26 | 81.95 | 81.60 | 81.92 | 81.54 | 81.80 | 82.04 | 89.64 | 90.97 | 87.37 | 84.35 | 82.89 |
| 2..... | 82.27 | 81.97 | 81.59 | 81.90 | 81.54 | 81.80 | 82.16 | 89.51 | 90.76 | 87.27 | 84.31 | 82.86 |
| 3..... | 82.28 | 81.96 | 81.59 | 81.88 | 81.54 | 81.76 | 82.30 | 89.77 | 90.58 | 87.15 | 84.24 | 82.84 |
| 4..... | 82.26 | 81.93 | 81.59 | 81.92 | 81.54 | 81.78 | 82.46 | 90.54 | 90.44 | 86.99 | 84.15 | 82.79 |
| 5..... | 82.19 | 81.95 | 81.59 | 81.88 | 81.54 | 81.80 | 82.68 | 90.63 | 90.30 | 86.84 | 84.09 | 82.75 |
| 6..... | 82.16 | 81.93 | 81.59 | 81.86 | 81.54 | 81.80 | 82.96 | 90.37 | 90.19 | 86.66 | 84.02 | 82.71 |
| 7..... | 82.13 | 81.90 | 81.56 | 81.84 | 81.54 | 81.78 | 83.53 | 90.15 | 90.26 | 86.55 | 83.95 | 82.69 |
| 8..... | 82.12 | 81.92 | 81.54 | 81.82 | 81.54 | 81.81 | 84.34 | 89.83 | 90.60 | 86.43 | 83.86 | 82.66 |
| 9..... | 82.19 | 81.55 | 81.56 | 81.80 | 81.54 | 81.81 | 85.11 | 89.65 | 90.71 | 86.34 | 83.89 | 82.65 |
| 10..... | 82.17 | 81.84 | 81.58 | 81.78 | 81.54 | 81.80 | 85.18 | 89.29 | 90.67 | 86.26 | 83.84 | 82.63 |
| 11..... | 82.14 | 81.84 | 81.64 | 81.76 | 81.54 | 81.82 | 85.23 | 88.95 | 90.76 | 86.13 | 83.79 | 82.61 |
| 12..... | 82.13 | 81.84 | 81.66 | 81.72 | 81.54 | 81.78 | 85.61 | 88.82 | 90.61 | 86.01 | 83.77 | 82.61 |
| 13..... | 82.10 | 81.83 | 81.70 | 81.70 | 81.54 | 81.80 | 85.92 | 88.73 | 90.40 | 85.93 | 83.70 | 82.63 |
| 14..... | 82.08 | 81.80 | 81.73 | 81.66 | 81.54 | 81.77 | 86.63 | 88.66 | 89.95 | 85.82 | 83.66 | 82.56 |
| 15..... | 82.09 | 81.78 | 81.75 | 81.64 | 81.56 | 81.76 | 87.72 | 88.75 | 89.88 | 85.73 | 83.61 | 82.53 |
| 16..... | 82.08 | 81.76 | 81.80 | 81.56 | 81.58 | 81.78 | 87.49 | 89.05 | 89.40 | 85.58 | 83.59 | 82.53 |
| 17..... | 82.07 | 81.76 | 81.87 | 81.54 | 81.60 | 81.78 | 87.03 | 89.28 | 89.30 | 85.48 | 83.55 | 82.51 |
| 18..... | 82.08 | 81.74 | 81.86 | 81.52 | 81.62 | 81.79 | 86.71 | 89.44 | 89.23 | 85.36 | 83.49 | 82.47 |
| 19..... | 82.10 | 81.74 | 81.86 | 81.52 | 81.64 | 81.85 | 86.73 | 89.50 | 88.95 | 84.99 | 83.42 | 82.46 |
| 20..... | 82.08 | 81.74 | 81.88 | 81.50 | 81.72 | 81.76 | 86.79 | 89.39 | 88.79 | 85.34 | 83.37 | 82.47 |
| 21..... | 82.00 | 81.74 | 81.90 | 81.50 | 81.74 | 81.80 | 87.98 | 89.66 | 88.77 | 85.20 | 83.29 | 82.47 |
| 22..... | 81.98 | 81.74 | 81.92 | 81.50 | 81.82 | 81.84 | 87.45 | 89.76 | 88.72 | 85.01 | 83.29 | 82.60 |
| 23..... | 81.96 | 81.72 | 81.94 | 81.50 | 81.80 | 81.80 | 87.98 | 89.84 | 88.57 | 85.03 | 83.23 | 82.69 |
| 24..... | 81.96 | 81.72 | 81.94 | 81.50 | 81.82 | 81.78 | 88.67 | 89.49 | 88.45 | 84.92 | 83.21 | 82.60 |
| 25..... | 81.97 | 81.70 | 81.96 | 81.50 | 81.84 | 81.80 | 89.50 | 89.41 | 88.25 | 84.85 | 83.16 | 82.58 |
| 26..... | 81.96 | 81.67 | 81.96 | 81.50 | 81.78 | 81.84 | 89.70 | 89.32 | 88.04 | 84.76 | 83.09 | 82.56 |
| 27..... | 82.02 | 81.64 | 81.94 | 81.54 | 81.78 | 81.82 | 89.92 | 89.14 | 87.86 | 84.68 | 83.04 | 82.54 |
| 28..... | 81.99 | 81.63 | 81.94 | 81.54 | 81.80 | 81.82 | 90.00 | 89.14 | 87.73 | 84.59 | 83.00 | 82.54 |
| 29..... | 81.95 | 81.62 | 81.94 | 81.54 | ----- | 81.90 | 89.99 | 89.69 | 87.60 | 84.45 | 82.99 | 82.54 |
| 30..... | 81.98 | 81.60 | 81.94 | 81.54 | ----- | 81.91 | 89.91 | 90.52 | 87.48 | 84.41 | 82.95 | 82.46 |
| 31..... | 81.95 | ----- | 81.92 | 81.54 | ----- | 82.02 | ----- | 91.16 | ----- | 84.38 | 82.93 | ----- |

NOTE.—Add 2,800.00 feet to obtain elevation above mean sea level, Somers datum.

FLATHEAD RIVER NEAR HOLT, MONT.

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 22, T. 27 N., R. 20 W., at Keller's ranch, near Holt.

RECORDS AVAILABLE.—April, 1909, to July, 1912; June, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 2,889.10 feet June 11; minimum, 2,881.24 feet Jan. 25-28.

1909-1912, 1928-1930: Maximum water-surface elevation, 2,897.35 feet (determined from flood mark) May 29-30, 1928; minimum, 2,881.24 feet Jan. 25-28, 1930.

REMARKS.—Records good. Records used for profile study of river between Kalispell and Flathead Lake.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 82.04 | 81.76 | 81.48 | 81.70 | 81.30 | 81.44 | 81.66 | 88.12 | 88.98 | 86.78 | 84.06 | 82.58 |
| 2..... | 82.02 | 81.74 | 81.48 | 81.70 | 81.32 | 81.42 | 81.72 | 88.26 | 88.84 | 86.70 | 84.00 | 82.54 |
| 3..... | 82.00 | 81.74 | 81.46 | 81.68 | 81.32 | 81.42 | 81.80 | 88.40 | 88.88 | 86.60 | 83.92 | 82.50 |
| 4..... | 81.98 | 81.72 | 81.46 | 81.68 | 81.32 | 81.44 | 81.90 | 88.56 | 88.98 | 86.50 | 83.86 | 82.46 |
| 5..... | 81.96 | 81.72 | 81.44 | 81.66 | 81.30 | 81.44 | 82.00 | 88.66 | 88.92 | 86.34 | 83.80 | 82.42 |
| 6..... | 81.96 | 81.70 | 81.42 | 81.64 | 81.30 | 81.46 | 82.10 | 88.68 | 88.86 | 86.22 | 83.76 | 82.38 |
| 7..... | 81.96 | 81.70 | 81.40 | 81.62 | 81.30 | 81.46 | 82.16 | 88.56 | 88.88 | 86.12 | 83.70 | 82.34 |
| 8..... | 81.94 | 81.68 | 81.38 | 81.60 | 81.28 | 81.48 | 82.20 | 88.54 | 89.02 | 86.00 | 83.66 | 82.32 |
| 9..... | 81.94 | 81.68 | 81.40 | 81.58 | 81.28 | 81.48 | 83.24 | 88.44 | 89.06 | 85.90 | 83.60 | 82.30 |
| 10..... | 81.94 | 81.66 | 81.42 | 81.56 | 81.30 | 81.48 | 83.64 | 88.32 | 89.08 | 85.80 | 83.56 | 82.28 |
| 11..... | 81.92 | 81.66 | 81.44 | 81.54 | 81.30 | 81.48 | 83.64 | 88.22 | 89.10 | 85.70 | 83.48 | 82.26 |
| 12..... | 81.92 | 81.66 | 81.46 | 81.52 | 81.32 | 81.50 | 83.64 | 88.04 | 89.06 | 85.60 | 83.42 | 82.28 |
| 13..... | 81.90 | 81.64 | 81.48 | 81.50 | 81.32 | 81.50 | 84.22 | 87.96 | 89.04 | 85.54 | 83.38 | 82.30 |
| 14..... | 81.90 | 81.64 | 81.52 | 81.48 | 81.34 | 81.48 | 84.50 | 87.86 | 88.90 | 85.46 | 83.34 | 82.32 |
| 15..... | 81.88 | 81.64 | 81.54 | 81.46 | 81.34 | 81.48 | 85.30 | 87.90 | 88.66 | 85.38 | 83.28 | 82.30 |
| 16..... | 81.88 | 81.64 | 81.56 | 81.44 | 81.36 | 81.46 | 85.48 | 87.94 | 88.52 | 85.30 | 83.24 | 82.28 |
| 17..... | 81.86 | 81.62 | 81.58 | 81.42 | 81.38 | 81.46 | 85.40 | 87.96 | 88.40 | 85.14 | 83.20 | 82.26 |
| 18..... | 81.86 | 81.60 | 81.60 | 81.40 | 81.40 | 81.48 | 85.38 | 88.00 | 88.30 | 85.00 | 83.16 | 82.24 |
| 19..... | 81.84 | 81.60 | 81.62 | 81.38 | 81.42 | 81.48 | 85.48 | 88.04 | 88.18 | 84.96 | 83.12 | 82.22 |
| 20..... | 81.84 | 81.58 | 81.64 | 81.36 | 81.44 | 81.50 | 85.60 | 88.08 | 88.06 | 84.94 | 83.08 | 82.20 |
| 21..... | 81.84 | 81.58 | 81.66 | 81.32 | 81.46 | 81.50 | 85.74 | 88.20 | 87.94 | 84.86 | 83.02 | 82.18 |
| 22..... | 81.82 | 81.56 | 81.68 | 81.30 | 81.48 | 81.52 | 85.98 | 88.50 | 87.82 | 84.98 | 82.98 | 82.18 |
| 23..... | 81.82 | 81.56 | 81.70 | 81.28 | 81.48 | 81.52 | 86.20 | 88.30 | 87.72 | 84.70 | 82.94 | 82.24 |
| 24..... | 81.82 | 81.54 | 81.72 | 81.26 | 81.48 | 81.54 | 86.50 | 88.24 | 87.62 | 84.64 | 82.90 | 82.30 |
| 25..... | 81.80 | 81.54 | 81.72 | 81.24 | 81.46 | 81.54 | 87.10 | 88.22 | 87.50 | 84.56 | 82.86 | 82.28 |
| 26..... | 81.80 | 81.52 | 81.74 | 81.24 | 81.46 | 81.56 | 87.46 | 88.18 | 87.38 | 84.46 | 82.82 | 82.28 |
| 27..... | 81.80 | 81.52 | 81.74 | 81.24 | 81.46 | 81.56 | 87.64 | 88.08 | 87.30 | 84.38 | 82.78 | 82.26 |
| 28..... | 81.78 | 81.50 | 81.76 | 81.26 | 81.44 | 81.58 | 87.76 | 88.02 | 87.22 | 84.30 | 82.74 | 82.24 |
| 29..... | 81.78 | 81.50 | 81.76 | 81.26 | ----- | 81.58 | 87.96 | 88.26 | 87.10 | 84.24 | 82.70 | 82.24 |
| 30..... | 81.76 | 81.50 | 81.74 | 81.28 | ----- | 81.60 | 88.00 | 88.64 | 86.96 | 84.18 | 82.66 | 82.22 |
| 31..... | 81.76 | ----- | 81.72 | 81.28 | ----- | 81.62 | ----- | 88.82 | ----- | 84.12 | 82.62 | ----- |

NOTE.—Add 2,800.00 feet to obtain elevation above mean sea level, Somers datum.

FLATHEAD LAKE AT SOMERS, MONT.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 26, T. 27 N., R. 21 W., at steamboat dock at Somers.

RECORDS AVAILABLE.—April, 1922, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 2,888.81 feet June 11; minimum, 2,881.20 feet Dec. 10.

1922–1930: Maximum water-surface elevation, 2,895.92 feet May 31, 1928; minimum, 2,881.20 feet Dec. 10, 1929.

REMARKS.—Records from water-stage recorder excellent; others good. Staff gage read Nov. 10–19, Dec. 12 to Jan. 17, Jan. 19 to Feb. 12.

Daily elevation, in feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1----- | 81.99 | 81.72 | 81.40 | 81.68 | 81.42 | 81.67 | 81.86 | 87.57 | 88.22 | 86.71 | 84.05 | 82.55 |
| 2----- | 81.98 | 81.70 | 81.40 | 81.71 | 81.41 | 81.67 | 81.90 | 87.63 | 88.35 | 86.60 | 84.00 | 82.53 |
| 3----- | 81.99 | 81.68 | 81.40 | 81.67 | 81.40 | 81.69 | 81.93 | 87.72 | 88.44 | 86.50 | 83.90 | 82.48 |
| 4----- | 81.99 | 81.67 | 81.40 | 81.71 | 81.39 | 81.68 | 82.00 | 87.87 | 88.50 | 86.40 | 83.85 | 82.46 |
| 5----- | 81.98 | 81.65 | 81.40 | 81.64 | 81.46 | 81.70 | 82.08 | 88.04 | 88.51 | 86.26 | 83.80 | 82.44 |
| 6----- | 81.93 | 81.63 | 81.38 | 81.63 | 81.43 | 81.69 | 82.20 | 88.17 | 88.50 | 86.15 | 83.74 | 82.44 |
| 7----- | 81.91 | 81.62 | 81.33 | 81.65 | 81.40 | 81.70 | 82.30 | 88.22 | 88.47 | 86.04 | 83.67 | 82.39 |
| 8----- | 81.91 | 81.63 | 81.34 | 81.63 | 81.46 | 81.70 | 82.48 | 88.20 | 88.49 | 85.95 | 83.63 | 82.33 |
| 9----- | 81.93 | 81.65 | 81.30 | 81.64 | 81.45 | 81.70 | 82.68 | 88.17 | 88.50 | 85.83 | 83.59 | 82.36 |
| 10----- | 81.90 | 81.65 | 81.35 | 81.63 | 81.40 | 81.70 | 82.96 | 88.10 | 88.56 | 85.75 | 83.58 | 82.36 |
| 11----- | 81.88 | 81.65 | 81.40 | 81.60 | 81.46 | 81.70 | 83.15 | 88.02 | 88.60 | 85.65 | 83.51 | 82.31 |
| 12----- | 81.86 | 81.65 | 81.47 | 81.58 | 81.47 | 81.72 | 83.37 | 87.92 | 88.66 | 85.54 | 83.47 | 82.34 |
| 13----- | 81.86 | 81.60 | 81.48 | 81.56 | 81.47 | 81.72 | 83.58 | 87.81 | 88.64 | 85.44 | 83.43 | 82.34 |
| 14----- | 81.85 | 81.58 | 81.51 | 81.49 | 81.48 | 81.72 | 83.90 | 87.70 | 88.58 | 85.35 | 83.35 | 82.30 |
| 15----- | 81.84 | 81.57 | 81.49 | 81.45 | 81.48 | 81.73 | 84.24 | 87.60 | 88.46 | 85.29 | 83.31 | 82.30 |
| 16----- | 81.83 | 81.55 | 81.52 | 81.47 | 81.50 | 81.73 | 84.59 | 87.56 | 88.35 | 85.19 | 83.27 | 82.25 |
| 17----- | 81.85 | 81.57 | 81.56 | 81.48 | 81.50 | 81.74 | 84.81 | 87.55 | 88.20 | 85.08 | 83.25 | 82.22 |
| 18----- | 81.84 | 81.58 | 81.55 | 81.42 | 81.52 | 81.74 | 85.00 | 87.58 | 88.10 | 84.97 | 83.18 | 82.20 |
| 19----- | 81.82 | 81.55 | 81.60 | 81.41 | 81.54 | 81.74 | 85.16 | 87.61 | 87.95 | 84.92 | 83.14 | 82.18 |
| 20----- | 81.80 | 81.54 | 81.61 | 81.42 | 81.57 | 81.73 | 85.28 | 87.65 | 87.85 | 84.87 | 83.12 | 82.22 |
| 21----- | 81.78 | 81.48 | 81.63 | 81.39 | 81.59 | 81.74 | 85.35 | 87.71 | 87.76 | 84.80 | 83.00 | 82.21 |
| 22----- | 81.76 | 81.46 | 81.62 | 81.42 | 81.60 | 81.74 | 85.50 | 87.82 | 87.64 | 84.72 | 82.95 | 82.22 |
| 23----- | 81.75 | 81.45 | 81.66 | 81.39 | 81.63 | 81.73 | 85.65 | 87.88 | 87.50 | 84.66 | 82.93 | 82.38 |
| 24----- | 81.74 | 81.46 | 81.68 | 81.40 | 81.64 | 81.72 | 85.90 | 87.89 | 87.48 | 84.60 | 82.89 | 82.36 |
| 25----- | 81.74 | 81.44 | 81.73 | 81.38 | 81.65 | 81.75 | 86.20 | 87.90 | 87.38 | 84.54 | 82.85 | 82.32 |
| 26----- | 81.72 | 81.47 | 81.76 | 81.38 | 81.63 | 81.76 | 86.47 | 87.86 | 87.26 | 84.45 | 82.81 | 82.32 |
| 27----- | 81.77 | 81.46 | 81.69 | 81.37 | 81.65 | 81.78 | 86.76 | 87.81 | 87.15 | 84.35 | 82.75 | 82.30 |
| 28----- | 81.74 | 81.42 | 81.69 | 81.40 | 81.67 | 81.79 | 87.05 | 87.74 | 87.00 | 84.26 | 82.70 | 82.28 |
| 29----- | 81.73 | 81.43 | 81.69 | 81.40 | ----- | 81.78 | 87.25 | 87.73 | 86.90 | 84.20 | 82.69 | 82.27 |
| 30----- | 81.74 | 81.42 | 81.73 | 81.39 | ----- | 81.75 | 87.45 | 87.88 | 86.80 | 84.16 | 82.67 | 82.23 |
| 31----- | 81.73 | ----- | 81.70 | 81.43 | ----- | 81.80 | ----- | 88.04 | ----- | 84.10 | 82.55 | ----- |

NOTE.—Add 2,800.00 feet to obtain elevation above mean sea level.

FLATHEAD LAKE AT POLSON, MONT.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 4, T. 22 N., R. 20 W., at south end of lake at Polson.

RECORDS AVAILABLE.—August, 1908, to December, 1926; June, 1928, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 2,889.01 feet June 11; minimum, 2,881.54 feet Dec. 8.

1908-1926, 1928-1930: Maximum water-surface elevation, 2,895.85 feet May 29, 1928; minimum, 2,881.5 feet Feb. 16-23, 1913, Nov. 24, 1923.

REMARKS.—Records from water-stage recorder excellent; others good. Staff gage read Oct. 20 to Feb. 8, Feb. 24 to Mar. 7, May 9 to June 9.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 82.13 | 81.84 | 81.62 | 81.82 | 81.58 | 81.80 | 82.00 | 87.62 | 88.25 | 86.82 | 84.11 | 82.74 |
| 2 | 82.06 | 81.84 | 81.60 | 81.80 | 81.60 | 81.80 | 82.01 | 87.71 | 88.38 | 86.69 | 84.06 | 82.71 |
| 3 | 82.00 | 81.82 | 81.60 | 81.84 | 81.58 | 81.82 | 82.05 | 87.77 | 88.49 | 86.53 | 84.00 | 82.69 |
| 4 | 82.02 | 81.86 | 81.60 | 81.84 | 81.58 | 81.83 | ----- | 87.97 | 88.59 | 86.45 | 83.97 | 82.67 |
| 5 | 82.04 | 81.86 | 81.58 | 81.92 | 81.60 | 81.85 | ----- | 88.15 | 88.64 | 86.38 | 83.93 | 82.60 |
| 6 | 82.09 | 81.88 | 81.56 | 81.86 | 81.59 | 81.87 | 82.35 | 88.25 | 88.62 | 86.23 | 83.87 | 82.60 |
| 7 | 82.12 | 81.85 | 81.56 | 81.84 | 81.60 | 81.88 | 82.43 | 88.31 | 88.60 | 86.16 | 83.82 | 82.63 |
| 8 | 82.07 | 81.82 | 81.55 | 81.82 | 81.60 | 81.88 | 82.57 | 88.42 | 88.60 | 86.04 | 83.71 | 82.57 |
| 9 | 82.04 | 81.81 | 81.56 | 81.80 | 81.58 | 81.88 | 82.80 | 88.38 | 88.63 | 85.94 | 83.70 | 82.54 |
| 10 | 82.00 | 81.80 | 81.58 | 81.78 | 81.58 | 81.88 | 83.10 | 88.24 | 88.67 | 85.85 | 83.67 | 82.50 |
| 11 | 81.99 | 81.78 | 81.58 | 81.76 | 81.57 | 81.86 | 83.32 | 88.18 | 88.66 | 85.77 | 83.60 | 82.50 |
| 12 | 82.01 | 81.78 | 81.58 | 81.74 | 81.58 | 81.88 | 83.52 | 88.06 | 88.68 | 85.69 | 83.55 | 82.40 |
| 13 | 82.01 | 81.78 | 81.59 | 81.72 | 81.59 | 81.90 | 83.72 | 87.93 | 88.66 | 85.61 | 83.50 | 82.31 |
| 14 | 81.99 | 81.76 | 81.60 | 81.70 | 81.60 | 81.89 | 84.01 | 87.84 | 88.68 | 85.51 | 83.46 | 82.36 |
| 15 | 81.97 | 81.76 | 81.63 | 81.70 | 81.59 | 81.91 | 84.30 | 87.75 | 88.60 | 85.42 | 83.40 | 82.37 |
| 16 | 81.98 | 81.75 | 81.69 | 81.68 | 81.59 | 81.90 | 84.63 | 87.69 | 88.45 | 85.31 | 83.36 | 82.38 |
| 17 | 81.99 | 81.73 | 81.73 | 81.62 | 81.58 | 81.88 | 84.90 | 87.68 | 88.29 | 85.17 | 83.32 | 82.38 |
| 18 | 82.00 | 81.73 | 81.77 | 81.62 | 81.58 | 81.87 | 85.13 | 87.67 | 88.20 | 85.14 | 83.30 | 82.34 |
| 19 | 82.01 | 81.70 | 81.78 | 81.60 | 81.61 | 81.78 | 85.27 | 87.70 | 88.13 | 85.07 | 83.35 | 82.38 |
| 20 | 81.94 | 81.70 | 81.80 | 81.60 | 81.63 | 81.87 | 85.34 | 87.74 | 88.03 | 85.01 | 83.27 | 82.36 |
| 21 | 81.94 | 81.70 | 81.80 | 81.60 | 81.64 | 81.83 | 85.47 | 87.80 | 87.87 | 84.96 | 83.23 | 82.31 |
| 22 | 81.96 | 81.67 | 81.80 | 81.60 | 81.61 | 81.82 | 85.57 | 87.93 | 87.80 | 84.90 | 83.20 | 82.35 |
| 23 | 81.96 | 81.64 | 81.78 | 81.60 | 81.65 | 81.86 | 85.74 | 88.03 | 87.70 | 84.83 | 83.13 | 82.36 |
| 24 | 81.94 | 81.62 | 81.77 | 81.58 | 81.72 | 81.91 | 86.00 | 88.04 | 87.57 | 84.72 | 83.08 | 82.40 |
| 25 | 81.93 | 81.60 | 81.78 | 81.58 | 81.75 | 81.97 | 86.29 | 87.98 | 87.52 | 84.66 | 83.04 | 82.40 |
| 26 | 81.94 | 81.60 | 81.80 | 81.58 | 81.78 | 81.96 | 86.59 | 88.00 | 87.38 | 84.53 | 83.00 | 82.42 |
| 27 | 81.87 | 81.58 | 81.80 | 81.58 | 81.80 | 81.97 | 86.83 | 87.95 | 87.27 | 84.44 | 83.00 | 82.40 |
| 28 | 81.99 | 81.60 | 81.80 | 81.58 | 81.80 | 81.96 | 87.11 | 87.89 | 87.06 | 84.37 | 82.97 | 82.43 |
| 29 | 81.96 | 81.60 | 81.80 | 81.58 | ----- | 82.05 | 87.39 | 87.89 | 87.02 | 84.29 | 82.86 | 82.38 |
| 30 | 81.87 | 81.61 | 81.78 | 81.58 | ----- | 82.12 | 87.54 | 87.98 | 86.94 | 84.25 | 82.80 | 82.38 |
| 31 | 81.86 | ----- | 81.78 | 81.58 | ----- | 82.02 | ----- | 88.12 | ----- | 84.17 | 82.90 | ----- |

NOTE.—Add 2,800.00 feet to obtain elevation above mean sea level.

FLATHEAD RIVER NEAR POLSON, MONT.

LOCATION.—Water-stage recorder in sec. 19, T. 22 N., R. 21 W., at highway bridge at Norrisvale, 12 miles below Polson.

DRAINAGE AREA.—7,010 square miles.

RECORDS AVAILABLE.—July, 1907, to September, 1930.

EXTREMES.—Maximum discharge during year, 31,700 second-feet June 11 (gauge height, 9.98 feet); minimum (estimated), 1,540 second-feet Jan. 22 (gauge height, 1.53 feet; ice on control).

1907-1930: Maximum discharge, 82,100 second-feet May 29-30, 1928 (gauge height, 17.1 feet); minimum, 1,360 second-feet Dec. 9-14, 1919, Mar. 14, 1920 (gauge height, -0.1 foot).

REMARKS.—Records good. Several diversions from tributaries above Flathead Lake. Flow somewhat regulated by natural storage in Flathead Lake.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|-------|
| 1----- | 2,950 | 2,400 | 2,150 | 2,360 | 1,920 | 2,550 | 2,550 | 24,300 | 28,200 | 19,700 | 8,340 | 4,010 |
| 2----- | 2,890 | 2,400 | 2,110 | 2,320 | 2,000 | 2,500 | 2,600 | 24,300 | 28,900 | 18,700 | 8,070 | 4,010 |
| 3----- | 2,890 | 2,400 | 2,070 | 2,070 | 2,030 | 2,450 | 2,660 | 25,000 | 29,600 | 18,200 | 7,810 | 4,010 |
| 4----- | 2,500 | 2,400 | 2,070 | 2,400 | 2,070 | 2,500 | 2,660 | 26,200 | 30,300 | 17,700 | 7,550 | 4,010 |
| 5----- | 2,660 | 2,450 | 2,030 | 2,500 | 2,030 | 2,500 | 3,070 | 27,500 | 30,300 | 17,200 | 7,300 | 3,870 |
| 6----- | 2,770 | 2,450 | 2,030 | 2,190 | 2,070 | 2,550 | 3,260 | 27,500 | 30,300 | 16,700 | 7,300 | 3,730 |
| 7----- | 2,830 | 2,360 | 2,000 | 2,030 | 2,070 | 2,500 | 3,460 | 28,200 | 30,300 | 16,200 | 7,060 | 3,570 |
| 8----- | 2,770 | 2,360 | 2,070 | 2,000 | 2,030 | 2,450 | 3,730 | 28,200 | 29,600 | 15,800 | 6,830 | 3,730 |
| 9----- | 2,710 | 2,320 | 2,070 | 2,000 | 2,070 | 2,400 | 4,150 | 28,200 | 30,300 | 15,300 | 6,610 | 3,730 |
| 10----- | 2,660 | 2,270 | 1,890 | 1,960 | 2,070 | 2,450 | 4,720 | 27,500 | 30,300 | 14,900 | 6,390 | 3,730 |
| 11----- | 2,710 | 2,270 | 1,960 | 1,860 | 2,070 | 2,400 | 5,380 | 26,900 | 30,300 | 14,400 | 6,390 | 3,590 |
| 12----- | 2,710 | 2,270 | 2,070 | 1,860 | 2,000 | 2,450 | 5,970 | 26,200 | 30,300 | 14,000 | 6,180 | 3,460 |
| 13----- | 2,680 | 2,270 | 2,150 | 1,860 | 1,960 | 2,450 | 6,830 | 25,600 | 30,300 | 13,600 | 5,970 | 3,260 |
| 14----- | 2,660 | 2,270 | 2,150 | 1,860 | 1,920 | 2,450 | 7,550 | 25,000 | 30,300 | 13,200 | 5,770 | 3,260 |
| 15----- | 2,600 | 2,230 | 2,190 | 1,780 | 2,000 | 2,450 | 8,890 | 25,000 | 29,600 | 12,800 | 5,970 | 3,260 |
| 16----- | 2,600 | 2,230 | 2,320 | 1,690 | 2,110 | 2,400 | 10,000 | 24,300 | 28,900 | 12,400 | 5,770 | 3,330 |
| 17----- | 2,600 | 2,110 | 2,320 | 1,570 | 2,070 | 2,400 | 11,000 | 24,300 | 27,500 | 11,700 | 5,570 | 3,330 |
| 18----- | 2,600 | 2,070 | 2,270 | 1,570 | 2,150 | 2,400 | 12,100 | 24,300 | 27,500 | 11,700 | 5,380 | 3,200 |
| 19----- | 2,500 | 2,070 | 2,230 | 1,570 | 2,150 | 2,230 | 12,400 | 24,300 | 26,900 | 11,700 | 5,380 | 3,330 |
| 20----- | 2,600 | 2,070 | 2,230 | 1,570 | 2,190 | 2,400 | 12,800 | 25,000 | 26,200 | 11,400 | 5,200 | 3,260 |
| 21----- | 2,550 | 2,000 | 2,230 | 1,570 | 2,230 | 2,320 | 13,200 | 25,000 | 25,000 | 11,400 | 5,200 | 3,200 |
| 22----- | 2,550 | 2,000 | 2,270 | 1,540 | 2,320 | 2,270 | 14,000 | 25,600 | 25,000 | 11,000 | 5,030 | 3,260 |
| 23----- | 2,550 | 1,960 | 2,270 | 1,600 | 2,360 | 2,360 | 14,900 | 26,200 | 23,700 | 10,700 | 4,870 | 3,330 |
| 24----- | 2,500 | 2,000 | 2,360 | 1,630 | 2,360 | 2,450 | 15,300 | 26,200 | 23,100 | 10,400 | 4,720 | 3,460 |
| 25----- | 2,500 | 2,030 | 2,320 | 1,660 | 2,400 | 2,500 | 16,700 | 26,200 | 23,100 | 10,000 | 4,720 | 3,460 |
| 26----- | 2,400 | 2,070 | 2,320 | 1,690 | 2,500 | 2,550 | 18,200 | 26,200 | 22,500 | 9,750 | 4,570 | 3,460 |
| 27----- | 2,450 | 2,070 | 2,270 | 1,750 | 2,500 | 2,550 | 19,700 | 26,200 | 22,000 | 9,750 | 4,570 | 3,460 |
| 28----- | 2,710 | 2,150 | 2,360 | 1,780 | 2,450 | 2,500 | 21,400 | 25,600 | 20,800 | 9,460 | 4,430 | 3,460 |
| 29----- | 2,600 | 2,150 | 2,360 | 1,860 | ----- | 2,660 | 22,500 | 25,600 | 20,300 | 9,170 | 4,290 | 3,460 |
| 30----- | 2,500 | 2,150 | 2,270 | 1,860 | ----- | 2,830 | 23,700 | 26,200 | 20,300 | 8,890 | 4,010 | 3,460 |
| 31----- | 2,450 | ----- | 2,270 | 1,860 | ----- | 2,600 | ----- | 26,900 | ----- | 8,610 | 4,290 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October----- | 2,950 | 2,400 | 2,630 | 0.375 | 0.43 | 162,000 |
| November----- | 2,450 | 1,960 | 2,210 | .315 | .35 | 132,000 |
| December----- | 2,360 | 1,890 | 2,180 | .311 | .36 | 134,000 |
| January----- | 2,500 | 1,540 | 1,870 | .267 | .31 | 115,000 |
| February----- | 2,500 | 1,920 | 2,150 | .307 | .32 | 119,000 |
| March----- | 2,830 | 2,230 | 2,470 | .352 | .41 | 152,000 |
| April----- | 23,700 | 2,550 | 10,200 | 1.46 | 1.63 | 607,000 |
| May----- | 28,200 | 24,300 | 25,900 | 3.69 | 4.25 | 1,590,000 |
| June----- | 30,300 | 20,300 | 27,100 | 3.87 | 4.32 | 1,610,000 |
| July----- | 19,700 | 8,610 | 13,100 | 1.87 | 2.16 | 806,000 |
| August----- | 8,340 | 4,010 | 5,860 | .836 | .96 | 360,000 |
| September----- | 4,010 | 3,200 | 3,530 | .504 | .56 | 210,000 |
| The year----- | 30,300 | 1,540 | 8,290 | 1.18 | 16.06 | 6,000,000 |

MIDDLE FORK OF FLATHEAD RIVER AT BELTON, MONT.

LOCATION.—Staff gage in NW. ¼ sec. 36, T. 32 N., R. 19 W., at Belton.

DRAINAGE AREA.—900 square miles.

RECORDS AVAILABLE.—October, 1910, to September, 1923; February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 10,300 second-feet Apr. 25 (gage height, 8.64 feet); minimum (estimated), 161 second-feet Jan. 20 (ice present). 1910–1923, 1929–30. Maximum discharge, 49,000 second-feet June 21, 1916 (gage height, 20.0 feet); minimum, 115 second-feet Mar. 1, 1929 (gage height, 1.50 feet; ice present).

REMARKS.—Records excellent except those for period of ice effect, Dec. 1 to Feb. 18, Mar. 2–6, which are fair. No diversions; no storage.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|-------|--------|--------|-------|-------|-------|-------|
| 1 | 312 | 280 | 214 | 260 | 270 | 454 | 701 | 6,400 | 7,440 | 2,280 | 880 | 477 |
| 2 | 312 | 280 | 189 | | | 432 | 1,080 | 6,800 | 5,830 | 2,400 | 880 | 454 |
| 3 | 295 | 265 | 175 | | | 432 | 1,150 | 9,160 | 6,400 | 2,280 | 818 | 454 |
| 4 | 295 | 265 | 175 | | | 410 | 1,950 | 9,430 | 6,400 | 1,950 | 758 | 432 |
| 5 | 295 | 265 | | | | 410 | 2,170 | 7,660 | 6,020 | 1,950 | 758 | 432 |
| 6 | 295 | 252 | 170 | 225 | 267 | 410 | 3,170 | 6,800 | 6,020 | 1,850 | 758 | 432 |
| 7 | 295 | 252 | | | | 410 | 4,800 | 6,020 | 6,800 | 1,850 | 758 | 454 |
| 8 | 295 | 238 | | | | 410 | 6,020 | 5,470 | 7,660 | 1,750 | 758 | 454 |
| 9 | 312 | 238 | | | | 389 | 7,220 | 5,130 | 7,660 | 1,750 | 758 | 432 |
| 10 | 330 | 252 | | | | 368 | 6,020 | 4,490 | 7,660 | 1,650 | 758 | 454 |
| 11 | 330 | 252 | 200 | 222 | 240 | 410 | 6,020 | 4,030 | 7,440 | 1,650 | 758 | 477 |
| 12 | 312 | 252 | | | | 410 | 6,600 | 3,730 | 6,800 | 1,560 | 758 | 500 |
| 13 | 312 | 252 | | | | 410 | 7,220 | 3,590 | 5,300 | 1,560 | 701 | 524 |
| 14 | 312 | 238 | | | | 368 | 9,710 | 3,880 | 4,330 | 1,470 | 701 | 572 |
| 15 | 295 | 238 | | | | 368 | 10,300 | 4,800 | 3,730 | 1,380 | 674 | 647 |
| 16 | 295 | 238 | 180 | 180 | 758 | 330 | 7,890 | 5,300 | 3,730 | 1,380 | 647 | 647 |
| 17 | 295 | 238 | | | | 368 | 6,400 | 5,650 | 4,640 | 1,380 | 622 | 572 |
| 18 | 295 | 252 | | | | 349 | 5,300 | 6,400 | 3,880 | 1,220 | 622 | 547 |
| 19 | 295 | 238 | | | | 368 | 5,300 | 6,020 | 3,450 | 1,300 | 622 | 500 |
| 20 | 295 | 226 | | | | 1,080 | 368 | 5,300 | 5,830 | 3,590 | 1,560 | 596 |
| 21 | 295 | 214 | 270 | 200 | 596 | 1,080 | 368 | 6,020 | 7,660 | 3,730 | 1,300 | 596 |
| 22 | 280 | 175 | | | | 945 | 410 | 6,600 | 6,400 | 3,730 | 1,220 | 572 |
| 23 | 280 | 175 | | | | 818 | 410 | 7,440 | 5,650 | 3,450 | 1,220 | 547 |
| 24 | 280 | 223 | | | | 758 | 368 | 9,430 | 5,300 | 3,030 | 1,090 | 547 |
| 25 | 280 | 238 | | | | 647 | 410 | 10,300 | 4,800 | 2,770 | 1,090 | 547 |
| 26 | 265 | 238 | 200 | 524 | 477 | 410 | 10,300 | 4,800 | 2,770 | 945 | 524 | 572 |
| 27 | 294 | 238 | | | | 547 | 432 | 9,710 | 4,640 | 2,770 | 945 | 547 |
| 28 | 330 | 238 | | | | 524 | 8,890 | 5,300 | 2,900 | 945 | 500 | 572 |
| 29 | 312 | 238 | | | | 596 | 7,660 | 6,800 | 2,640 | 880 | 500 | 547 |
| 30 | 295 | 226 | | | | 701 | 6,600 | 8,890 | 2,400 | 880 | 500 | 547 |
| 31 | 295 | | | | | 701 | | 9,430 | | 880 | 500 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 330 | 265 | 299 | 0.332 | 0.38 | 18,400 |
| November | 280 | 175 | 240 | .267 | .30 | 14,300 |
| December | | | 218 | .242 | .28 | 13,400 |
| January | | | 211 | .234 | .27 | 13,000 |
| February | 1,080 | | 443 | .492 | .51 | 24,600 |
| March | 729 | 330 | 424 | .471 | .54 | 26,100 |
| April | 10,300 | 701 | 6,240 | 6.93 | 7.73 | 371,000 |
| May | 9,430 | 3,590 | 6,010 | 6.68 | 7.70 | 370,000 |
| June | 7,660 | 2,400 | 4,830 | 5.37 | 5.99 | 287,000 |
| July | 2,400 | 880 | 1,470 | 1.63 | 1.88 | 90,400 |
| August | 880 | 500 | 659 | .732 | .84 | 40,500 |
| September | 647 | 432 | 516 | .573 | .64 | 30,700 |
| Th year | 10,300 | | 1,800 | 2.00 | 27.06 | 1,300,000 |

SOUTH FORK OF FLATHEAD RIVER NEAR COLUMBIA FALLS, MONT.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 17, T. 30 N., R. 19 W., 2 miles above mouth and 9 miles east of Columbia Falls.

DRAINAGE AREA.—1,640 square miles.

RECORDS AVAILABLE.—September, 1910, to September, 1916; April, 1923, to September, 1930.

EXTREMES.—Maximum discharge during year, 14,800 second-feet Apr. 25 (gage height, 10.93 feet); minimum, 243 second-feet Mar. 11 (ice present).

1910-1916, 1923-1930: Maximum discharge, about 46 200 second-feet June 19, 1916 (gage height, 16.6 feet at bridge gage); minimum, 243 second-feet Mar. 11, 1930 (ice on control).

REMARKS.—Records for open channel good; winter records fair. No diversions above station. No storage.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|-------|--------|--------|--------|-------|------|-------|
| 1..... | 547 | 422 | 345 | 350 | 289 | 302 | 1,550 | 10,300 | 11,200 | 3,110 | 936 | 560 |
| 2..... | 496 | 415 | | | 369 | | 1,960 | 9,940 | 9,340 | 3,110 | 892 | 538 |
| 3..... | 465 | 408 | | | 375 | | 2,470 | 12,400 | 8,940 | 2,990 | 878 | 525 |
| 4..... | 469 | 405 | | | 386 | 280 | 3,360 | 13,100 | 8,750 | 2,870 | 842 | 508 |
| 5..... | 461 | 408 | | | 397 | | 3,490 | 11,600 | 8,180 | 2,640 | 828 | 500 |
| 6..... | 484 | 412 | 400 | 325 | 431 | | 4,480 | 10,900 | 7,980 | 2,520 | 808 | 496 |
| 7..... | 473 | 405 | | | 467 | 264 | 6,060 | 9,940 | 8,360 | 2,420 | 774 | 492 |
| 8..... | 457 | 402 | | | 473 | | 7,800 | 8,750 | 9,740 | 2,310 | 760 | 488 |
| 9..... | 464 | 399 | | | 455 | 257 | 8,560 | 7,800 | 10,100 | 2,210 | 747 | 508 |
| 10..... | 457 | 395 | | | 485 | | 7,800 | 7,800 | 9,740 | 2,210 | 716 | 521 |
| 11..... | 450 | 392 | 375 | 318 | 507 | 243 | 7,800 | 6,390 | 10,100 | 2,110 | 716 | 508 |
| 12..... | 461 | 395 | | | 551 | 245 | 8,560 | 5,890 | 9,740 | 2,060 | 703 | 538 |
| 13..... | 439 | 386 | | | 485 | 262 | 9,540 | 5,890 | 8,360 | 1,960 | 691 | 570 |
| 14..... | 436 | 465 | | | 455 | 248 | 11,200 | 6,390 | 6,370 | 1,870 | 680 | 651 |
| 15..... | 432 | 418 | | | 467 | 262 | 12,200 | 7,620 | 5,840 | 1,730 | 674 | 630 |
| 16..... | 429 | 412 | 350 | 289 | 498 | 276 | 9,940 | 8,750 | 5,720 | 1,680 | 674 | 579 |
| 17..... | 425 | 405 | | 294 | 551 | 292 | 7,980 | 9,340 | 6,220 | 1,600 | 668 | 547 |
| 18..... | 432 | 402 | | 289 | 800 | 324 | 7,080 | 10,100 | 6,220 | 1,550 | 646 | 534 |
| 19..... | 425 | 360 | | 280 | 800 | 360 | 7,080 | 9,540 | 5,560 | 1,680 | 651 | 517 |
| 20..... | 425 | 342 | | 276 | 846 | 425 | 7,080 | 8,940 | 5,240 | 1,680 | 657 | 513 |
| 21..... | 418 | 339 | 350 | 276 | 838 | 500 | 7,980 | 10,700 | 5,400 | 1,550 | 651 | 508 |
| 22..... | 412 | 302 | | 280 | 800 | 574 | 9,540 | 9,740 | 5,240 | 1,460 | 640 | 521 |
| 23..... | 405 | 292 | | 258 | 787 | 735 | 11,200 | 8,360 | 4,940 | 1,380 | 619 | 614 |
| 24..... | 408 | 336 | | 271 | 680 | 614 | 13,300 | 7,620 | 4,630 | 1,340 | 609 | 686 |
| 25..... | 415 | 348 | | 258 | 565 | 598 | 14,600 | 7,440 | 4,180 | 1,250 | 588 | 657 |
| 26..... | 408 | 399 | 350 | 289 | 525 | 630 | 14,200 | 7,260 | 4,040 | 1,210 | 579 | 635 |
| 27..... | 436 | 422 | | 294 | 425 | 657 | 13,300 | 7,260 | 3,760 | 1,170 | 570 | 614 |
| 28..... | 461 | 443 | | 299 | 357 | 878 | 12,400 | 8,180 | 3,900 | 1,090 | 556 | 599 |
| 29..... | 447 | 418 | | 318 | | 1,130 | 11,800 | 10,700 | 3,760 | 1,050 | 547 | 593 |
| 30..... | 436 | 408 | | 328 | | 1,250 | 10,300 | 13,100 | 3,360 | 1,010 | 542 | 588 |
| 31..... | 429 | | | 294 | | 1,340 | | 13,500 | | 973 | 547 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 547 | 408 | 445 | 0.271 | 0.31 | 27,400 |
| November..... | 465 | 292 | 392 | .239 | .27 | 23,300 |
| December..... | | | 372 | .227 | .26 | 22,900 |
| January..... | | 258 | 309 | .188 | .22 | 19,000 |
| February..... | 846 | 289 | 538 | .328 | .34 | 29,900 |
| March..... | 1,340 | 243 | 470 | .286 | .33 | 28,900 |
| April..... | 14,600 | 1,550 | 8,490 | 5.18 | 5.78 | 505,000 |
| May..... | 13,500 | 5,890 | 9,180 | 5.60 | 6.46 | 564,000 |
| June..... | 11,200 | 3,360 | 6,830 | 4.16 | 4.64 | 406,000 |
| July..... | 3,110 | 973 | 1,860 | 1.13 | 1.30 | 114,000 |
| August..... | 936 | 542 | 690 | .421 | .49 | 42,400 |
| September..... | 686 | 488 | 558 | .340 | .38 | 33,200 |
| The year..... | 14,600 | 243 | 2,510 | 1.53 | 20.78 | 1,820,000 |

STILLWATER RIVER NEAR KALISPELL, MONT.

LOCATION.—Staff gage on highway bridge in NE. $\frac{1}{4}$ sec. 14, T. 29 N., R. 22 W., on highway bridge 5 miles north of Kalispell.

RECORDS AVAILABLE.—September, 1906, to June, 1907; April to August, 1922; June, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,410 second-feet June 4 (gage height, 5.86 feet); minimum, 26 second-feet Nov. 11 (gage height, 0.30 foot). 1922, 1928–1930: Maximum discharge, 2,750 second-feet May 22, 1922 (gage height, 10.50 feet); minimum, 26 second-feet Nov. 11, 1930 (gage height, 0.30 foot).

REMARKS.—Records for open channel good, winter records fair. Some water stored and released for logging operations during summer. No diversions.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-------|-------|------|------|-------|
| 1 | 68 | 92 | 93 | 96 | 58 | 65 | 112 | 658 | 686 | 264 | 135 | 75 |
| 2 | 170 | 92 | 75 | 80 | 61 | 64 | 127 | 630 | 826 | 284 | 127 | 75 |
| 3 | 300 | 96 | 66 | 56 | 61 | 55 | 143 | 496 | 1,210 | 284 | 127 | 73 |
| 4 | 214 | 90 | 72 | 83 | 60 | 57 | 167 | 714 | 1,340 | 264 | 120 | 73 |
| 5 | 178 | 87 | 73 | 86 | 64 | 66 | 167 | 826 | 1,240 | 264 | 112 | 73 |
| 6 | 146 | 86 | 68 | 85 | 66 | 68 | 167 | 798 | 1,120 | 264 | 112 | 73 |
| 7 | 130 | 65 | 65 | 64 | 66 | 76 | 175 | 658 | 971 | 218 | 104 | 70 |
| 8 | 116 | 51 | 62 | 35 | 64 | 77 | 192 | 349 | 884 | 184 | 104 | 69 |
| 9 | 116 | 47 | 61 | 65 | 64 | 80 | 200 | 305 | 770 | 167 | 104 | 72 |
| 10 | 108 | 46 | 56 | 57 | 58 | 80 | 200 | 305 | 714 | 167 | 97 | 73 |
| 11 | 105 | 31 | 53 | 55 | 62 | 89 | 192 | 576 | 686 | 159 | 97 | 75 |
| 12 | 104 | 51 | 72 | 52 | 61 | 89 | 184 | 549 | 630 | 167 | 97 | 80 |
| 13 | 99 | 46 | 80 | 50 | 61 | 91 | 192 | 470 | 603 | 167 | 97 | 84 |
| 14 | 98 | 50 | 80 | 45 | 60 | 82 | 200 | 444 | 549 | 143 | 94 | 84 |
| 15 | 96 | 53 | 89 | 44 | 66 | 80 | 218 | 470 | 419 | 120 | 96 | 83 |
| 16 | 96 | 58 | 85 | 42 | 84 | 75 | 227 | 470 | 327 | 104 | 97 | 82 |
| 17 | 92 | 64 | 82 | 41 | 87 | 75 | 227 | 470 | 419 | 90 | 96 | 82 |
| 18 | 90 | 66 | 79 | 40 | 90 | 75 | 227 | 395 | 470 | 84 | 94 | 79 |
| 19 | 89 | 60 | 79 | 40 | 94 | 83 | 209 | 327 | 444 | 86 | 93 | 79 |
| 20 | 89 | 58 | 76 | 38 | 96 | 83 | 218 | 305 | 395 | 112 | 93 | 76 |
| 21 | 87 | 51 | 76 | 35 | 97 | 86 | 245 | 327 | 444 | 167 | 94 | 76 |
| 22 | 85 | 52 | 92 | 35 | 97 | 87 | 284 | 372 | 444 | 245 | 94 | 77 |
| 23 | 85 | 56 | 102 | 35 | 96 | 91 | 305 | 419 | 419 | 264 | 94 | 96 |
| 24 | 82 | 56 | 105 | 35 | 93 | 97 | 327 | 770 | 419 | 135 | 91 | 112 |
| 25 | 82 | 60 | 105 | 37 | 91 | 97 | 372 | 1,060 | 395 | 264 | 89 | 120 |
| 26 | 82 | 71 | 105 | 41 | 87 | 97 | 419 | 1,030 | 395 | 245 | 87 | 120 |
| 27 | 87 | 154 | 105 | 42 | 73 | 104 | 327 | 855 | 372 | 218 | 83 | 120 |
| 28 | 94 | 154 | 104 | 48 | 69 | 112 | 522 | 714 | 349 | 192 | 82 | 120 |
| 29 | 98 | 123 | 98 | 53 | ----- | 112 | 658 | 658 | 327 | 175 | 80 | 120 |
| 30 | 99 | 108 | 96 | 53 | ----- | 120 | 496 | 658 | 264 | 159 | 77 | 120 |
| 31 | 96 | ----- | 99 | 56 | ----- | 120 | ----- | 603 | ----- | 151 | 73 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 300 | 68 | 112 | 6,890 |
| November | 154 | 31 | 72.5 | 4,310 |
| December | 105 | 53 | 82.4 | 5,070 |
| January | 96 | 35 | 52.4 | 3,220 |
| February | 97 | 58 | 74.5 | 4,140 |
| March | 120 | 55 | 84.9 | 5,220 |
| April | 658 | 112 | 257 | 15,300 |
| May | 1,060 | 305 | 570 | 35,000 |
| June | 1,340 | 264 | 618 | 36,800 |
| July | 284 | 84 | 187 | 11,500 |
| August | 135 | 73 | 98.1 | 6,080 |
| September | 120 | 69 | 87.0 | 5,180 |
| The year | 1,340 | 31 | 192 | 139,000 |

WHITEFISH RIVER NEAR KALISPELL, MONT.

LOCATION.—Staff gage near north quarter corner of sec. 4, T. 29 N., R. 21 W. about 8 miles north of Kalispell.

RECORDS AVAILABLE.—November to December, 1906; July, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 827 second-feet June 8-9 (gage height, 12.85 feet); minimum, 7.2 second-feet Oct. 22 (gage height, 10.58 feet).

1906, 1928-1930: Maximum discharge, 827 second-feet June 8-9, 1930 (gage height, 12.85 feet); minimum, 7.2 second-feet Oct. 22, 1930 (gage height, 10.58 feet).

REMARKS.—Records good except those for period of ice effect, Dec. 8 to Mar. 3, which are fair. Some regulation at Whitefish Lake. No diversions.

Daily and monthly discharge in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-----|-------|-------|------|-------|
| 1 | 63 | 16 | 52 | 48 | 56 | 28 | 41 | 347 | * 91 | 212 | 102 | 52 |
| 2 | 41 | 16 | 52 | 45 | 56 | 22 | 41 | 347 | 94 | 178 | 88 | 52 |
| 3 | 33 | 16 | 56 | 41 | 56 | 26 | 41 | 347 | 88 | 172 | 63 | 52 |
| 4 | 33 | 14 | 56 | 32 | 61 | 32 | 45 | 368 | 116 | 162 | 63 | * 52 |
| 5 | 33 | 14 | 59 | 37 | 70 | 35 | 45 | 368 | 146 | 146 | 63 | * 52 |
| 6 | 22 | 16 | 59 | 28 | * 66 | * 40 | 45 | 368 | 146 | 146 | * 63 | 52 |
| 7 | 22 | 16 | 59 | 28 | 63 | 45 | 54 | 368 | 684 | 146 | 63 | 52 |
| 8 | 19 | 16 | 56 | 22 | 54 | 52 | 63 | 368 | 827 | 146 | 63 | 52 |
| 9 | 19 | 17 | 54 | 22 | 50 | 52 | 63 | 368 | 827 | 140 | 63 | 52 |
| 10 | 22 | 16 | 41 | 16 | 45 | * 56 | 63 | 368 | 775 | 140 | 63 | 52 |
| 11 | 19 | 16 | 41 | 16 | 41 | 63 | 52 | 368 | 731 | 140 | 63 | 52 |
| 12 | 19 | 16 | 37 | 22 | 33 | 68 | 52 | 347 | 684 | 140 | 59 | 52 |
| 13 | 19 | 16 | 37 | 22 | * 30 | 70 | 52 | 347 | 637 | * 136 | 59 | 52 |
| 14 | 22 | 16 | 41 | 22 | 26 | 76 | 63 | 347 | 591 | 131 | * 59 | 45 |
| 15 | 19 | 16 | 50 | * 26 | 26 | 76 | 63 | 347 | 522 | 146 | * 59 | 45 |
| 16 | 19 | 16 | 45 | * 30 | 35 | 63 | 68 | 347 | 506 | 116 | 59 | 41 |
| 17 | * 15 | * 16 | 41 | 33 | * 38 | 63 | 68 | 347 | 455 | 116 | 59 | 41 |
| 18 | * 12 | * 16 | 33 | 37 | 41 | 63 | 83 | 347 | * 435 | 116 | 59 | 41 |
| 19 | 9 | * 16 | 30 | 41 | 52 | 63 | 56 | 347 | 411 | 116 | 63 | 41 |
| 20 | 9 | 33 | 30 | 41 | 52 | 63 | * 181 | 347 | 411 | 116 | * 63 | 41 |
| 21 | 9 | 41 | 26 | 41 | 45 | 88 | 306 | 347 | 411 | 110 | 63 | 22 |
| 22 | 7.2 | 52 | 26 | 41 | 45 | 94 | 286 | 347 | 368 | 102 | 63 | 22 |
| 23 | 9 | 54 | 33 | 41 | 45 | 88 | 286 | 347 | 326 | 88 | 63 | * 22 |
| 24 | 9 | 59 | 37 | 45 | 41 | 116 | 286 | 347 | 306 | 88 | 54 | * 21 |
| 25 | 12 | 68 | 41 | 45 | 37 | 116 | 286 | 116 | 286 | 88 | * 53 | * 20 |
| 26 | 12 | 59 | 45 | 45 | 33 | 52 | 286 | 102 | 286 | 88 | 52 | * 20 |
| 27 | 16 | 52 | 45 | 45 | 32 | 41 | 286 | 88 | 286 | 116 | 52 | * 19 |
| 28 | 16 | 52 | 45 | 45 | 32 | 41 | 286 | 88 | 248 | 116 | 52 | 19 |
| 29 | 17 | 52 | 50 | 50 | ----- | 41 | 326 | 88 | 248 | 110 | 52 | 19 |
| 30 | 17 | 52 | 50 | 50 | ----- | 41 | 347 | 88 | 236 | 110 | 54 | 19 |
| 31 | 16 | ----- | 50 | 56 | ----- | 41 | ----- | 88 | ----- | 102 | 52 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 63 | 7.2 | 19.7 | 1,210 |
| November | 68 | 14 | 29.2 | 1,740 |
| December | 59 | 26 | 44.4 | 2,730 |
| January | 56 | 16 | 35.9 | 2,210 |
| February | 70 | 26 | 45.0 | 2,500 |
| March | 116 | 22 | 58.6 | 3,600 |
| April | 347 | 41 | 141 | 8,390 |
| May | 368 | 88 | 295 | 18,100 |
| June | 827 | 88 | 406 | 24,200 |
| July | 212 | 88 | 128 | 7,870 |
| August | 102 | 52 | 61.5 | 3,780 |
| September | 52 | 19 | 39.1 | 2,330 |
| The year | 827 | 7.2 | 106 | 78,700 |

* Interpolated.

SWAN RIVER NEAR BIG FORK, MONT.

LOCATION.—Staff gage in NW. $\frac{1}{4}$ sec. 14, T. 26 N., R. 19 W., at outlet of Swan Lake, 7 miles southeast of Big Fork.

DRAINAGE AREA.—647 square miles.

RECORDS AVAILABLE.—April, 1922, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,920 second-feet June 1 (gage height, 2.88 feet); minimum, 85 second-feet Jan. 26–29 (gage height, 0.04 foot).

1922–1930: Maximum discharge, 7,820 second-feet May 28, 1928 (gage height, 5.90 feet); minimum, 85 second-feet Jan. 26–29, 1930 (gage height, 0.04 foot).

REMARKS.—Records good. No diversions above station. Flow regulated by natural storage in Swan Lake.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-------|-------|-------|------|-------|
| 1 | 346 | 358 | 289 | 358 | 93 | 178 | 454 | 2,500 | 2,920 | 1,580 | 560 | 289 |
| 2 | 335 | 358 | 289 | 389 | 108 | 150 | 487 | 2,370 | 2,920 | 1,580 | 560 | 284 |
| 3 | 335 | 358 | 278 | 389 | 116 | 142 | 600 | 2,370 | 2,780 | 1,460 | 522 | 278 |
| 4 | 335 | 346 | 278 | 389 | 108 | 142 | 725 | 2,500 | 2,780 | 1,460 | 522 | 278 |
| 5 | 346 | 335 | 257 | 389 | 133 | 142 | 862 | 2,500 | 2,500 | 1,400 | 487 | 278 |
| 6 | 358 | 335 | 268 | 389 | 133 | 159 | 960 | 2,500 | 2,370 | 1,400 | 487 | 284 |
| 7 | 346 | 335 | 268 | 358 | 142 | 159 | 1,060 | 2,500 | 2,240 | 1,340 | 487 | 289 |
| 8 | 346 | 335 | 278 | 323 | 142 | 142 | 1,220 | 2,370 | 2,240 | 1,220 | 454 | 273 |
| 9 | 346 | 335 | 335 | 300 | 160 | 142 | 1,280 | 2,240 | 2,370 | 1,170 | 454 | 246 |
| 10 | 358 | 335 | 335 | 300 | 159 | 133 | 1,460 | 2,100 | 2,500 | 1,170 | 420 | 284 |
| 11 | 389 | 335 | 358 | 278 | 150 | 133 | 1,580 | 1,970 | 2,500 | 1,120 | 420 | 289 |
| 12 | 358 | 323 | 389 | 257 | 150 | 133 | 1,580 | 1,840 | 2,640 | 1,060 | 454 | 295 |
| 13 | 346 | 312 | 420 | 246 | 150 | 133 | 1,710 | 1,710 | 2,640 | 1,060 | 420 | 306 |
| 14 | 358 | 289 | 454 | 226 | 159 | 133 | 1,840 | 1,710 | 2,500 | 1,010 | 420 | 312 |
| 15 | 358 | 289 | 454 | 196 | 159 | 133 | 2,100 | 1,580 | 2,370 | 960 | 408 | 323 |
| 16 | 558 | 289 | 522 | 178 | 168 | 142 | 2,240 | 1,710 | 2,240 | 960 | 401 | 335 |
| 17 | 335 | 289 | 560 | 168 | 178 | 142 | 2,240 | 1,840 | 2,100 | 910 | 408 | 329 |
| 18 | 346 | 300 | 560 | 159 | 187 | 142 | 2,100 | 2,100 | 2,100 | 910 | 408 | 317 |
| 19 | 323 | 300 | 560 | 150 | 187 | 150 | 1,970 | 2,240 | 1,970 | 910 | 395 | 300 |
| 20 | 323 | 289 | 487 | 142 | 236 | 150 | 1,970 | 2,370 | 1,970 | 910 | 383 | 317 |
| 21 | 323 | 278 | 487 | 142 | 226 | 150 | 1,970 | 2,370 | 1,970 | 862 | 370 | 300 |
| 22 | 323 | 268 | 487 | 133 | 236 | 159 | 1,970 | 2,500 | 1,970 | 862 | 370 | 289 |
| 23 | 323 | 268 | 487 | 133 | 246 | 178 | 1,970 | 2,500 | 1,840 | 815 | 370 | 364 |
| 24 | 335 | 268 | 454 | 125 | 226 | 187 | 2,100 | 2,370 | 1,840 | 770 | 358 | 408 |
| 25 | 335 | 278 | 454 | 108 | 206 | 216 | 2,370 | 2,240 | 1,840 | 770 | 346 | 395 |
| 26 | 335 | 289 | 454 | 85 | 187 | 236 | 2,500 | 2,100 | 1,710 | 725 | 335 | 389 |
| 27 | 358 | 300 | 420 | 85 | 187 | 246 | 2,640 | 2,100 | 1,710 | 682 | 335 | 389 |
| 28 | 358 | 289 | 420 | 85 | 187 | 268 | 2,640 | 1,970 | 1,710 | 682 | 317 | 377 |
| 29 | 358 | 289 | 420 | 85 | ----- | 312 | 2,780 | 2,100 | 1,710 | 640 | 300 | 370 |
| 30 | 389 | 289 | 420 | 93 | ----- | 358 | 2,640 | 2,370 | 1,710 | 600 | 289 | 370 |
| 31 | 358 | ----- | 389 | 93 | ----- | 389 | ----- | 2,780 | ----- | 560 | 289 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 389 | 323 | 366 | 0.566 | 0.65 | 22,400 |
| November | 358 | 268 | 308 | .476 | .53 | 18,300 |
| December | 560 | 257 | 404 | .624 | .72 | 24,000 |
| January | 389 | 85 | 218 | .337 | .39 | 13,000 |
| February | 246 | 93 | 168 | .260 | .27 | 9,330 |
| March | 389 | 133 | 180 | .278 | .32 | 11,100 |
| April | 2,780 | 454 | 1,730 | 2.67 | 2.98 | 103,000 |
| May | 2,780 | 1,580 | 2,210 | 3.42 | 3.94 | 136,000 |
| June | 2,920 | 1,710 | 2,220 | 3.43 | 3.83 | 132,000 |
| July | 1,580 | 560 | 1,020 | 1.58 | 1.82 | 62,700 |
| August | 560 | 289 | 411 | .635 | .73 | 25,300 |
| September | 408 | 246 | 319 | .493 | .55 | 19,000 |
| The year | 2,920 | 85 | 796 | 1.23 | 16.73 | 576,000 |

BIG CREEK NEAR POLSON, MONT.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 4, T. 22 N., R. 19 W., just below Mission Range Power Co.'s power house, three-fourths mile above mouth, and 7 miles east of Polson.

RECORDS AVAILABLE.—June, 1917, to September, 1930.

EXTREMES.—Maximum total discharge during year, 14.1 second-feet May 25 (pipe line and canal carrying 2.0 second-feet; gage height, 1.58 feet); minimum, 2.9 second-feet Feb. 9 and Mar. 22.

1917–1930: Maximum discharge, 104 second-feet June 9, 1917; no flow at short intervals during November and December, 1922, when power plant was shut down.

REMARKS.—Records fair. Daily discharge is flow past gage plus water diverted to canal of United States Indian Service and to Polson pipe line. Flow is regulated by operation of power plant. Discharge determined from kilowatt output of power plant Oct. 6 to Apr. 5, Apr. 9, 20, May 14, 16, 27–29, June 3, 5, and Sept. 30.

Daily and monthly discharge in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1 | | 4.9 | 4.4 | 4.3 | 4.7 | 4.1 | 4.0 | 6.3 | 6.5 | 5.6 | 5.4 | 5.0 |
| 2 | | 4.8 | 4.1 | 4.3 | 4.2 | 3.6 | 3.7 | 6.7 | 5.4 | 5.3 | 5.4 | 5.8 |
| 3 | | 4.0 | 4.7 | 4.7 | 4.0 | 3.8 | 3.8 | 6.0 | 4.3 | 5.0 | 5.0 | 5.6 |
| 4 | | 4.6 | 4.8 | 4.7 | 4.7 | 4.0 | 4.0 | 5.2 | 4.2 | 4.3 | 5.3 | 6.7 |
| 5 | | 4.9 | 4.9 | 4.1 | 4.5 | 4.2 | 4.0 | 5.4 | 4.5 | 4.6 | 5.6 | 6.1 |
| 6 | 4.0 | 5.3 | 4.4 | 4.6 | 4.8 | 3.8 | 6.7 | 5.4 | 4.1 | 4.7 | 5.6 | 4.7 |
| 7 | 3.7 | 5.1 | 4.8 | 4.5 | 4.3 | 3.9 | 6.0 | 5.8 | 4.2 | 5.0 | 5.5 | 5.3 |
| 8 | 4.3 | 4.6 | 4.1 | 4.7 | 4.4 | 4.0 | 5.4 | 5.8 | 4.0 | 5.1 | 5.8 | 5.7 |
| 9 | 4.9 | 4.6 | 4.4 | 4.7 | 3.3 | 3.7 | 4.1 | 5.2 | 4.1 | 5.5 | 5.6 | 6.0 |
| 10 | 4.7 | 4.5 | 4.7 | 4.5 | 4.0 | 3.8 | 4.0 | 5.4 | 4.7 | 5.4 | 5.4 | 6.0 |
| 11 | 4.4 | 3.9 | 4.4 | 4.6 | 4.4 | 4.1 | 4.9 | 4.9 | 4.6 | 5.2 | 5.4 | 5.9 |
| 12 | 4.7 | 4.2 | 4.8 | 4.7 | 4.5 | 4.0 | 5.2 | 5.8 | 4.3 | 5.0 | 5.9 | 6.4 |
| 13 | 3.9 | 4.6 | 4.5 | 4.6 | 4.3 | 3.9 | 3.8 | 4.3 | 3.9 | 5.3 | 6.0 | 6.3 |
| 14 | 3.8 | 4.3 | 4.6 | 4.7 | 4.5 | 4.0 | 11.7 | 3.8 | 4.0 | 4.4 | 5.7 | 6.4 |
| 15 | 4.6 | 4.4 | 4.3 | 4.7 | 4.8 | 4.1 | 12.7 | 5.2 | 4.0 | 5.5 | 6.0 | 5.6 |
| 16 | 5.0 | 4.5 | 4.0 | 4.9 | 4.0 | 3.9 | 11.3 | 4.3 | 4.6 | 5.7 | 5.7 | 6.1 |
| 17 | 4.6 | 4.2 | 4.7 | 4.7 | 4.2 | 3.6 | 10.8 | 4.9 | 5.3 | 5.5 | 5.5 | 6.5 |
| 18 | 4.8 | 4.2 | 4.9 | 4.7 | 4.5 | 3.9 | 8.6 | 4.2 | 4.9 | 5.7 | 5.7 | 6.6 |
| 19 | 4.5 | 4.7 | 4.6 | 4.8 | 4.9 | 3.9 | 8.3 | 4.9 | 4.7 | 5.4 | 6.1 | 6.4 |
| 20 | 4.0 | 4.6 | 4.7 | 4.4 | 4.5 | 4.1 | 3.5 | 5.2 | 4.5 | 5.1 | 6.1 | 6.4 |
| 21 | 4.2 | 4.7 | 4.6 | 4.8 | 4.4 | 3.9 | 7.0 | 4.3 | 6.7 | 5.2 | 5.9 | 5.9 |
| 22 | 4.8 | 4.7 | 4.1 | 4.8 | 4.3 | 3.3 | 6.7 | 4.7 | 4.6 | 5.9 | 5.9 | 5.7 |
| 23 | 4.8 | 4.8 | 4.6 | 4.8 | 4.3 | 4.6 | 7.7 | 4.4 | 4.2 | 6.1 | 5.9 | 6.7 |
| 24 | 4.9 | 4.6 | 4.9 | 4.3 | 4.4 | 3.9 | 10.4 | 4.7 | 4.7 | 5.7 | 5.7 | 6.5 |
| 25 | 4.8 | 4.5 | 4.2 | 4.3 | 4.6 | 3.8 | 9.6 | 4.0 | 4.6 | 6.0 | 5.7 | 6.6 |
| 26 | 5.0 | 5.0 | 4.3 | 4.2 | 4.6 | 4.2 | 10.4 | 4.5 | 5.1 | 5.7 | 6.5 | 6.3 |
| 27 | 4.2 | 4.8 | 4.7 | 4.0 | 4.0 | 3.9 | 9.6 | 4.5 | 5.1 | 5.1 | 6.4 | 6.3 |
| 28 | 4.7 | 4.1 | 4.7 | 4.3 | 4.2 | 3.8 | 8.9 | 4.4 | 5.1 | 5.3 | 6.5 | 5.4 |
| 29 | 5.1 | 3.6 | 3.9 | 4.3 | ----- | 4.1 | 8.0 | 4.0 | 4.1 | 6.1 | 6.4 | 5.5 |
| 30 | 5.1 | 4.5 | 4.6 | 4.3 | ----- | 3.4 | 7.3 | 5.6 | 4.2 | 5.7 | 6.3 | 6.7 |
| 31 | 4.8 | ----- | 5.1 | 4.5 | ----- | 3.5 | ----- | 7.3 | ----- | 5.8 | 5.6 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|--------------|---------|---------|-------|----------------------|
| October 6–31 | 5.1 | 3.7 | 4.55 | 235 |
| November | 5.3 | 3.6 | 4.54 | 270 |
| December | 5.1 | 3.9 | 4.53 | 279 |
| January | 4.9 | 4.0 | 4.53 | 279 |
| February | 4.9 | 3.3 | 4.37 | 243 |
| March | 4.6 | 3.3 | 3.90 | 240 |
| April | 12.7 | 3.5 | 7.07 | 421 |
| May | 7.3 | 3.8 | 5.15 | 317 |
| June | 6.5 | 3.9 | 4.56 | 271 |
| July | 6.1 | 4.3 | 5.35 | 329 |
| August | 6.5 | 5.0 | 5.79 | 356 |
| September | 6.7 | 4.7 | 6.04 | 359 |
| The period | ----- | ----- | ----- | 3,600 |

PRIEST LAKE AT OUTLET, NEAR COOLIN, IDAHO

LOCATION.—Staff gage in W. $\frac{1}{2}$ sec. 5, T. 59 N., R. 4 W., 400 feet north of lake outlet and 2 miles northwest of Coolin. Zero of gage 2,435.06 feet above mean sea level, United States Coast and Geodetic Survey datum, or 2437.99 feet, United States Geological Survey datum (Bull. 567).

DRAINAGE AREA.—572 square miles.

RECORDS AVAILABLE.—April, 1928, to September, 1930. Fragmentary gage-height records at Coolin from June, 1911, to September, 1913, are published in connection with station on Priest River at outlet of Priest Lake, at Coolin.

EXTREMES.—Maximum gage height during year, 4.20 feet Apr. 28; minimum, 0.48 foot Nov. 28, 30, Dec. 1.

1928-1930 Maximum gage height, 5.68 feet May 28, 1928; minimum, 0.48 foot Nov. 28, 30, Dec. 1, 1929.

REMARKS.—Records good.

Daily gage height, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|------|-------|------|------|-------|
| 1 | 0.82 | 0.74 | 0.48 | 1.02 | 0.90 | 1.26 | 1.60 | 3.99 | 2.82 | 2.60 | 1.50 | 0.90 |
| 2 | .82 | .76 | .53 | 1.02 | .90 | 1.28 | 1.68 | 3.84 | 2.88 | 2.52 | 1.46 | .89 |
| 3 | .80 | .74 | .50 | 1.02 | .90 | 1.28 | 1.74 | 3.87 | 2.94 | 2.47 | 1.44 | .88 |
| 4 | .78 | .72 | .50 | 1.01 | .92 | 1.28 | 1.78 | 3.84 | 2.95 | 2.38 | 1.43 | .86 |
| 5 | .78 | .70 | .47 | 1.01 | .92 | 1.29 | 1.82 | 3.72 | 2.97 | 2.34 | 1.42 | .85 |
| 6 | .78 | .68 | .50 | 1.01 | .94 | 1.29 | 1.90 | 3.64 | 3.01 | 2.33 | 1.36 | .84 |
| 7 | .78 | .66 | .52 | .98 | .96 | 1.29 | 2.00 | 3.54 | 3.03 | 2.32 | 1.32 | .82 |
| 8 | .76 | .66 | .52 | .98 | 1.00 | 1.30 | 2.14 | 3.52 | 3.04 | 2.30 | 1.34 | .80 |
| 9 | .74 | .64 | .56 | .96 | 1.02 | 1.30 | 2.18 | 3.48 | 3.06 | 2.26 | 1.32 | .80 |
| 10 | .74 | .64 | .66 | .96 | 1.02 | 1.30 | 2.22 | 3.40 | 3.04 | 2.22 | 1.31 | .79 |
| 11 | .76 | .64 | .68 | .96 | 1.04 | 1.31 | 2.28 | 3.36 | 3.02 | 2.20 | 1.30 | .78 |
| 12 | .72 | .64 | .72 | .96 | 1.04 | 1.30 | 2.43 | 3.30 | 2.98 | 2.16 | 1.28 | .78 |
| 13 | .74 | .64 | .80 | .94 | 1.05 | 1.30 | 2.64 | 3.22 | 2.94 | 2.14 | 1.26 | .76 |
| 14 | .74 | .66 | .86 | .94 | 1.06 | 1.28 | 2.88 | 3.17 | 2.90 | 2.06 | 1.25 | .74 |
| 15 | .72 | .64 | .88 | .96 | 1.06 | 1.26 | 3.08 | 3.17 | 2.84 | 2.04 | 1.24 | .74 |
| 16 | .72 | .62 | .90 | .96 | 1.07 | 1.26 | 3.34 | 3.14 | 2.82 | 2.02 | 1.23 | .74 |
| 17 | .72 | .60 | .92 | .94 | 1.08 | 1.25 | 3.38 | 3.08 | 2.84 | 1.99 | 1.22 | .72 |
| 18 | .72 | .60 | .92 | .94 | 1.10 | 1.26 | 3.38 | 3.04 | 2.84 | 1.98 | 1.20 | .70 |
| 19 | .64 | .60 | .94 | .92 | 1.14 | 1.29 | 3.46 | 2.98 | 2.84 | 1.96 | 1.18 | .70 |
| 20 | .64 | .58 | .92 | .92 | 1.17 | 1.29 | 3.48 | 3.00 | 2.81 | 1.88 | 1.16 | .70 |
| 21 | .64 | .56 | .90 | .90 | 1.18 | 1.30 | 3.56 | 3.00 | 2.80 | 1.84 | 1.15 | .68 |
| 22 | .66 | .52 | .94 | .86 | 1.20 | 1.31 | 3.60 | 2.99 | 2.76 | 1.82 | 1.14 | .66 |
| 23 | .66 | .54 | .96 | .84 | 1.21 | 1.32 | 3.70 | 2.99 | 2.74 | 1.78 | 1.12 | .65 |
| 24 | .66 | .54 | 1.03 | .82 | 1.22 | 1.33 | 3.80 | 2.98 | 2.74 | 1.76 | 1.10 | .64 |
| 25 | .64 | .52 | 1.04 | .82 | 1.23 | 1.34 | 3.98 | 2.88 | 2.72 | 1.68 | 1.08 | .63 |
| 26 | .66 | .52 | 1.06 | .82 | 1.24 | 1.36 | 4.06 | 2.86 | 2.71 | 1.66 | 1.06 | .62 |
| 27 | .72 | .52 | 1.06 | .84 | 1.24 | 1.38 | 4.16 | 2.82 | 2.70 | 1.64 | 1.04 | .60 |
| 28 | .72 | .48 | 1.04 | .84 | 1.25 | 1.38 | 4.20 | 2.82 | 2.64 | 1.62 | 1.02 | .58 |
| 29 | .72 | .50 | 1.04 | .86 | ----- | 1.40 | 4.19 | 2.75 | 2.62 | 1.60 | .97 | .56 |
| 30 | .72 | .48 | 1.04 | .88 | ----- | 1.42 | 4.12 | 2.80 | 2.61 | 1.56 | .94 | .56 |
| 31 | .72 | ----- | 1.02 | .89 | ----- | 1.56 | ----- | 2.81 | ----- | 1.52 | .92 | ----- |

PRIEST RIVER AT OUTLET OF PRIEST LAKE, NEAR COOLIN, IDAHO

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 5, T. 59 N., R. 4 W., at southwest end of Priest Lake, 2 miles northwest of Coolin. Zero of gage 2,435.06 feet above mean sea level, United States Coast and Geodetic Survey datum.

DRAINAGE AREA.—572 square miles.

RECORDS AVAILABLE.—June, 1911, to September, 1918 (fragmentary); May, 1919, to September, 1930.

EXTREMES.—Maximum discharge during year, 3,710 second-feet Apr. 28 (gage height, 3.85 feet); minimum, 120 second-feet Dec. 7 (gage height, 0.37 foot).

1911-1930: Maximum discharge, 7,290 second-feet May 30, 1917 (gage height, 6.83 feet); minimum discharge, 120 second-feet Dec. 7, 1929; minimum gage height, 0.03 foot Nov. 18-20, 1925.

REMARKS.—Records good for October, November, and May to September; others fair. No diversions above station.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-------|-------|-------|------|-------|
| 1 | 194 | 168 | 131 | 222 | 188 | 244 | 439 | 3,310 | 1,940 | 1,000 | 435 | 255 |
| 2 | 191 | 168 | 127 | 222 | 194 | 241 | 464 | 3,160 | 2,000 | 965 | 423 | 250 |
| 3 | 188 | 168 | 125 | 219 | 204 | 238 | 489 | 3,080 | 1,780 | 930 | 423 | 247 |
| 4 | 184 | 168 | 123 | 222 | 208 | 241 | 507 | 3,010 | 1,780 | 896 | 415 | 244 |
| 5 | 184 | 168 | 123 | 224 | 211 | 241 | 512 | 3,010 | 1,720 | 896 | 403 | 235 |
| 6 | 184 | 168 | 123 | 224 | 211 | 241 | 534 | 3,010 | 1,660 | 863 | 396 | 230 |
| 7 | 181 | 168 | 120 | 224 | 214 | 247 | 576 | 2,940 | 1,660 | 832 | 358 | 230 |
| 8 | 181 | 168 | 123 | 224 | 216 | 252 | 616 | 2,790 | 1,610 | 832 | 350 | 224 |
| 9 | 181 | 177 | 129 | 216 | 216 | 252 | 668 | 2,650 | 1,560 | 800 | 377 | 219 |
| 10 | 181 | 177 | 142 | 214 | 224 | 258 | 668 | 2,510 | 1,510 | 782 | 373 | 216 |
| 11 | 179 | 172 | 148 | 211 | 227 | 264 | 752 | 2,510 | 1,450 | 776 | 369 | 222 |
| 12 | 179 | 170 | 148 | 206 | 230 | 267 | 770 | 2,440 | 1,400 | 770 | 369 | 216 |
| 13 | 179 | 168 | 155 | 201 | 230 | 270 | 832 | 2,310 | 1,320 | 764 | 362 | 216 |
| 14 | 181 | 168 | 177 | 194 | 227 | 280 | 1,080 | 2,240 | 1,320 | 734 | 358 | 216 |
| 15 | 181 | 168 | 188 | 159 | 230 | 280 | 1,240 | 2,180 | 1,280 | 712 | 355 | 216 |
| 16 | 181 | 165 | 191 | 194 | 224 | 267 | 1,370 | 2,180 | 1,240 | 684 | 365 | 214 |
| 17 | 177 | 165 | 196 | 181 | 219 | 273 | 1,460 | 2,120 | 1,200 | 663 | 358 | 211 |
| 18 | 177 | 163 | 198 | 179 | 219 | 273 | 1,510 | 2,060 | 1,200 | 652 | 351 | 206 |
| 19 | 174 | 157 | 201 | 177 | 237 | 283 | 1,560 | 2,000 | 1,160 | 636 | 344 | 204 |
| 20 | 174 | 150 | 198 | 172 | 241 | 286 | 1,560 | 2,000 | 1,160 | 621 | 344 | 198 |
| 21 | 172 | 142 | 201 | 174 | 244 | 286 | 1,610 | 2,060 | 1,160 | 606 | 344 | 191 |
| 22 | 172 | 138 | 206 | 172 | 244 | 293 | 1,660 | 1,940 | 1,160 | 596 | 337 | 186 |
| 23 | 170 | 136 | 219 | 174 | 244 | 313 | 1,720 | 1,940 | 1,160 | 576 | 353 | 181 |
| 24 | 168 | 132 | 222 | 172 | 250 | 326 | 1,880 | 1,940 | 1,120 | 558 | 319 | 179 |
| 25 | 165 | 132 | 224 | 174 | 252 | 319 | 2,060 | 1,940 | 1,120 | 534 | 309 | 177 |
| 26 | 165 | 132 | 222 | 170 | 250 | 319 | 2,180 | 1,940 | 1,080 | 512 | 302 | 174 |
| 27 | 174 | 129 | 222 | 170 | 250 | 323 | 2,790 | 1,880 | 1,080 | 494 | 296 | 172 |
| 28 | 177 | 131 | 222 | 170 | 247 | 330 | 3,630 | 1,880 | 1,040 | 481 | 286 | 170 |
| 29 | 174 | 131 | 222 | 177 | ----- | 365 | 3,550 | 1,830 | 1,040 | 472 | 277 | 172 |
| 30 | 172 | 129 | 219 | 179 | ----- | 396 | 3,390 | 1,880 | 1,000 | 460 | 267 | 172 |
| 31 | 170 | ----- | 216 | 179 | ----- | 407 | ----- | 1,880 | ----- | 451 | 261 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 194 | 165 | 178 | 0.311 | 0.36 | 10,900 |
| November | 177 | 129 | 156 | .273 | .30 | 9,280 |
| December | 224 | 120 | 176 | .308 | .36 | 10,800 |
| January | 224 | 159 | 193 | .337 | .39 | 11,900 |
| February | 252 | 188 | 226 | .395 | .41 | 12,600 |
| March | 407 | 238 | 286 | .600 | .58 | 17,600 |
| April | 3,630 | 439 | 1,400 | 2.45 | 2.73 | 83,300 |
| May | 3,310 | 1,830 | 2,340 | 4.09 | 4.72 | 144,000 |
| June | 2,000 | 1,000 | 1,360 | 2.38 | 2.66 | 80,900 |
| July | 1,000 | 451 | 695 | 1.22 | 1.41 | 42,700 |
| August | 435 | 261 | 352 | .615 | .71 | 21,600 |
| September | 255 | 170 | 208 | .364 | .41 | 12,400 |
| The year | 3,630 | 120 | 633 | 1.11 | 15.04 | 458,000 |

PRIEST RIVER AT PRIEST RIVER, IDAHO

LOCATION.—Staff gage in sec. 24, T. 56 N., R. 5 W., at highway bridge three-fourths mile northeast of Priest River and 1½ miles above mouth of river. Zero of gage 2,052.24 feet above mean sea level.

DRAINAGE AREA.—904 square miles.

RECORDS AVAILABLE.—June, 1903, to April, 1905; November, 1910, to April, 1911; May to December, 1923; February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year (estimated), 4,300 second-feet Apr. 28; minimum (estimated), 216 second-feet Nov. 21.

1903–1905, 1910–11, 1923, 1929–30: Maximum discharge, 6,300 second-feet Apr. 30, 1904 (gage height, 6.07 feet, present datum); minimum discharge, 216 second-feet Nov. 21, 1929; minimum gage height, 0.38 foot Dec. 5, 6, 1929.

REMARKS.—Records good October to December, August and September; others fair. Discharge estimated because of ice or missing and unreliable gage heights, Nov. 19–26, Jan. 5 to Mar. 21, Apr. 27, 28, 30, May 1–5, 23, 24, June 4–11, Aug. 1, 2. No diversions above station. Some regulation due to operation of flash dam on West Branch of Priest River. Record obtained from gage 500 feet below Saddler Creek and three miles upstream, Apr. 29 to Sept. 30, where flow is same as that passing lower gage.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-------|-------|-------|------|-------|
| 1 | 301 | 293 | 232 | 371 | 322 | 388 | 828 | 3,600 | 2,420 | 1,210 | 575 | 327 |
| 2 | 301 | 278 | 235 | 375 | 326 | 354 | 771 | 3,450 | 2,320 | 1,170 | 550 | 318 |
| 3 | 301 | 271 | 235 | 384 | 322 | 371 | 800 | 3,300 | 2,070 | 1,170 | 583 | 318 |
| 4 | 309 | 278 | 235 | 380 | 335 | 375 | 858 | 3,300 | 2,010 | 1,170 | 554 | 309 |
| 5 | 309 | 286 | 222 | 366 | 343 | 394 | 858 | 3,350 | 1,960 | 1,170 | 498 | 309 |
| 6 | 301 | 293 | 222 | 326 | 339 | 405 | 888 | 3,140 | 1,920 | 1,100 | 509 | 305 |
| 7 | 301 | 293 | 228 | 330 | 330 | 422 | 888 | 3,030 | 1,880 | 1,060 | 504 | 300 |
| 8 | 293 | 293 | 263 | 322 | 322 | 405 | 858 | 3,030 | 1,830 | 1,060 | 498 | 292 |
| 9 | 293 | 293 | 290 | 318 | 309 | 418 | 858 | 3,140 | 1,780 | 950 | 482 | 292 |
| 10 | 293 | 293 | 301 | 309 | 326 | 431 | 858 | 3,030 | 1,740 | 920 | 455 | 288 |
| 11 | 293 | 278 | 371 | 301 | 339 | 431 | 858 | 3,030 | 1,680 | 950 | 455 | 300 |
| 12 | 290 | 271 | 380 | 318 | 322 | 422 | 888 | 2,920 | 1,620 | 920 | 450 | 300 |
| 13 | 290 | 271 | 343 | 301 | 314 | 431 | 888 | 2,920 | 1,530 | 920 | 445 | 300 |
| 14 | 286 | 267 | 326 | 314 | 314 | 466 | 1,090 | 2,720 | 1,530 | 880 | 445 | 300 |
| 15 | 286 | 267 | 348 | 301 | 301 | 457 | 1,880 | 2,720 | 1,450 | 880 | 440 | 296 |
| 16 | 286 | 267 | 384 | 282 | 301 | 466 | 2,120 | 2,620 | 1,450 | 826 | 445 | 292 |
| 17 | 286 | 263 | 448 | 249 | 335 | 475 | 1,770 | 2,620 | 1,450 | 787 | 445 | 288 |
| 18 | 286 | 263 | 469 | 263 | 428 | 520 | 1,350 | 2,520 | 1,370 | 768 | 445 | 283 |
| 19 | 290 | 256 | 404 | 263 | 469 | 498 | 1,770 | 2,420 | 1,370 | 748 | 414 | 279 |
| 20 | 290 | 238 | 423 | 263 | 464 | 498 | 3,050 | 2,520 | 1,410 | 748 | 409 | 275 |
| 21 | 293 | 216 | 423 | 263 | 454 | 665 | 2,240 | 2,520 | 1,450 | 735 | 414 | 270 |
| 22 | 286 | 225 | 443 | 271 | 443 | 615 | 2,000 | 2,320 | 1,370 | 754 | 399 | 270 |
| 23 | 282 | 238 | 469 | 274 | 438 | 615 | 2,240 | 2,300 | 1,370 | 742 | 389 | 270 |
| 24 | 271 | 249 | 428 | 278 | 423 | 615 | 2,500 | 2,300 | 1,410 | 698 | 380 | 262 |
| 25 | 271 | 252 | 454 | 286 | 418 | 615 | 3,050 | 2,320 | 1,410 | 685 | 375 | 262 |
| 26 | 271 | 242 | 423 | 293 | 409 | 615 | 2,910 | 2,320 | 1,370 | 673 | 375 | 258 |
| 27 | 318 | 235 | 414 | 297 | 404 | 665 | 3,940 | 2,170 | 1,330 | 624 | 365 | 258 |
| 28 | 309 | 235 | 394 | 297 | 397 | 744 | 4,300 | 2,070 | 1,330 | 624 | 360 | 262 |
| 29 | 309 | 235 | 389 | 301 | ----- | 744 | 4,130 | 2,020 | 1,250 | 624 | 355 | 266 |
| 30 | 271 | 235 | 418 | 309 | ----- | 888 | 3,900 | 2,170 | 1,250 | 612 | 346 | 262 |
| 31 | 293 | ----- | 414 | 314 | ----- | 828 | ----- | 2,170 | ----- | 612 | 337 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|-------------------------|
| October | 318 | 271 | 292 | 18,000 |
| November | 293 | 216 | 262 | 15,600 |
| December | 469 | 222 | 356 | 21,900 |
| January | 384 | 249 | 307 | 18,900 |
| February | 469 | 301 | 366 | 20,300 |
| March | 888 | 354 | 524 | 32,200 |
| April | 4,300 | 771 | 1,840 | 109,000 |
| May | 3,600 | 2,020 | 2,710 | 167,000 |
| June | 2,420 | 1,250 | 1,610 | 95,800 |
| July | 1,210 | 612 | 864 | 53,100 |
| August | 583 | 337 | 442 | 27,200 |
| September | 327 | 258 | 287 | 17,100 |
| The year | 4,300 | 216 | 824 | 596,000 |

SHEEP CREEK BASIN

SHEEP CREEK NEAR VELVET, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 20, T. 40 N., R. 39 E., about $3\frac{1}{2}$ miles above the confluence of Sheep Creek and Little Sheep Creek and 4 miles southwest of Velvet. Zero of gage 2,100.00 feet above mean sea level.

DRAINAGE AREA.—171 square miles.

RECORDS AVAILABLE.—August, 1929, to September, 1930.

EXTREMES.—Maximum discharge during period Aug. 1, 1929, to Sept. 30, 1930, 1,190 second-feet June 1 (gage height, 8.35 feet); minimum occurred during period Dec. 26 to Mar. 18; not determined.

REMARKS.—Records fair except those for Nov. 20 to Mar. 18, which are poor. Discharge estimated Nov. 20 to Dec. 22, Dec. 26 to Mar. 18. Flow partly regulated by flash dam half a mile above gage. No diversions. Many discharge measurements furnished by Sheep Creek Hydroelectric Co.

Daily discharge, in second-feet, 1929-30

| Day | Aug. | Sept. | Day | Aug. | Sept. | Day | Aug. | Sept. |
|---------|------|-------|---------|------|-------|---------|------|-------|
| 1929 | | | 1929 | | | 1930 | | |
| 1..... | 37 | 21 | 11..... | 30 | 20 | 21..... | 25 | 20 |
| 2..... | 36 | 20 | 12..... | 29 | 18 | 22..... | 25 | 23 |
| 3..... | 34 | 20 | 13..... | 28 | 17 | 23..... | 24 | 26 |
| 4..... | 34 | 20 | 14..... | 27 | 18 | 24..... | 24 | 23 |
| 5..... | 33 | 20 | 15..... | 27 | 19 | 25..... | 24 | 22 |
| 6..... | 32 | 20 | 16..... | 27 | 19 | 26..... | 23 | 22 |
| 7..... | 32 | 21 | 17..... | 26 | 19 | 27..... | 22 | 21 |
| 8..... | 32 | 20 | 18..... | 26 | 20 | 28..... | 22 | 20 |
| 9..... | 31 | 20 | 19..... | 26 | 22 | 29..... | 22 | 20 |
| 10..... | 30 | 20 | 20..... | 25 | 21 | 30..... | 21 | 20 |
| | | | | | | 31..... | 21 | |

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1929-30 | | | | | | | | | | | | |
| 1..... | 21 | 31 | | | | | 46 | 411 | 466 | 42 | 84 | 4.0 |
| 2..... | 20 | 13 | | | | | 49 | 390 | 307 | 158 | 5.8 | 115 |
| 3..... | 19 | 5.1 | | | | | 51 | 438 | 290 | 114 | 6.8 | 3.3 |
| 4..... | 19 | 6.1 | | | | | 50 | 267 | 312 | 102 | 82 | 2.8 |
| 5..... | 20 | 6.1 | 6.0 | 5.0 | 7.0 | | 50 | 308 | 308 | 97 | 4.4 | 3.2 |
| 6..... | 19 | 6.3 | | | | | 55 | 368 | 293 | 38 | 5.2 | 48 |
| 7..... | 19 | 6.3 | | | | | 69 | 264 | 279 | 132 | 62 | 4.1 |
| 8..... | 16 | 6.3 | | | | | 94 | 298 | 274 | 38 | 4.4 | 3.0 |
| 9..... | 20 | 6.3 | | | | | 118 | 296 | 293 | 85 | 3.0 | 3.5 |
| 10..... | 23 | 7.1 | | | | 10 | 118 | 200 | 244 | 76 | 4.0 | 42 |
| 11..... | 21 | 76 | 7.0 | | 8.0 | | 122 | 276 | 233 | 78 | 40 | 7.0 |
| 12..... | 20 | 30 | | | | | 118 | 178 | 220 | 13 | 5.8 | 90 |
| 13..... | 20 | 19 | | | | | 130 | 214 | 210 | 30 | 6.6 | 3.6 |
| 14..... | 20 | 9.5 | | | | | 196 | 209 | 194 | 123 | 7.1 | 3.9 |
| 15..... | 20 | 3.2 | | | | | 335 | 206 | 179 | 13 | 9.2 | 4.1 |
| 16..... | 20 | 3.9 | | 3.0 | | | 454 | 252 | 164 | 96 | 12 | 4.4 |
| 17..... | 20 | 4.6 | | | | | 454 | 226 | 156 | 7.7 | 14 | 58 |
| 18..... | 18 | 5.3 | | | | | 396 | 220 | 144 | 106 | 15 | 3.3 |
| 19..... | 19 | 52 | 6.0 | | 15 | 120 | 362 | 210 | 136 | 10 | 16 | 3.8 |
| 20..... | 20 | | | | | 130 | 348 | 197 | 130 | 18 | 75 | 4.1 |
| 21..... | 20 | | | | | 44 | 351 | 241 | 141 | 99 | 10 | 4.3 |
| 22..... | 9.6 | 6.0 | | | | 30 | 410 | 126 | 141 | 9.6 | 2.6 | 4.4 |
| 23..... | 7.3 | | 3.9 | | | 23 | 382 | 140 | 134 | 13 | 55 | 5.0 |
| 24..... | 8.1 | | 5.0 | | | 24 | 410 | 170 | 130 | 118 | 5.8 | 5.8 |
| 25..... | 8.6 | | 5.5 | | 10 | 24 | 406 | 174 | 132 | 8.2 | 4.2 | 6.8 |
| 26..... | 8.6 | | | | | 25 | 440 | 168 | 122 | 68 | 30 | 91 |
| 27..... | 8.6 | | | 4.0 | | 27 | 468 | 83 | 120 | 8.0 | 2.6 | 4.3 |
| 28..... | 8.6 | 7.0 | 5.0 | | | 33 | 483 | 134 | 114 | 9.2 | 33 | 4.3 |
| 29..... | 8.6 | | | | | 37 | 468 | 161 | 109 | 104 | 25 | 4.6 |
| 30..... | 8.1 | | | | | 42 | 472 | 153 | 106 | 5.8 | 2.6 | 5.0 |
| 31..... | 81 | | | | | 45 | | 197 | | 7.4 | 3.5 | |

* Interpolated.

Monthly discharge, in second-feet, of Sheep Creek near Velvet, Wash., 1929-30

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------------|---------|---------|------|-----------------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| 1929 | | | | | | |
| August..... | 37 | 21 | 27.6 | 0.161 | 0.19 | 1,700 |
| September..... | 26 | 17 | 20.4 | .119 | .13 | 1,210 |
| The period..... | | | | | | 2,910 |
| 1929-30 | | | | | | |
| October..... | 81 | 7.3 | 18.4 | .108 | .12 | 1,130 |
| November..... | 76 | | 12.3 | .072 | .08 | 732 |
| December..... | | 3.9 | 5.92 | .035 | .04 | 364 |
| January..... | | | 3.71 | .022 | .03 | 228 |
| February..... | | | 9.93 | .058 | .06 | 551 |
| March..... | 130 | | 25.3 | .148 | .17 | 1,660 |
| April..... | 483 | 46 | 263 | 1.54 | 1.72 | 15,600 |
| May..... | 438 | 83 | 231 | 1.35 | 1.56 | 14,200 |
| June..... | 466 | 106 | 202 | 1.18 | 1.32 | 12,000 |
| July..... | 168 | 5.8 | 58.9 | .344 | .40 | 3,620 |
| August..... | 84 | 2.6 | 20.5 | .120 | .14 | 1,260 |
| September..... | 115 | 2.8 | 18.2 | .106 | .12 | 1,080 |
| The year..... | 483 | | 72.4 | .423 | 5.76 | 52,300 |

SHEEP CREEK NEAR NORTHPORT, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 25, T. 40 N., R. 39 E., at county highway bridge 1 mile above mouth and $1\frac{1}{2}$ miles north of Northport. Zero of gage 1,320.00 feet above mean sea level.

DRAINAGE AREA.—225 square miles.

RECORDS AVAILABLE.—June, 1929, to September, 1930.

EXTREMES.—Maximum discharge during period June 1, 1929, to Sept. 30, 1930, 1,160 second-feet June 1, 1930 (gage height, 26.03 feet); minimum occurred during winter; not determined.

REMARKS.—Records fair except those for Nov. 11 to Apr. 7, which are poor. Discharge estimated Nov. 11–14, 19–28, Dec. 3–5, 7–23, Dec. 25 to Apr. 7. Flow partly regulated by flash dam $6\frac{1}{2}$ miles above gage. No diversions. Many discharge measurements furnished by Sheep Creek Hydroelectric Co.

Daily discharge, in second-feet, 1929

| Day | June | July | Aug | Sept. | Day | June | July | Aug. | Sept. |
|---------|------|------|-----|-------|---------|------|------|------|-------|
| 1..... | 370 | 180 | 47 | 30 | 16..... | 390 | 80 | 37 | 28 |
| 2..... | 380 | 165 | 46 | 30 | 17..... | 477 | 77 | 36 | 28 |
| 3..... | 370 | 153 | 45 | 30 | 18..... | 520 | 74 | 36 | 28 |
| 4..... | 343 | 145 | 44 | 30 | 19..... | 510 | 72 | 36 | 28 |
| 5..... | 316 | 135 | 44 | 30 | 20..... | 480 | 70 | 36 | 28 |
| 6..... | 289 | 130 | 43 | 30 | 21..... | 450 | 67 | 36 | 28 |
| 7..... | 282 | 121 | 43 | 31 | 22..... | 418 | 64 | 35 | 29 |
| 8..... | 276 | 115 | 42 | 30 | 23..... | 370 | 61 | 34 | 30 |
| 9..... | 270 | 110 | 42 | 30 | 24..... | 330 | 58 | 34 | 31 |
| 10..... | 273 | 107 | 41 | 29 | 25..... | 295 | 56 | 34 | 30 |
| 11..... | 264 | 102 | 40 | 28 | 26..... | 280 | 55 | 33 | 29 |
| 12..... | 254 | 96 | 39 | 28 | 27..... | 265 | 54 | 32 | 28 |
| 13..... | 244 | 91 | 38 | 28 | 28..... | 244 | 52 | 32 | 28 |
| 14..... | 260 | 86 | 38 | 28 | 29..... | 216 | 50 | 31 | 28 |
| 15..... | 298 | 83 | 38 | 28 | 30..... | 190 | 49 | 30 | 28 |
| | | | | | 31..... | | 48 | 30 | |

• Interpolated.

Daily and monthly discharge, in second-feet, of Sheep Creek near Northport, Wash., 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | • 28 | 40 | 15 | | | | | 429 | 474 | 82 | 79 | 12 |
| 2 | • 28 | 26 | 12 | | | 10 | | 414 | 324 | 145 | 20 | 109 |
| 3 | • 28 | 12 | | | | | | 454 | 301 | 132 | 16 | 16 |
| 4 | 28 | 13 | 10 | | | | 70 | 322 | 320 | 118 | 78 | 12 |
| 5 | 28 | 13 | | 10 | 15 | | | 326 | 317 | 111 | 17 | 12 |
| 6 | 28 | 13 | 14 | | | | | 426 | 304 | 76 | 14 | 52 |
| 7 | 28 | 13 | | | | | | 288 | 292 | 117 | 67 | 13 |
| 8 | 28 | 12 | | | | 15 | | 306 | 279 | 79 | 17 | 12 |
| 9 | 28 | 13 | | | | | | 125 | 322 | 267 | 94 | 15 |
| 10 | 28 | 14 | | | | | | 136 | 217 | 295 | 73 | 48 |
| 11 | 28 | | 15 | | | | | 144 | 302 | 235 | 87 | 48 |
| 12 | 28 | | | | | | | 149 | 200 | 222 | 29 | 15 |
| 13 | 28 | 35 | | 9.0 | | | | 169 | 242 | 214 | 36 | 14 |
| 14 | 28 | | | | | | | 252 | 214 | 201 | 140 | 14 |
| 15 | 28 | 11 | | | 15 | | | 387 | 202 | 191 | 28 | 15 |
| 16 | 28 | 11 | | | | | | 490 | 264 | 176 | 103 | 19 |
| 17 | 28 | 10 | | | | 50 | | 473 | 235 | 164 | 22 | 22 |
| 18 | 26 | 11 | | | | | | 414 | 227 | 158 | 102 | 24 |
| 19 | 26 | | | | | | | 330 | 219 | 151 | 24 | 25 |
| 20 | 25 | | 10 | 8.0 | | | | 360 | 208 | 144 | 25 | 73 |
| 21 | 25 | | | | | | | 356 | 270 | 153 | 103 | 22 |
| 22 | 22 | | | | | | | 380 | 130 | 155 | 22 | 17 |
| 23 | 13 | 10 | 12 | | 15 | | | 415 | 169 | 149 | 21 | 58 |
| 24 | 15 | | | | | | | 462 | 171 | 144 | 117 | 16 |
| 25 | 16 | | | | | | | 442 | 184 | 151 | 24 | 14 |
| 26 | 16 | | | | | | | 477 | 179 | 140 | 65 | 44 |
| 27 | 15 | | 10 | 10 | | 30 | | 499 | 124 | 138 | 21 | 14 |
| 28 | 15 | | | | | | | 503 | 124 | 134 | 18 | 42 |
| 29 | 15 | 13 | | | | | | 507 | 169 | 129 | 86 | 36 |
| 30 | 15 | 15 | | | | | | 470 | 164 | 123 | 30 | 17 |
| 31 | 55 | | | | | | | 201 | | 15 | 12 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| 1929 | | | | | | |
| June..... | 520 | 190 | 331 | 1.47 | 1.64 | 19,700 |
| July..... | 180 | 48 | 90.5 | .402 | .46 | 5,560 |
| August..... | 47 | 30 | 37.8 | .168 | .19 | 2,320 |
| September..... | 31 | 28 | 29.0 | .129 | .14 | 1,730 |
| The period..... | | | | | | 20,300 |
| 1929-30 | | | | | | |
| October..... | 55 | 13 | 25.0 | .111 | .13 | 1,540 |
| November..... | | | 16.0 | .071 | .08 | 952 |
| December..... | | | 11.9 | .053 | .06 | 732 |
| January..... | | | 9.32 | .041 | .05 | 573 |
| February..... | | | 15.0 | .067 | .07 | 833 |
| March..... | | | 30.2 | .134 | .15 | 1,860 |
| April..... | 507 | | 286 | 1.27 | 1.42 | 17,000 |
| May..... | 454 | 124 | 248 | 1.10 | 1.27 | 15,200 |
| June..... | 474 | 123 | 213 | .947 | 1.06 | 12,700 |
| July..... | 145 | 15 | 69.2 | .308 | .36 | 4,250 |
| August..... | 79 | 12 | 28.9 | .128 | .15 | 1,780 |
| September..... | 109 | 11 | 25.0 | .111 | .12 | 1,490 |
| The year..... | 507 | | 81.4 | .362 | 4.92 | 58,900 |

• Interpolated.

KETTLE RIVER BASIN

KETTLE RIVER NEAR FERRY, WASH.

LOCATION.—Water-stage recorder in lot 7, sec. 10, T. 40 N., R. 32 E., $1\frac{1}{4}$ miles south of international boundary and Ferry. Zero of gage 1,840.00 feet above mean sea level.

DRAINAGE AREA.—2,220 square miles.

RECORDS AVAILABLE.—August, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 6,000 second-feet June 1 (gage height, 14.46 feet); minimum, 14 second-feet Jan. 23, result of current-meter measurement; may have been less sometime during Jan. 18–23.

1928–1930: Maximum discharge, 7,420 second-feet May 24, 1929 (gage height, 15.15 feet); minimum occurred in January, 1930.

REMARKS.—Records excellent except those for Jan. 8 to Feb. 17, which were estimated because of ice. Numerous small diversions above station for irrigation. Several discharge measurements furnished by Dominion Water Power and Hydrometric Bureau, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|-------|-------|-------|-------|------|-------|
| 1 | 90 | 88 | 81 | 78 | | 84 | 200 | 2,590 | 5 490 | 1,460 | 236 | 104 |
| 2 | 87 | 93 | 73 | 78 | | 82 | 250 | 2,469 | 4 230 | 1,410 | 214 | 102 |
| 3 | 87 | 93 | 68 | 73 | | 84 | 288 | 2,460 | 3 890 | 1,360 | 210 | 100 |
| 4 | 90 | 93 | 72 | 78 | | 88 | 340 | 2,520 | 3 970 | 1,220 | 198 | 96 |
| 5 | 88 | 92 | 72 | 79 | 60 | 92 | 360 | 2,330 | 3 630 | 1,110 | 190 | 94 |
| 6 | | | | | | 92 | 376 | 2,330 | 3 380 | 1,030 | 182 | 93 |
| 7 | 87 | 92 | 78 | 72 | | 80 | 422 | 2,260 | 3 690 | 990 | 174 | 92 |
| 8 | 92 | 92 | 81 | | | 88 | 549 | 2,020 | 4 680 | 885 | 161 | 92 |
| 9 | 94 | 92 | 81 | | | 90 | 699 | 1,840 | 4 000 | 822 | 145 | 92 |
| 10 | 94 | 92 | 80 | | | 94 | 744 | 1,780 | 3 380 | 776 | 152 | 92 |
| 11 | | | | | | 100 | 750 | 1,780 | 3 300 | 737 | 155 | 92 |
| 12 | 96 | 78 | 73 | 40 | | 125 | 770 | 1,840 | 3 010 | 705 | 158 | 92 |
| 13 | 90 | 79 | 78 | | 60 | 107 | 836 | 1,780 | 2 730 | 668 | 155 | 93 |
| 14 | 94 | 87 | 79 | | | 102 | 1,070 | 1,900 | 2 400 | 607 | 155 | 93 |
| 15 | 96 | 81 | 81 | | | 101 | 2,110 | 2,200 | 2 140 | 578 | 148 | 92 |
| 16 | | | | | | 101 | 2,460 | 2,590 | 2 080 | 543 | 139 | 92 |
| 17 | 94 | 88 | 81 | | | 110 | 2,200 | 2,940 | 2 020 | 509 | 134 | 90 |
| 18 | 96 | 82 | 81 | | 80 | 121 | 1,960 | 2,940 | 1,840 | 482 | 129 | 90 |
| 19 | 98 | 69 | * 81 | | 84 | 126 | 1,840 | 2,460 | 1,680 | 465 | 129 | 88 |
| 20 | 112 | 71 | * 81 | 15 | 93 | 124 | 1,730 | 2,200 | 1,620 | 454 | 129 | 88 |
| 21 | | | | | | 96 | 121 | 1,730 | 2,400 | 1,730 | 443 | 126 |
| 22 | 112 | 69 | * 81 | | 96 | 119 | 1,900 | 2,200 | 1,840 | 412 | 121 | 86 |
| 23 | 106 | 73 | * 81 | | 96 | 116 | 2,280 | 1,960 | 2,200 | 381 | 119 | 86 |
| 24 | 108 | 74 | * 81 | | 98 | 119 | 2,730 | 1,840 | 2,140 | 360 | 116 | 86 |
| 25 | 106 | 76 | * 81 | | 94 | 121 | 3,010 | 1,780 | 1,900 | 350 | 116 | 84 |
| 26 | 100 | 78 | * 81 | | 96 | 119 | 3,010 | 1,780 | 1,730 | 340 | 114 | 84 |
| 27 | 106 | 80 | 81 | | 93 | 121 | 3,080 | 1,620 | 1,780 | 336 | 112 | 84 |
| 28 | 102 | 80 | 73 | 35 | 93 | 124 | 3,380 | 1,680 | 1,900 | 321 | 112 | 84 |
| 29 | 94 | 84 | 74 | | 88 | 132 | 3,220 | 2,080 | 1,840 | 312 | 110 | 86 |
| 30 | 96 | 86 | 81 | | | 148 | 2,870 | 2,660 | 1,620 | 293 | 108 | 86 |
| 31 | 93 | 102 | 80 | | | 164 | | 3,650 | | 270 | 106 | |
| | 94 | 77 | 77 | | | | | | | | | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 112 | 87 | 96.0 | 0.03 | 0.05 | 5,900 |
| November | 102 | 69 | 84.3 | 0.03 | .04 | 5,020 |
| December | 81 | 68 | 78.2 | 0.03 | .04 | 4,810 |
| January | 79 | | 40.3 | 0.03 | .02 | 2,480 |
| February | 98 | | 72.5 | 0.03 | .03 | 4,630 |
| March | 164 | 80 | 110 | 0.03 | .06 | 6,760 |
| April | 3,380 | 200 | 1,570 | .707 | .79 | 93,400 |
| May | 3,650 | 1,620 | 2,220 | 1.00 | 1.15 | 136,000 |
| June | 5,490 | 1,620 | 2,730 | 1.23 | 1.37 | 162,000 |
| July | 1,460 | 270 | 664 | 2.20 | .34 | 40,800 |
| August | 236 | 106 | 147 | 0.03 | .08 | 9,040 |
| September | 104 | 84 | 90.7 | 0.01 | .05 | 5,460 |
| The year | 5,490 | | 659 | 2.27 | 4.02 | 476,000 |

* Estimated.

KETTLE RIVER NEAR LAURIER, WASH.

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 11, T. 40 N., R. 36 E., 500 feet below Deep Creek and $1\frac{1}{2}$ miles southeast of Laurier.

DRAINAGE AREA.—3,800 square miles.

RECORDS AVAILABLE.—September, 1929, to September, 1930.

EXTREMES.—Maximum discharge during period Sept. 1, 1929, to Sept. 30, 1930, 8,180 second-feet June 1 (gage-height, 8.64 feet); minimum occurred during winter; not determined.

Maximum stage known, about 22 feet in 1894.

REMARKS.—Records good except those for period of ice effect, Nov. 14, 15, 1929, Dec. 4–15, Dec. 31 to Mar. 10, which were estimated. No regulation. Slight diversion for domestic use. Some discharge measurements furnished by Dominion Water Power and Hydrometric Bureau, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|------|------|------|------|------|-------|-------|-------|-------|------|-------|
| 1 | | 168 | 231 | 190 | | | | 355 | 5,110 | 7,480 | 2,810 | 566 | 227 |
| 2 | | 172 | 227 | 165 | | | | 422 | 4,820 | 7,010 | 2,690 | 536 | 227 |
| 3 | • 190 | 172 | 227 | 137 | | | | 648 | 4,640 | 5,930 | 2,630 | 500 | 227 |
| 4 | | 172 | 273 | | | | | 986 | 4,820 | 5,930 | 2,450 | 482 | 227 |
| 5 | | 165 | 258 | | 80 | 140 | 260 | 1,090 | 4,640 | 5,710 | 2,330 | 464 | 222 |
| 6 | • 187 | 165 | 253 | | | | | 1,090 | 4,460 | 5,300 | 2,110 | 440 | 218 |
| 7 | • 186 | 165 | 235 | | | | | 1,170 | 4,460 | 5,500 | 2,000 | 416 | 213 |
| 8 | • 184 | 165 | 231 | | | | | 1,520 | 4,060 | 6,760 | 1,840 | 404 | 213 |
| 9 | • 183 | 172 | 227 | 140 | | | | 2,000 | 3,750 | 6,890 | 1,720 | 382 | 209 |
| 10 | • 182 | 183 | 222 | | | | | 2,220 | 3,540 | 5,710 | 1,620 | 366 | 205 |
| 11 | • 180 | 183 | 213 | | | | 288 | 2,220 | 3,540 | 5,300 | 1,520 | 355 | 198 |
| 12 | • 179 | 183 | 202 | | | | 288 | 2,280 | 3,540 | 5,110 | 1,470 | 355 | 198 |
| 13 | • 174 | • 185 | 190 | | | | 288 | 2,450 | 3,540 | 4,550 | 1,380 | 339 | 202 |
| 14 | • 168 | 187 | 190 | | | | 288 | 2,940 | 3,610 | 4,140 | 1,290 | 329 | 202 |
| 15 | • 168 | 187 | 200 | | 55 | 200 | 263 | 4,560 | 3,980 | 3,750 | 1,210 | 324 | 202 |
| 16 | 168 | 187 | 202 | 176 | | | 249 | 5,710 | 4,730 | 3,610 | 1,130 | 319 | 202 |
| 17 | 168 | 187 | 205 | 187 | | | 249 | 4,920 | 5,300 | 3,540 | 1,080 | 303 | 198 |
| 18 | 162 | 187 | 202 | 179 | | | 235 | 4,300 | 5,500 | 3,330 | 978 | 293 | 198 |
| 19 | 158 | 194 | | 179 | | | 253 | 4,140 | 4,920 | 3,070 | 949 | 288 | 187 |
| 20 | 158 | 194 | | 176 | | | 258 | 3,820 | 4,300 | 2,940 | 914 | 283 | 183 |
| 21 | 158 | 194 | | 176 | | | 258 | 3,820 | 4,300 | 3,000 | 893 | 283 | 179 |
| 22 | 158 | 209 | | 179 | | | 258 | 4,140 | 4,380 | 3,140 | 858 | 283 | 179 |
| 23 | 162 | 209 | | 179 | | | 258 | 4,820 | 3,900 | 3,260 | 824 | 283 | 179 |
| 24 | 162 | 209 | 180 | 179 | | | 263 | 5,500 | 3,610 | 3,470 | 782 | 278 | 176 |
| 25 | 165 | 205 | | 183 | | 300 | 268 | 6,160 | 3,470 | 3,330 | 746 | 268 | 172 |
| 26 | 172 | 202 | | 183 | 80 | | 258 | 6,160 | 3,470 | 3,070 | 716 | 263 | 179 |
| 27 | 172 | 202 | | 179 | | | 263 | 6,160 | 3,260 | 3,000 | 680 | 253 | 179 |
| 28 | 168 | 205 | | 148 | | | 258 | 6,630 | 3,200 | 3,200 | 668 | 249 | 183 |
| 29 | • 170 | 209 | | 154 | | | 268 | 6,390 | 3,470 | 3,260 | 656 | 240 | 187 |
| 30 | 172 | 231 | 190 | 144 | | | 283 | 5,710 | 4,220 | 3,000 | 638 | 231 | 187 |
| 31 | 235 | | | 130 | | | 308 | | 5,020 | | 602 | 227 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| 1929 | | | | | | |
| September | | 158 | 174 | 0.046 | 0.05 | 10,400 |
| 1929-30 | | | | | | |
| October | 235 | 165 | 190 | .050 | .06 | 11,700 |
| November | 273 | | 205 | .054 | .06 | 12,200 |
| December | 190 | | 158 | .042 | .05 | 9,720 |
| January | | | 71.9 | .019 | .02 | 4,420 |
| February | | | 207 | .054 | .06 | 11,600 |
| March | 308 | | 264 | .069 | .08 | 16,200 |
| April | 6,630 | 355 | 3,480 | .916 | 1.02 | 207,000 |
| May | 5,500 | 3,200 | 4,180 | 1.10 | 1.27 | 257,000 |
| June | 7,480 | 2,940 | 4,440 | 1.17 | 1.30 | 264,000 |
| July | 2,810 | 602 | 1,360 | .358 | .41 | 83,600 |
| August | 566 | 227 | 342 | .090 | .10 | 21,000 |
| September | 227 | 172 | 199 | .052 | .06 | 11,800 |
| The year | 7,480 | | 1,260 | .332 | 4.49 | 910,000 |

• Interpolated.

COLVILLE RIVER BASIN

COLVILLE RIVER AT MEYERS FALLS, WASH.

LOCATION.—Staff gage in sec. 29, T. 36 N., R. 38 E., at Stevens County Light and Power Co.'s plant at foot of Meyers Falls.

RECORDS AVAILABLE.—October, 1922, to September, 1930.

EXTREMES.—Maximum discharge during year occurred during period Feb. 23-26; not determined; minimum, 0.5 second-foot Aug. 15 (gage height, 0.00 foot).

1922-1930: Maximum discharge, 1,290 second-feet Apr. 19, 1925; minimum, that of Aug. 15, 1930.

REMARKS.—Records good except those for Dec. 15-17, Jan. 1 to Feb. 17, Feb. 23-26, which were estimated because of ice. Several small ditches divert water for irrigation above station. Small reservoir above falls; effect of regulation probably slight. Gage-height record and one discharge measurement furnished by Washington Water Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | Jun. | July | Aug. | Sept. |
|-----|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1 | 42 | 71 | 78 | 50 | 30 | 140 | 158 | 140 | 123 | 59 | 18 | 19 |
| 2 | 41 | 70 | 84 | | | 123 | 158 | 132 | 133 | 56 | 21 | 21 |
| 3 | 38 | 63 | 68 | | | 115 | 149 | 132 | 123 | 59 | 19 | 20 |
| 4 | 49 | 70 | 67 | | | 115 | 149 | 123 | 123 | 55 | 18 | 17 |
| 5 | 47 | 70 | 64 | | | 115 | 140 | 107 | 123 | 54 | 17 | 22 |
| 6 | 42 | 59 | 75 | 50 | 30 | 123 | 140 | 115 | 107 | 52 | 17 | 18 |
| 7 | 44 | 65 | 74 | | | 115 | 140 | 115 | 100 | 47 | 11 | 18 |
| 8 | 51 | 61 | 79 | | | 123 | 132 | 107 | 89 | 40 | 12 | 19 |
| 9 | 44 | 70 | 81 | | | 123 | 123 | 102 | 84 | 44 | 16 | 18 |
| 10 | 54 | 72 | 70 | | | 123 | 123 | 101 | 73 | 35 | 8.8 | 22 |
| 11 | 51 | 60 | 88 | 30 | 60 | 132 | 123 | 98 | 73 | 33 | 20 | 25 |
| 12 | 42 | 67 | 98 | | | 140 | 123 | 95 | 71 | 29 | 12 | 25 |
| 13 | 42 | 81 | 94 | | | 132 | 115 | 96 | 73 | 33 | 14 | 33 |
| 14 | 61 | 70 | 95 | | | 123 | 115 | 98 | 68 | 34 | 8.0 | 22 |
| 15 | 55 | 72 | | | | 123 | 123 | 95 | 61 | 31 | .5 | 21 |
| 16 | 49 | 82 | 110 | 30 | 94 | 123 | 132 | 75 | 53 | 33 | 2.3 | 18 |
| 17 | 59 | 84 | | | | 115 | 132 | 74 | 61 | 25 | 3.5 | 23 |
| 18 | 64 | 84 | 123 | | | 115 | 123 | 77 | 51 | 24 | 6.0 | 25 |
| 19 | 59 | 64 | 132 | | | 132 | 107 | 123 | 64 | 55 | 7.5 | 23 |
| 20 | 61 | 56 | 115 | | | 168 | 115 | 115 | 56 | 73 | 9.2 | 25 |
| 21 | 60 | 43 | 104 | 20 | 189 | 149 | 107 | 104 | 51 | 29 | 10 | 28 |
| 22 | 51 | 56 | 102 | | | 107 | 101 | 75 | 81 | 23 | 9.6 | 23 |
| 23 | 59 | 61 | 101 | | | 115 | 104 | 98 | 69 | 22 | | 26 |
| 24 | 70 | 61 | 104 | | | 123 | 107 | 79 | 65 | 30 | 22 | 28 |
| 25 | 63 | 59 | 84 | | | 123 | 115 | 95 | 74 | 22 | 19 | 25 |
| 26 | 61 | 61 | 123 | 20 | 189 | 123 | 132 | 70 | 74 | 19 | 17 | 35 |
| 27 | 59 | 68 | 123 | | | 140 | 132 | 72 | 71 | 19 | 18 | 27 |
| 28 | 64 | 72 | 115 | | | 149 | 132 | 77 | 73 | 18 | 16 | 34 |
| 29 | 70 | 85 | 107 | | | 158 | 149 | 65 | 61 | 18 | 16 | 36 |
| 30 | 64 | 86 | 101 | | | 158 | 140 | 72 | 64 | 18 | 21 | 31 |
| 31 | 64 | | 82 | | | 158 | | 100 | | 18 | 22 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|------|----------------------|
| October | 70 | 38 | 54.2 | 3,330 |
| November | 86 | 43 | 68.1 | 4,050 |
| December | 132 | 64 | 95.5 | 5,870 |
| January | | | 32.9 | 2,020 |
| February | | | 96.5 | 5,360 |
| March | 158 | 107 | 127 | 7,810 |
| April | 158 | 101 | 128 | 7,620 |
| May | 140 | 56 | 93.8 | 5,770 |
| June | 132 | 51 | 80.5 | 4,790 |
| July | 59 | 18 | 33.2 | 2,040 |
| August | 22 | .5 | 14.0 | 861 |
| September | 36 | 17 | 24.2 | 1,440 |
| The year | | .5 | 70.5 | 51,000 |

SPOKANE RIVER BASIN

COEUR D'ALENE RIVER NEAR CATALDO, IDAHO

LOCATION.—Water-stage recorder in sec. 26, T. 49 N., R. 1 E., $1\frac{1}{2}$ miles above Cataldo and 3 miles below South Fork of Coeur d'Alene River. Recorder reads elevation above mean sea level.

DRAINAGE AREA.—1,220 square miles.

RECORDS AVAILABLE.—April, 1911, to December, 1912; July, 1920, to September, 1930.

EXTREMES.—Maximum discharge during year, 7,880 second-feet Apr. 8 (gage height, 2,143.95 feet); minimum discharge, 122 second-feet Dec. 4; minimum gage height, 2,137.11 feet Sept. 4.

1911-12, 1920-1930: Maximum discharge, 27,600 second-feet Feb. 5, 1925 (gage height, 2,151.3 feet); minimum, that of Dec. 4, 1929.

REMARKS.—Records good April to July; others fair except those estimated Jan. 11 to Feb. 19 on account of ice. No diversions or regulation above station. Gage-height record and seven discharge measurements furnished by Washington Water Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|-------|------|-------|-------|-------|-------|-------|------|------|-------|
| 1..... | 344 | 320 | 233 | 442 | 280 | 1,580 | 5,170 | 2,950 | 1,940 | 882 | 399 | 263 |
| 2..... | 337 | 295 | 236 | 418 | 280 | 1,430 | 5,000 | 4,220 | 2,020 | 853 | 399 | 243 |
| 3..... | 330 | 280 | 236 | 372 | 280 | 1,290 | 5,000 | 3,360 | 2,240 | 796 | 383 | 236 |
| 4..... | 324 | 277 | 150 | 351 | 280 | 1,400 | 5,170 | 3,920 | 2,330 | 768 | 376 | 228 |
| 5..... | 317 | 274 | 141 | 372 | 285 | 1,400 | 5,170 | 3,780 | 2,330 | 768 | 368 | 277 |
| 6..... | 317 | 271 | 178 | 351 | 290 | 1,320 | 5,170 | 3,640 | 2,200 | 741 | 358 | 268 |
| 7..... | 314 | 268 | 215 | 298 | 295 | 1,220 | 5,710 | 3,360 | 2,100 | 671 | 362 | 266 |
| 8..... | 317 | 263 | 236 | 252 | 300 | 1,120 | 6,860 | 3,000 | 1,980 | 682 | 368 | 260 |
| 9..... | 320 | 257 | 268 | 213 | 305 | 1,090 | 7,260 | 2,750 | 1,820 | 666 | 368 | 266 |
| 10..... | 324 | 252 | 337 | 185 | 310 | 1,060 | 6,090 | 2,560 | 1,740 | 666 | 365 | 274 |
| 11..... | 317 | 249 | 476 | 175 | 310 | 1,030 | 5,170 | 2,420 | 1,660 | 671 | 354 | 295 |
| 12..... | 307 | 246 | 615 | 180 | 310 | 1,150 | 4,840 | 2,280 | 1,620 | 656 | 354 | 311 |
| 13..... | 298 | 249 | 661 | 190 | 305 | 1,260 | 5,170 | 2,150 | 1,580 | 635 | 354 | 311 |
| 14..... | 292 | 246 | 714 | 200 | 310 | 1,260 | 6,280 | 2,020 | 1,500 | 615 | 348 | 320 |
| 15..... | 298 | 246 | 1,150 | 190 | 320 | 1,260 | 6,860 | 1,980 | 1,460 | 595 | 340 | 314 |
| 16..... | 298 | 246 | 1,460 | 180 | 350 | 1,220 | 5,710 | 1,940 | 1,320 | 576 | 334 | 307 |
| 17..... | 292 | 236 | 1,320 | 165 | 800 | 1,180 | 4,520 | 1,860 | 1,290 | 562 | 324 | 295 |
| 18..... | 301 | 218 | 1,000 | 170 | 1,500 | 1,220 | 3,920 | 1,820 | 1,220 | 547 | 324 | 307 |
| 19..... | 301 | 208 | 741 | 190 | 3,000 | 1,320 | 3,640 | 1,740 | 1,150 | 538 | 314 | 286 |
| 20..... | 304 | 194 | 580 | 175 | 6,280 | 1,430 | 3,500 | 1,900 | 1,150 | 587 | 304 | 277 |
| 21..... | 298 | 176 | 446 | 175 | 6,090 | 1,540 | 3,500 | 2,510 | 1,260 | 552 | 301 | 277 |
| 22..... | 298 | 203 | 372 | 175 | 4,840 | 2,280 | 3,780 | 2,600 | 1,290 | 529 | 298 | 286 |
| 23..... | 292 | 172 | 387 | 180 | 3,780 | 3,360 | 4,070 | 2,560 | 1,260 | 511 | 295 | 304 |
| 24..... | 292 | 178 | 418 | 190 | 3,060 | 3,170 | 4,220 | 2,560 | 1,150 | 489 | 292 | 283 |
| 25..... | 292 | 203 | 434 | 200 | 2,600 | 3,500 | 4,220 | 2,600 | 1,060 | 480 | 286 | 280 |
| 26..... | 289 | 220 | 502 | 210 | 2,240 | 3,780 | 3,920 | 2,460 | 1,030 | 467 | 277 | 286 |
| 27..... | 304 | 225 | 524 | 230 | 1,940 | 4,220 | 3,640 | 2,330 | 970 | 454 | 268 | 277 |
| 28..... | 365 | 223 | 459 | 245 | 1,820 | 4,520 | 3,500 | 2,200 | 940 | 442 | 266 | 260 |
| 29..... | 399 | 220 | 450 | 255 | ----- | 5,340 | 3,430 | 2,060 | 970 | 422 | 274 | 249 |
| 30..... | 387 | 223 | 422 | 263 | ----- | 6,280 | 3,110 | 2,100 | 970 | 418 | 277 | 249 |
| 31..... | 348 | ----- | 438 | 270 | ----- | 6,090 | ----- | 1,980 | ----- | 410 | 277 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 399 | 289 | 317 | 0.260 | 0.30 | 19,500 |
| November..... | 320 | 172 | 238 | .195 | .22 | 14,200 |
| December..... | 1,460 | 141 | 511 | .419 | .48 | 31,400 |
| January..... | 442 | 165 | 241 | .198 | .23 | 14,800 |
| February..... | 6,280 | 280 | 1,530 | 1.25 | 1.30 | 85,000 |
| March..... | 6,280 | 1,030 | 2,240 | 1.84 | 2.12 | 138,000 |
| April..... | 7,260 | 3,110 | 4,790 | 3.93 | 4.38 | 285,000 |
| May..... | 4,220 | 1,740 | 2,570 | 2.11 | 2.43 | 158,000 |
| June..... | 2,330 | 940 | 1,520 | 1.25 | 1.40 | 90,400 |
| July..... | 882 | 410 | 601 | .493 | .57 | 37,000 |
| August..... | 399 | 266 | 329 | .270 | .31 | 20,200 |
| September..... | 320 | 228 | 278 | .228 | .25 | 16,500 |
| The year..... | 7,260 | 141 | 1,260 | 1.03 | 13.99 | 910,000 |

COEUR D'ALENE LAKE AT COEUR D'ALENE, IDAHO

LOCATION.—Water-stage recorder in SW. $\frac{1}{4}$ sec. 13, T. 50 N., E. 4 W., at Johnson Wharf, Coeur d'Alene.

DRAINAGE AREA.—3,750 square miles.

RECORDS AVAILABLE.—February, 1905, to September, 1930; April, 1903, to February, 1905, at St. Joe Boom Co.'s gage at mouth of St. Joe River.

EXTREMES.—Maximum stage during year, 27.19 feet Apr. 17; minimum, 21.65 feet, Dec. 7, 8.

1903-1930: Maximum stage, 36.0 feet Jan. 3, 1918; minimum, 19.9 feet Oct. 10-12, 1904, Sept. 24, 25, 1905, Oct. 14 to Nov. 3, 1906.

Maximum stage known, 37.6 feet (from high-water marks) May 31, 1894.

REMARKS.—Records excellent. Considerable storage used by Washington Water Power Co. Regulation affected by Taintor gates and bear-trap dam at Post Falls. Gage-height record furnished by Washington Water Power Co.

Add 2,100.00 feet to stages in following table to refer them to originally accepted elevation (2,157.404 feet) of the United States Geological Survey bench mark in southeast corner of Merriam Building (see Water-Supply Paper 672).

Daily gage height, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 23.28 | 22.67 | 21.84 | 23.17 | 21.97 | 24.90 | 26.16 | 26.76 | 26.80 | 26.78 | 26.42 | 24.93 |
| 2 | 23.24 | 22.61 | 21.81 | 23.18 | 21.95 | 24.90 | 26.15 | 26.65 | 26.78 | 26.78 | 26.37 | 24.87 |
| 3 | 23.21 | 22.58 | 21.80 | 23.18 | 21.94 | 24.91 | 26.13 | 26.59 | 26.79 | 26.78 | 26.30 | 24.81 |
| 4 | 23.19 | 22.54 | 21.76 | 23.20 | 22.00 | 24.92 | 26.14 | 26.62 | 26.80 | 26.78 | 26.26 | 24.78 |
| 5 | 23.16 | 22.51 | 21.74 | 23.20 | 22.08 | 24.96 | 26.18 | 26.66 | 26.77 | 26.78 | 26.21 | 24.76 |
| 6 | 23.13 | 22.47 | 21.70 | 23.19 | 22.17 | 24.99 | 26.19 | 26.65 | 26.73 | 26.78 | 26.17 | 24.72 |
| 7 | 23.10 | 22.44 | 21.65 | 23.19 | 22.30 | 24.95 | 26.28 | 26.56 | 26.72 | 26.78 | 26.14 | 24.66 |
| 8 | 23.09 | 22.42 | 21.66 | 23.19 | 22.46 | 24.91 | 26.38 | 26.48 | 26.70 | 26.77 | 26.11 | 24.60 |
| 9 | 23.09 | 22.41 | 21.69 | 23.16 | 22.62 | 24.85 | 26.58 | 26.39 | 26.69 | 26.78 | 26.07 | 24.58 |
| 10 | 23.07 | 22.38 | 21.73 | 23.11 | 22.80 | 24.80 | 26.73 | 26.36 | 26.71 | 26.79 | 26.02 | 24.54 |
| 11 | 23.04 | 22.36 | 21.78 | 23.06 | 22.96 | 24.78 | 26.79 | 26.37 | 26.75 | 26.80 | 25.99 | 24.51 |
| 12 | 23.02 | 22.33 | 21.84 | 23.00 | 23.11 | 24.77 | 26.80 | 26.41 | 26.77 | 26.80 | 25.95 | 24.49 |
| 13 | 23.02 | 22.32 | 21.90 | 22.95 | 23.22 | 24.77 | 26.81 | 26.39 | 26.76 | 26.80 | 25.91 | 24.45 |
| 14 | 23.00 | 22.28 | 22.01 | 22.87 | 23.31 | 24.78 | 26.88 | 26.36 | 26.75 | 26.81 | 25.85 | 24.41 |
| 15 | 22.99 | 22.26 | 22.13 | 22.79 | 23.40 | 24.79 | 27.02 | 26.41 | 26.75 | 26.81 | 25.80 | 24.36 |
| 16 | 22.96 | 22.23 | 22.37 | 22.76 | 23.47 | 24.79 | 27.15 | 26.46 | 26.77 | 26.81 | 25.76 | 24.32 |
| 17 | 22.95 | 22.22 | 22.56 | 22.73 | 23.52 | 24.81 | 27.18 | 26.45 | 26.76 | 26.78 | 25.73 | 24.30 |
| 18 | 22.94 | 22.18 | 22.68 | 22.68 | 23.65 | 24.82 | 27.14 | 26.42 | 26.75 | 26.75 | 25.67 | 24.27 |
| 19 | 22.93 | 22.15 | 22.76 | 22.58 | 23.87 | 24.85 | 27.06 | 26.45 | 26.78 | 26.74 | 25.64 | 24.22 |
| 20 | 22.92 | 22.11 | 22.79 | 22.53 | 24.28 | 24.85 | 26.97 | 26.52 | 26.83 | 26.73 | 25.58 | 24.19 |
| 21 | 22.90 | 22.10 | 22.82 | 22.48 | 24.78 | 24.95 | 26.88 | 26.60 | 26.81 | 26.72 | 25.50 | 24.16 |
| 22 | 22.88 | 22.04 | 22.88 | 22.40 | 25.17 | 25.11 | 26.82 | 26.69 | 26.78 | 26.71 | 25.47 | 24.12 |
| 23 | 22.87 | 22.02 | 22.95 | 22.33 | 25.30 | 25.37 | 26.81 | 26.70 | 26.77 | 26.70 | 25.44 | 24.10 |
| 24 | 22.86 | 21.99 | 22.97 | 22.27 | 25.29 | 25.52 | 26.86 | 26.74 | 26.76 | 26.69 | 25.40 | 24.05 |
| 25 | 22.83 | 21.96 | 23.01 | 22.18 | 25.22 | 25.69 | 26.94 | 26.75 | 26.75 | 26.66 | 25.34 | 24.02 |
| 26 | 22.81 | 21.94 | 23.03 | 22.13 | 25.13 | 25.88 | 27.00 | 26.73 | 26.75 | 26.62 | 25.28 | 23.99 |
| 27 | 22.82 | 21.93 | 23.07 | 22.06 | 25.02 | 25.94 | 27.00 | 26.70 | 26.77 | 26.57 | 25.23 | 23.96 |
| 28 | 22.80 | 21.90 | 23.09 | 22.01 | 24.91 | 25.93 | 26.98 | 26.74 | 26.80 | 26.54 | 25.16 | 23.94 |
| 29 | 22.78 | 21.89 | 23.10 | 22.00 | ----- | 25.94 | 26.95 | 26.76 | 26.80 | 26.52 | 25.12 | 23.92 |
| 30 | 22.77 | 21.87 | 23.14 | 21.97 | ----- | 26.02 | 26.88 | 26.79 | 26.79 | 26.51 | 25.07 | 23.88 |
| 31 | 22.72 | ----- | 23.14 | 21.93 | ----- | 26.09 | ----- | 26.80 | ----- | 26.48 | 24.99 | ----- |

SPOKANE RIVER AT POST FALLS, IDAHO

LOCATION.—Water-stage recorder in sec. 4, T. 50 N., R. 5 W., one-fourth mile below power plant of Washington Water Power Co. and 1 mile west of Post Falls. Zero of gage 2,000 feet above mean sea level.

DRAINAGE AREA.—3,880 square miles.

RECORDS AVAILABLE.—January, 1913, to September, 1930.

EXTREMES.—Maximum discharge during year, 13,200 second-feet Mar. 30 (gage height, 71.53 feet); minimum, 608 second-feet Oct. 18 (gage height, 65.44 feet).

1913-1930: Maximum discharge, 39,800 second-feet May 18, 1917 (gage height, 79.20 feet); minimum, 540 second-feet Sept. 5, 1926 (gage height, 65.3 feet).

REMARKS.—Records excellent. Discharge determined Jan. 20-31, Feb. 1-3, Mar. 18-24, May 11-13, 28-31, June 1-11 from records obtained by Gibson tests at power plant above when gage was not operating. Spokane Valley Farms Co.'s canal diverts three-fourths mile above gage for irrigation. (See records for canal, p.168.) Flow partly regulated by storage and release of water at Coeur d'Alene Lake. Gage-height record and some discharge measurements furnished by Washington Water Power Co.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|
| 1..... | 1,110 | 1,320 | 930 | 900 | 1,280 | 2,240 | 10,200 | 11,300 | 5,650 | 1,840 | 1,070 | 1,000 |
| 2..... | 1,110 | 1,190 | 930 | 900 | 1,160 | 2,240 | 10,200 | 10,900 | 5,290 | 1,650 | 1,070 | 1,110 |
| 3..... | 1,000 | 1,070 | 930 | 900 | 1,070 | 2,240 | 10,200 | 10,900 | 5,500 | 1,480 | 1,110 | 1,110 |
| 4..... | 930 | 1,110 | 930 | 900 | 1,110 | 2,240 | 10,200 | 10,900 | 6,250 | 1,420 | 1,150 | 1,110 |
| 5..... | 900 | 1,110 | 1,110 | 900 | 1,070 | 2,170 | 10,200 | 11,300 | 6,230 | 1,230 | 1,230 | 1,110 |
| 6..... | 930 | 1,110 | 1,150 | 900 | 1,040 | 2,660 | 10,200 | 11,300 | 5,400 | 1,230 | 1,150 | 1,110 |
| 7..... | 900 | 1,070 | 1,110 | 900 | 965 | 3,140 | 10,600 | 10,900 | 5,220 | 1,150 | 1,110 | 1,150 |
| 8..... | 900 | 1,040 | 930 | 930 | 965 | 3,050 | 10,600 | 10,600 | 4,700 | 1,040 | 1,070 | 1,190 |
| 9..... | 900 | 965 | 930 | 1,040 | 1,000 | 3,050 | 10,900 | 8,590 | 3,830 | 1,040 | 1,070 | 1,110 |
| 10..... | 900 | 900 | 930 | 1,280 | 1,190 | 2,520 | 11,300 | 6,520 | 3,090 | 1,000 | 1,150 | 1,150 |
| 11..... | 900 | 930 | 930 | 1,320 | 1,280 | 2,240 | 11,700 | 4,330 | 3,060 | 1,000 | 1,230 | 1,110 |
| 12..... | 900 | 900 | 930 | 1,320 | 1,280 | 2,240 | 11,700 | 6,380 | 3,590 | 900 | 1,190 | 1,110 |
| 13..... | 900 | 900 | 930 | 1,320 | 1,280 | 2,240 | 11,700 | 5,290 | 3,690 | 845 | 1,190 | 1,110 |
| 14..... | 870 | 930 | 965 | 1,320 | 1,320 | 2,240 | 11,700 | 5,240 | 3,500 | 965 | 1,190 | 1,110 |
| 15..... | 900 | 900 | 930 | 1,320 | 1,370 | 2,310 | 12,000 | 4,760 | 3,310 | 870 | 1,190 | 1,110 |
| 16..... | 900 | 900 | 930 | 1,420 | 1,370 | 2,240 | 12,000 | 5,370 | 2,970 | 930 | 1,070 | 1,110 |
| 17..... | 900 | 930 | 930 | 1,530 | 1,420 | 2,240 | 12,000 | 6,650 | 2,660 | 820 | 1,000 | 1,040 |
| 18..... | 820 | 930 | 930 | 1,590 | 1,420 | 2,040 | 12,000 | 5,120 | 1,910 | 845 | 1,110 | 1,000 |
| 19..... | 820 | 930 | 930 | 1,650 | 1,420 | 2,040 | 11,700 | 5,000 | 1,650 | 820 | 1,190 | 1,000 |
| 20..... | 845 | 930 | 930 | 1,550 | 1,840 | 2,040 | 11,700 | 5,240 | 3,260 | 820 | 1,230 | 1,000 |
| 21..... | 820 | 930 | 930 | 1,550 | 2,740 | 2,060 | 11,300 | 5,500 | 4,430 | 900 | 1,110 | 1,000 |
| 22..... | 820 | 900 | 930 | 1,550 | 4,730 | 2,040 | 11,300 | 6,000 | 3,690 | 870 | 1,000 | 1,040 |
| 23..... | 820 | 900 | 870 | 1,550 | 6,910 | 3,060 | 11,300 | 6,260 | 3,220 | 870 | 965 | 1,040 |
| 24..... | 900 | 900 | 870 | 1,550 | 6,910 | 3,920 | 11,300 | 6,390 | 2,820 | 795 | 1,000 | 1,040 |
| 25..... | 1,000 | 930 | 870 | 1,550 | 6,650 | 5,500 | 11,700 | 6,650 | 2,740 | 770 | 1,070 | 1,040 |
| 26..... | 1,110 | 930 | 870 | 1,550 | 6,390 | 8,000 | 11,700 | 6,650 | 1,760 | 845 | 1,070 | 1,040 |
| 27..... | 1,070 | 900 | 870 | 1,530 | 6,390 | 9,550 | 11,700 | 5,500 | 1,370 | 870 | 1,110 | 1,000 |
| 28..... | 1,190 | 900 | 900 | 1,450 | 4,070 | 9,220 | 11,700 | 3,830 | 1,530 | 870 | 1,110 | 1,000 |
| 29..... | 1,230 | 900 | 900 | 1,450 | ----- | 9,220 | 11,700 | 4,810 | 1,780 | 900 | 1,070 | 1,040 |
| 30..... | 1,230 | 900 | 900 | 1,450 | ----- | 9,880 | 11,700 | 5,220 | 1,840 | 930 | 1,040 | 1,040 |
| 31..... | 1,230 | ----- | 845 | 1,450 | ----- | 10,200 | ----- | 5,320 | ----- | 1,040 | 1,040 | ----- |

Monthly discharge of Spokane River and Spokane Valley Farms Co.'s canal at Post Falls, Idaho, 1929-30

| Month | Discharge in second-feet | | | | | | Combined run-off | |
|----------------|--------------------------|----------------|--------------|--------------|--------|-----------------------|------------------|-----------|
| | River, mean | Canal, mean | Combined | | | | Inches | Acre-feet |
| | | | Maxi- mum | Mini- mum | Mean | Per square mile | | |
| October..... | 960 | ----- | 1,230 | 820 | 960 | ----- | ----- | 59,000 |
| November..... | 972 | ----- | 1,320 | 900 | 972 | ----- | ----- | 57,800 |
| December..... | 935 | ----- | 1,150 | 845 | 935 | ----- | ----- | 57,600 |
| January..... | 1,310 | ----- | 1,650 | 900 | 1,310 | ----- | ----- | 80,600 |
| February..... | 2,490 | ----- | 6,910 | 965 | 2,490 | ----- | ----- | 138,000 |
| March..... | 3,870 | 7 | 10,300 | 2,040 | 3,880 | ----- | ----- | 238,000 |
| April..... | 11,300 | 114 | 12,100 | 10,300 | 11,400 | ----- | ----- | 679,000 |
| May..... | 7,060 | 195 | 11,500 | 4,060 | 7,260 | ----- | ----- | 446,000 |
| June..... | 3,530 | 202 | 6,430 | 1,570 | 3,730 | ----- | ----- | 222,000 |
| July..... | 1,020 | 213 | 2,040 | 1,000 | 1,230 | ----- | ----- | 75,800 |
| August..... | 1,110 | 234 | 1,470 | 1,190 | 1,340 | ----- | ----- | 82,600 |
| September..... | 1,070 | 96 | 1,390 | 1,000 | 1,170 | ----- | ----- | 69,400 |
| The year..... | 2,960 | 88 | 12,100 | 820 | 3,050 | 0.786 | 10.67 | 2,210,000 |

NOTE.—Monthly figures showing discharge in second-feet per square mile and run-off in inches are not published, owing to regulation by Coeur d'Alene Lake; yearly figures represent more nearly natural discharge and run-off.

SPOKANE RIVER AT SPOKANE, WASH.

LOCATION.—Water-stage recorder in sec. 13, T. 25 N., R. 42 E., at Cochran Street, Spokane. Zero of gage about 1,700 feet above sea level.

DRAINAGE AREA.—4,350 square miles.

RECORDS AVAILABLE.—April, 1891, to September, 1930.

EXTREMES.—Maximum discharge during year, 12,900 second-feet Apr. 17 (gage height, 22.26 feet); minimum, 452 second-feet Dec. 16 (gage height, 16.66 feet).

1891-1930: Maximum discharge, 49,000 second-feet May 31, 1894; minimum, that of Dec. 16, 1929.

REMARKS.—Records excellent. Discharge estimated July 15 to Aug. 3. Water diverted above station for irrigation by Spokane Valley Farms Co. Flow partly regulated by storage in Coeur d'Alene Lake and by pondage at Spokane. Gage-height record and some discharge measurements furnished by Washington Water Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|
| 1..... | 1,600 | 1,710 | 1,410 | 1,320 | 1,740 | 2,710 | 9,760 | 11,800 | 6,890 | 2,280 | 1,420 | 1,360 |
| 2..... | 1,590 | 1,700 | 1,360 | 1,350 | 1,640 | 2,600 | 9,860 | 11,600 | 6,920 | 2,210 | 1,430 | 1,410 |
| 3..... | 1,600 | 1,560 | 1,370 | 1,350 | 1,580 | 2,600 | 9,840 | 11,400 | 6,700 | 2,100 | 1,420 | 1,470 |
| 4..... | 1,470 | 1,580 | 1,360 | 1,240 | 1,580 | 2,540 | 9,840 | 11,400 | 7,260 | 1,900 | 1,550 | 1,460 |
| 5..... | 1,480 | 1,600 | 1,360 | 1,260 | 1,560 | 2,500 | 9,930 | 11,400 | 7,700 | 1,860 | 1,520 | 1,460 |
| 6..... | 1,460 | 1,580 | 1,520 | 1,290 | 1,470 | 2,680 | 9,980 | 11,400 | 7,420 | 1,720 | 1,520 | 1,466 |
| 7..... | 1,470 | 1,580 | 1,470 | 1,300 | 1,420 | 3,280 | 10,200 | 11,400 | 6,570 | 1,750 | 1,430 | 1,430 |
| 8..... | 1,450 | 1,590 | 1,410 | 1,300 | 1,390 | 3,240 | 10,600 | 10,800 | 6,340 | 1,710 | 1,400 | 1,520 |
| 9..... | 1,360 | 1,510 | 1,360 | 1,320 | 1,340 | 3,230 | 10,900 | 9,900 | 5,470 | 1,610 | 1,390 | 1,480 |
| 10..... | 1,420 | 1,450 | 1,340 | 1,540 | 1,480 | 3,100 | 11,200 | 7,070 | 4,640 | 1,560 | 1,420 | 1,460 |
| 11..... | 1,460 | 1,440 | 1,320 | 1,640 | 1,570 | 2,640 | 11,400 | 6,520 | 4,340 | 1,590 | 1,510 | 1,460 |
| 12..... | 1,410 | 1,420 | 1,350 | 1,690 | 1,640 | 2,640 | 11,600 | 5,980 | 4,230 | 1,580 | 1,490 | 1,480 |
| 13..... | 1,430 | 1,410 | 1,370 | 1,660 | 1,660 | 2,620 | 11,600 | 6,920 | 4,190 | 1,560 | 1,480 | 1,490 |
| 14..... | 1,480 | 1,430 | 1,410 | 1,610 | 1,690 | 2,590 | 11,600 | 6,070 | 4,160 | 1,480 | 1,500 | 1,490 |
| 15..... | 1,460 | 1,420 | 1,330 | 1,560 | 1,680 | 2,650 | 11,800 | 5,080 | 3,920 | 1,430 | 1,530 | 1,450 |
| 16..... | 1,450 | 1,400 | 1,340 | 1,470 | 1,820 | 2,620 | 12,300 | 5,280 | 3,620 | 1,450 | 1,500 | 1,420 |
| 17..... | 1,480 | 1,440 | 1,340 | 1,630 | 1,730 | 2,590 | 12,200 | 6,710 | 3,430 | 1,350 | 1,400 | 1,440 |
| 18..... | 1,500 | 1,410 | 1,370 | 1,730 | 1,660 | 2,560 | 12,200 | 5,560 | 2,900 | 1,310 | 1,360 | 1,340 |
| 19..... | 1,390 | 1,400 | 1,330 | 1,770 | 1,700 | 2,510 | 12,000 | 5,260 | 2,250 | 1,300 | 1,500 | 1,380 |
| 20..... | 1,460 | 1,390 | 1,330 | 1,790 | 1,890 | 2,490 | 11,900 | 5,360 | 2,820 | 1,280 | 1,520 | 1,380 |
| 21..... | 1,390 | 1,360 | 1,320 | 1,800 | 2,630 | 2,490 | 11,600 | 5,600 | 4,660 | 1,300 | 1,570 | 1,380 |
| 22..... | 1,820 | 1,370 | 1,370 | 1,800 | 3,540 | 2,480 | 11,500 | 5,890 | 4,180 | 1,400 | 1,410 | 1,400 |
| 23..... | 1,340 | 1,340 | 1,370 | 1,790 | 6,240 | 2,870 | 11,400 | 6,160 | 3,690 | 1,310 | 1,380 | 1,350 |
| 24..... | 1,310 | 1,370 | 1,340 | 1,800 | 6,320 | 3,770 | 11,600 | 6,400 | 3,300 | 1,280 | 1,340 | 1,350 |
| 25..... | 1,440 | 1,380 | 1,310 | 1,810 | 6,200 | 4,820 | 11,800 | 6,400 | 3,250 | 1,180 | 1,370 | 1,390 |
| 26..... | 1,470 | 1,400 | 1,350 | 1,840 | 6,050 | 7,040 | 11,900 | 6,740 | 2,720 | 1,160 | 1,420 | 1,380 |
| 27..... | 1,540 | 1,420 | 1,350 | 1,840 | 5,980 | 9,130 | 12,000 | 6,120 | 2,000 | 1,400 | 1,420 | 1,410 |
| 28..... | 1,560 | 1,400 | 1,330 | 1,760 | 5,050 | 9,130 | 12,000 | 5,000 | 1,860 | 1,240 | 1,430 | 1,410 |
| 29..... | 1,660 | 1,390 | 1,380 | 1,740 | ----- | 9,130 | 12,100 | 5,150 | 2,190 | 1,280 | 1,420 | 1,350 |
| 30..... | 1,660 | 1,380 | 1,330 | 1,730 | ----- | 9,450 | 12,000 | 6,020 | 2,260 | 1,250 | 1,390 | 1,360 |
| 31..... | 1,640 | ----- | 1,340 | 1,740 | ----- | 10,100 | ----- | 6,320 | ----- | 1,320 | 1,310 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 1,660 | 1,310 | 1,480 | ----- | ----- | 91,000 |
| November..... | 1,710 | 1,340 | 1,460 | ----- | ----- | 86,900 |
| December..... | 1,520 | 1,310 | 1,360 | ----- | ----- | 83,600 |
| January..... | 1,840 | 1,240 | 1,590 | ----- | ----- | 97,800 |
| February..... | 6,320 | 1,340 | 2,650 | ----- | ----- | 147,000 |
| March..... | 10,100 | 2,480 | 4,030 | ----- | ----- | 248,000 |
| April..... | 12,300 | 9,760 | 11,300 | ----- | ----- | 672,000 |
| May..... | 11,800 | 5,000 | 7,510 | ----- | ----- | 462,000 |
| June..... | 7,700 | 1,860 | 4,400 | ----- | ----- | 262,000 |
| July..... | 2,280 | 1,160 | 1,520 | ----- | ----- | 93,500 |
| August..... | 1,570 | 1,310 | 1,440 | ----- | ----- | 88,500 |
| September..... | 1,520 | 1,340 | 1,420 | ----- | ----- | 84,500 |
| The year..... | 12,300 | 1,160 | 3,340 | 0.768 | 10.42 | 2,420,000 |

NOTE.—Monthly discharge in second-feet per square mile and run-off in inches not computed, owing to regulation. Yearly figures closely represent natural flow and run-off.

SPOKANE RIVER BELOW LITTLE FALLS, NEAR LONG LAKE, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 19, T. 27 N., R. 39 E., $1\frac{1}{2}$ miles below Little Falls power plant of Washington Water Power Co. and 5 miles below Long Lake. Zero of gage 1,200 feet above mean sea level.

DRAINAGE AREA.—6,380 square miles.

RECORDS AVAILABLE.—November, 1912, to September, 1930.

EXTREMES.—Maximum discharge during year, 26,200 second-feet Mar. 26 (gage height, 86.09 feet); minimum, (estimated), 198 second-feet Dec. 12

1912-1930: Maximum discharge, 41,300 second-feet May 18, 1917 (gage height, 90.32 feet); minimum discharge, that of Dec. 12.

REMARKS.—Records excellent. Discharge estimated from plant output Nov. 19-25, Dec. 30 to Jan. 5, Jan. 8 to Feb. 4, Apr. 3-7. Water diverted for irrigation above station. Flow affected considerably by power regulation and by storage in Coeur d'Alene Lake. Gage-height record and some discharge measurements furnished by Washington Water Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|
| 1..... | 2,440 | 2,350 | 707 | 1,400 | 2,520 | 4,390 | 12,800 | 12,800 | 7,280 | 3,160 | 2,320 | 1,580 |
| 2..... | 2,420 | 2,160 | 2,390 | 1,800 | 2,190 | 2,600 | 11,800 | 12,600 | 8,200 | 2,980 | 2,280 | 2,240 |
| 3..... | 2,480 | 1,700 | 2,730 | 1,990 | 3,030 | 3,140 | 11,100 | 12,500 | 7,710 | 2,700 | 1,920 | 2,540 |
| 4..... | 2,580 | 2,430 | 3,080 | 2,080 | 3,330 | 3,180 | 11,500 | 11,700 | 7,180 | 2,550 | 2,140 | 2,540 |
| 5..... | 2,430 | 2,620 | 3,100 | 1,700 | 3,580 | 3,200 | 11,500 | 11,300 | 8,810 | 2,040 | 2,160 | 2,420 |
| 6..... | 1,340 | 2,610 | 2,200 | 2,220 | 3,470 | 3,320 | 11,900 | 12,300 | 7,960 | 2,000 | 2,230 | 2,350 |
| 7..... | 2,130 | 2,440 | 1,800 | 2,450 | 4,160 | 3,240 | 12,100 | 12,300 | 6,880 | 2,660 | 2,220 | 1,840 |
| 8..... | 2,450 | 2,550 | 727 | 2,110 | 3,370 | 3,230 | 11,500 | 10,800 | 4,940 | 2,720 | 2,330 | 2,530 |
| 9..... | 2,360 | 2,500 | 2,170 | 2,240 | 2,910 | 2,600 | 11,600 | 7,660 | 5,100 | 2,220 | 2,320 | 2,260 |
| 10..... | 2,470 | 1,520 | 2,250 | 2,060 | 3,580 | 3,040 | 11,700 | 9,760 | 4,230 | 1,760 | 1,770 | 2,340 |
| 11..... | 2,220 | 2,370 | 2,230 | 2,310 | 3,360 | 3,280 | 12,200 | 7,560 | 3,780 | 1,920 | 2,080 | 2,280 |
| 12..... | 2,120 | 2,850 | 2,030 | 1,660 | 3,120 | 3,300 | 12,600 | 7,190 | 4,920 | 1,840 | 2,150 | 2,070 |
| 13..... | 1,110 | 2,930 | 1,820 | 2,120 | 3,210 | 3,410 | 11,700 | 5,370 | 4,460 | 2,030 | 2,260 | 2,120 |
| 14..... | 2,180 | 3,130 | 1,890 | 2,340 | 3,320 | 3,230 | 13,000 | 4,250 | 4,860 | 2,020 | 2,170 | 1,680 |
| 15..... | 2,190 | 3,140 | 752 | 3,180 | 3,470 | 3,380 | 13,000 | 5,840 | 4,350 | 2,140 | 2,140 | 2,030 |
| 16..... | 2,170 | 2,990 | 2,060 | 3,290 | 2,660 | 2,680 | 8,820 | 3,320 | 4,570 | 2,270 | 1,920 | 2,100 |
| 17..... | 2,190 | 1,320 | 2,300 | 3,170 | 3,390 | 3,310 | 6,860 | 3,370 | 3,760 | 2,460 | 1,860 | 2,200 |
| 18..... | 2,430 | 2,520 | 2,450 | 2,660 | 3,290 | 3,280 | 12,800 | 3,060 | 3,820 | 2,420 | 2,380 | 2,420 |
| 19..... | 2,240 | 2,680 | 2,310 | 1,880 | 3,400 | 3,360 | 14,400 | 5,950 | 3,200 | 2,400 | 2,140 | 2,560 |
| 20..... | 1,200 | 3,010 | 2,450 | 2,660 | 3,360 | 3,420 | 11,200 | 5,840 | 2,960 | 2,260 | 2,160 | 2,120 |
| 21..... | 2,460 | 2,820 | 2,380 | 2,920 | 3,010 | 3,540 | 13,700 | 6,210 | 4,810 | 2,070 | 2,100 | 1,720 |
| 22..... | 2,590 | 2,840 | 1,360 | 2,870 | 3,200 | 3,490 | 11,400 | 6,680 | 4,180 | 1,970 | 2,190 | 2,360 |
| 23..... | 2,560 | 2,910 | 2,030 | 2,440 | 5,160 | 2,750 | 12,900 | 5,700 | 4,650 | 1,760 | 2,430 | 2,800 |
| 24..... | 2,570 | 745 | 1,710 | 2,380 | 7,870 | 3,350 | 12,400 | 7,350 | 4,370 | 1,990 | 1,870 | 2,410 |
| 25..... | 2,800 | 2,170 | 530 | 2,340 | 6,950 | 5,410 | 12,300 | 7,430 | 3,690 | 2,210 | 2,190 | 2,060 |
| 26..... | 2,670 | 2,340 | 1,100 | 1,440 | 6,990 | 13,700 | 12,500 | 7,480 | 3,870 | 2,160 | 2,280 | 2,140 |
| 27..... | 1,700 | 2,350 | 1,260 | 1,820 | 6,820 | 21,300 | 13,000 | 7,410 | 2,960 | 1,920 | 2,260 | 2,260 |
| 28..... | 2,200 | 974 | 1,570 | 2,150 | 6,770 | 16,100 | 13,200 | 5,780 | 2,740 | 2,370 | 2,140 | 1,680 |
| 29..... | 2,300 | 2,360 | 1,630 | 2,260 | ----- | 15,100 | 13,200 | 5,970 | 2,510 | 2,440 | 2,310 | 2,240 |
| 30..... | 2,440 | 2,330 | 1,690 | 2,300 | ----- | 13,600 | 12,600 | 6,060 | 3,220 | 2,120 | 2,260 | 2,150 |
| 31..... | 2,500 | ----- | 2,350 | 2,460 | ----- | 14,300 | ----- | 7,600 | ----- | 2,300 | 1,790 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|--------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 2,800 | 1,110 | 2,260 | ----- | ----- | 139,000 |
| November..... | 3,140 | 745 | 2,390 | ----- | ----- | 142,000 |
| December..... | 3,100 | 530 | 1,900 | ----- | ----- | 117,000 |
| January..... | 3,290 | 1,400 | 2,280 | ----- | ----- | 140,000 |
| February..... | 7,870 | 2,190 | 3,980 | ----- | ----- | 221,000 |
| March..... | 21,300 | 2,600 | 5,720 | ----- | ----- | 352,000 |
| April..... | 14,400 | 6,860 | 12,000 | ----- | ----- | 714,000 |
| May..... | 12,800 | 3,060 | 7,760 | ----- | ----- | 477,000 |
| June..... | 8,810 | 2,510 | 4,870 | ----- | ----- | 290,000 |
| July..... | 3,160 | 1,760 | 2,250 | ----- | ----- | 138,000 |
| August..... | 2,430 | 1,770 | 2,150 | ----- | ----- | 132,000 |
| September..... | 2,560 | 1,580 | 2,180 | ----- | ----- | 139,000 |
| The year..... | 21,300 | 530 | 4,140 | 0.649 | 8.81 | 2,990,000 |

NOTE.—Monthly discharge in second-feet per square mile and run-off in inches not computed, owing to regulation. Yearly figures closely represent the natural flow and run-off.

ST. JOE RIVER AT CALDER, IDAHO

LOCATION.—Water-stage recorder in sec. 3, T. 45 N., R. 2 E., 150 feet southwest of Chicago, Milwaukee, St. Paul & Pacific Railway station at Calder. Zero of gage about 2,100 feet above sea level.

DRAINAGE AREA.—1,080 square miles.

RECORDS AVAILABLE.—July, 1920, to September, 1930. April, 1911, to September, 1912, at station $2\frac{1}{2}$ miles downstream.

EXTREMES.—Maximum discharge during year, 8,510 second-feet Apr. 15 (gage height, 84.83 feet); minimum, 142 second-feet Nov. 22 (gage height, 78.44 feet).

1911-12, 1920-1930: Maximum discharge, 18,000 second-feet May 16, 1927 (gage height, 87.95 feet); minimum, 96 second-feet Dec. 5, 1928 (gage height, 78.43 feet).

REMARKS.—Records excellent March to June; others good except those estimated Jan. 11 to Feb. 20, which are fair. No diversions above gage. Operation of splash dam at Marble Creek causes diurnal fluctuation at gage of about 1 foot during the log-driving season. Gage-height record and some discharge measurements furnished by Washington Water Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1 | 318 | 296 | 240 | 472 | 304 | 956 | 3,510 | 4,560 | 3,120 | 1,170 | 510 | 415 |
| 2 | 325 | 299 | 244 | 423 | 302 | 795 | 3,670 | 4,660 | 3,120 | 1,170 | 505 | 395 |
| 3 | 315 | 293 | 242 | 456 | 300 | 826 | 3,920 | 5,790 | 3,200 | 1,140 | 500 | 330 |
| 4 | 199 | 266 | 230 | 451 | 307 | 922 | 4,660 | 5,360 | 3,120 | 1,100 | 510 | 326 |
| 5 | 315 | 278 | 242 | 447 | 318 | 922 | 4,560 | 5,050 | 2,980 | 1,060 | 526 | 326 |
| 6 | 345 | 309 | 254 | 431 | 325 | 890 | 5,150 | 4,850 | 2,840 | 1,020 | 485 | 326 |
| 7 | 318 | 293 | 268 | 370 | 328 | 789 | 6,010 | 4,370 | 2,840 | 990 | 465 | 330 |
| 8 | 312 | 275 | 287 | 352 | 330 | 766 | 7,200 | 4,010 | 2,770 | 956 | 480 | 333 |
| 9 | 377 | 261 | 322 | 331 | 336 | 742 | 3,760 | 2,640 | 2,640 | 956 | 480 | 383 |
| 10 | 392 | 290 | 539 | 284 | 340 | 725 | 5,790 | 3,590 | 2,510 | 1,210 | 485 | 347 |
| 11 | 338 | 275 | 725 | 220 | 338 | 719 | 5,570 | 3,430 | 2,450 | 1,020 | 490 | 361 |
| 12 | 312 | 230 | 516 | 227 | 336 | 890 | 5,790 | 3,350 | 2,330 | 990 | 485 | 485 |
| 13 | 309 | 212 | 435 | 236 | 333 | 990 | 6,470 | 3,280 | 2,160 | 893 | 475 | 495 |
| 14 | 302 | 222 | 890 | 246 | 335 | 956 | 7,970 | 3,350 | 2,050 | 788 | 475 | 411 |
| 15 | 309 | 237 | 2,160 | 225 | 345 | 922 | 8,240 | 3,510 | 1,940 | 752 | 480 | 379 |
| 16 | 296 | 272 | 1,790 | 208 | 400 | 890 | 6,710 | 3,510 | 1,840 | 740 | 495 | 361 |
| 17 | 287 | 338 | 1,290 | 200 | 600 | 890 | 5,360 | 3,510 | 1,740 | 716 | 480 | 347 |
| 18 | 328 | 328 | 826 | 210 | 1,840 | 956 | 4,950 | 3,350 | 1,690 | 704 | 475 | 340 |
| 19 | 309 | 261 | 648 | 230 | 2,640 | 1,100 | 5,150 | 3,200 | 1,640 | 740 | 510 | 340 |
| 20 | 287 | 217 | 577 | 215 | 3,510 | 1,210 | 5,150 | 3,590 | 1,740 | 752 | 526 | 319 |
| 21 | 287 | 194 | 481 | 205 | 3,050 | 1,500 | 5,360 | 4,010 | 1,790 | 698 | 480 | 316 |
| 22 | 293 | 175 | 494 | 208 | 2,330 | 2,450 | 6,240 | 3,670 | 1,690 | 662 | 456 | 330 |
| 23 | 287 | 190 | 539 | 216 | 2,000 | 2,000 | 6,950 | 3,430 | 1,600 | 638 | 438 | 510 |
| 24 | 305 | 210 | 554 | 225 | 1,690 | 1,840 | 7,450 | 3,510 | 1,500 | 626 | 420 | 510 |
| 25 | 258 | 230 | 544 | 236 | 1,420 | 2,580 | 7,200 | 3,280 | 1,460 | 609 | 420 | 395 |
| 26 | 222 | 260 | 572 | 250 | 1,260 | 3,050 | 6,710 | 3,200 | 1,370 | 587 | 415 | 368 |
| 27 | 352 | 265 | 530 | 260 | 1,140 | 3,120 | 6,240 | 2,980 | 1,330 | 570 | 407 | 364 |
| 28 | 592 | 260 | 481 | 274 | 1,020 | 3,200 | 6,240 | 2,980 | 1,370 | 560 | 403 | 350 |
| 29 | 407 | 250 | 435 | 286 | ----- | 3,920 | 5,570 | 3,050 | 1,290 | 554 | 395 | 347 |
| 30 | 328 | 245 | 435 | 294 | ----- | 3,920 | 4,950 | 3,430 | 1,210 | 532 | 387 | 344 |
| 31 | 299 | ----- | 503 | 300 | ----- | 3,590 | ----- | 3,280 | ----- | 521 | 399 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 592 | 222 | 323 | 0.299 | 0.34 | 19,900 |
| November | 338 | 175 | 258 | .239 | .27 | 15,400 |
| December | 2,160 | 230 | 590 | .546 | .63 | 36,300 |
| January | 472 | 200 | 290 | .269 | .31 | 17,800 |
| February | 3,510 | 300 | 992 | .919 | .96 | 55,100 |
| March | 3,920 | 719 | 1,580 | 1.46 | 1.68 | 97,200 |
| April | 8,240 | 3,510 | 5,850 | 5.42 | 6.05 | 348,000 |
| May | 5,790 | 2,980 | 3,770 | 3.49 | 4.02 | 232,000 |
| June | 3,200 | 1,210 | 2,110 | 1.95 | 2.18 | 128,000 |
| July | 1,210 | 521 | 820 | .759 | .88 | 50,400 |
| August | 526 | 387 | 466 | .431 | .50 | 28,700 |
| September | 510 | 316 | 373 | .345 | .38 | 22,200 |
| The year | 8,240 | 175 | 1,450 | 1.34 | 18.20 | 1,050,000 |

ST. MARIES RIVER AT LOTUS, IDAHO

LOCATION.—Staff gage in sec. 20, T. 45 N., R. 2 W., just below Lotus.

DRAINAGE AREA.—420 square miles.

RECORDS AVAILABLE.—July, 1911, to October, 1912; July, 1920, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,270 second-feet Mar. 25; maximum gage height, 7.0 feet Feb. 12, 20; minimum discharge (estimated), 16 second-feet Nov. 21; minimum gage height, 2.71 feet Nov. 20.

1911-12, 1920-1930: Maximum discharge, 8,660 second-feet Mar. 18, 1921; minimum discharge, that of Nov. 21, 1929.

REMARKS.—Records good except those estimated on account of ice Nov. 21 to Dec. 18, Jan. 2 to Feb. 23, and those for August and September, which are fair. No diversions above gage. Gage-height record and seven discharge measurements furnished by Washington Water Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 39 | 51 | 37 | 64 | 40 | 199 | 700 | 532 | 433 | 145 | 42 | 36 |
| 2 | 39 | 51 | 31 | 50 | 33 | 102 | 573 | 486 | 405 | 120 | 43 | 36 |
| 3 | 39 | 51 | 26 | 60 | 34 | 96 | 478 | 573 | 790 | 105 | 43 | 38 |
| 4 | 38 | 70 | 22 | 55 | 36 | 208 | 614 | 1,830 | 700 | 102 | 45 | 38 |
| 5 | 38 | 102 | 26 | 50 | 39 | 230 | 573 | 1,030 | 470 | 90 | 46 | 39 |
| 6 | 39 | 51 | 30 | 40 | 37 | 230 | 478 | 835 | 405 | 88 | 48 | 39 |
| 7 | 39 | 51 | 34 | 30 | 40 | 224 | 657 | 657 | 363 | 80 | 48 | 39 |
| 8 | 41 | 64 | 40 | 22 | 46 | 155 | 745 | 573 | 304 | 78 | 46 | 41 |
| 9 | 42 | 60 | 49 | 26 | 57 | 134 | 657 | 478 | 230 | 76 | 45 | 42 |
| 10 | 43 | 39 | 80 | 22 | 68 | 134 | 614 | 468 | 274 | 80 | 45 | 43 |
| 11 | 48 | 30 | 160 | 20 | 82 | 145 | 532 | 390 | 245 | 88 | 45 | 49 |
| 12 | 45 | 27 | 140 | 21 | 92 | 214 | 494 | 370 | 219 | 80 | 45 | 57 |
| 13 | 42 | 35 | 130 | 22 | 95 | 199 | 532 | 329 | 199 | 76 | 43 | 90 |
| 14 | 42 | 43 | 160 | 23 | 107 | 190 | 573 | 304 | 185 | 64 | 43 | 73 |
| 15 | 41 | 39 | 200 | 21 | 130 | 181 | 657 | 280 | 168 | 60 | 43 | 62 |
| 16 | 39 | 76 | 250 | 19 | 250 | 141 | 657 | 256 | 155 | 58 | 42 | 57 |
| 17 | 43 | 76 | 230 | 18 | 450 | 141 | 573 | 240 | 141 | 57 | 39 | 57 |
| 18 | 45 | 33 | 212 | 20 | 700 | 137 | 478 | 219 | 137 | 55 | 39 | 57 |
| 19 | 45 | 28 | 208 | 22 | 1,200 | 152 | 532 | 219 | 130 | 55 | 41 | 51 |
| 20 | 46 | 20 | 194 | 20 | 2,000 | 185 | 532 | 274 | 134 | 55 | 39 | 49 |
| 21 | 43 | 16 | 190 | 19 | 1,500 | 245 | 517 | 524 | 240 | 55 | 42 | 49 |
| 22 | 42 | 20 | 154 | 18 | 1,000 | 1,830 | 494 | 478 | 230 | 55 | 41 | 48 |
| 23 | 41 | 17 | 96 | 18 | 850 | 930 | 486 | 426 | 199 | 55 | 42 | 57 |
| 24 | 39 | 28 | 102 | 18 | 614 | 745 | 532 | 370 | 181 | 53 | 39 | 85 |
| 25 | 39 | 34 | 105 | 19 | 390 | 2,270 | 657 | 350 | 181 | 51 | 39 | 90 |
| 26 | 39 | 40 | 102 | 20 | 336 | 1,620 | 532 | 316 | 172 | 51 | 39 | 76 |
| 27 | 45 | 42 | 105 | 21 | 245 | 1,030 | 573 | 298 | 148 | 49 | 38 | 68 |
| 28 | 172 | 40 | 181 | 24 | 194 | 930 | 657 | 251 | 145 | 46 | 36 | 64 |
| 29 | 90 | 39 | 70 | 27 | ----- | 835 | 790 | 220 | 148 | 45 | 38 | 62 |
| 30 | 70 | 35 | 70 | 30 | ----- | 790 | 614 | 245 | 152 | 45 | 38 | 58 |
| 31 | 55 | ----- | 117 | 36 | ----- | 745 | ----- | 310 | ----- | 43 | 36 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|------|-----------------|---------|------------|
| | | | | | Inches | Acres-feet |
| October | 172 | 38 | 48.6 | 0.116 | 0.13 | 2,990 |
| November | 102 | 16 | 43.7 | .104 | .12 | 2,600 |
| December | 250 | 22 | 114 | .271 | .31 | 7,010 |
| January | 64 | 18 | 28.2 | .067 | .08 | 1,730 |
| February | 2,000 | 34 | 381 | .907 | .94 | 21,200 |
| March | 2,270 | 96 | 496 | 1.13 | 1.36 | 30,500 |
| April | 2,790 | 478 | 583 | 1.39 | 1.55 | 34,700 |
| May | 1,830 | 219 | 456 | 1.09 | 1.28 | 28,000 |
| June | 790 | 130 | 264 | .629 | .70 | 15,700 |
| July | 145 | 43 | 69.6 | .166 | .19 | 4,280 |
| August | 48 | 36 | 41.9 | .100 | .12 | 2,580 |
| September | 90 | 36 | 54.9 | .131 | .15 | 3,270 |
| The year | 2,270 | 16 | 214 | .510 | 6.91 | 155,000 |

HAYDEN LAKE AT HAYDEN LAKE, IDAHO

LOCATION.—Staff gage in sec. 18, T. 51 N., R. 3 W., at Avondale and Hayden Lake pumping plants one-fourth mile north of Bozanta Tavern. Gage readings adjusted to elevation above mean sea level, United States Coast and Geodetic Survey datum. Add 2,230.35 feet to records published prior to October, 1925, to obtain elevations comparable with those published since that time.

RECORDS AVAILABLE.—May, 1920, to September, 1930.

EXTREMES.—Maximum water-surface elevation during year, 2,226.21 feet Oct. 1; minimum, 2,221.68 feet Sept. 28–30.

1920–1930: Maximum water-surface elevation, 2,240.41 feet Apr. 30 to May 18, 1921; minimum, 2,221.68 feet Sept. 28–30, 1930.

REMARKS.—Records excellent. Water pumped from lake for irrigation and domestic purposes.

Daily elevation, in feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 26.21 | 25.70 | 25.22 | 25.34 | 24.97 | 25.36 | 25.29 | 25.63 | 25.88 | 25.69 | 24.08 | 22.50 |
| 2 | 26.19 | 25.68 | 25.21 | 25.33 | 24.98 | 25.36 | 25.30 | 25.64 | 25.91 | 25.64 | 24.02 | 22.46 |
| 3 | 26.18 | 25.67 | 25.19 | 25.32 | 24.99 | 25.35 | 25.31 | 25.65 | 25.93 | 25.59 | 23.98 | 22.44 |
| 4 | 26.16 | 25.66 | 25.18 | 25.31 | 25.00 | 25.34 | 25.32 | 25.66 | 25.95 | 25.57 | 23.94 | 22.38 |
| 5 | 26.14 | 25.65 | 25.17 | 25.30 | 25.02 | 25.33 | 25.33 | 25.67 | 25.97 | 25.54 | 23.88 | 22.32 |
| 6 | 26.12 | 25.63 | 25.17 | 25.28 | 25.04 | 25.32 | 25.33 | 25.68 | 26.00 | 25.51 | 23.84 | 22.28 |
| 7 | 26.10 | 25.62 | 25.16 | 25.26 | 25.07 | 25.31 | 25.34 | 25.68 | 26.03 | 25.49 | 23.80 | 22.24 |
| 8 | 26.08 | 25.61 | 25.16 | 25.24 | 25.10 | 25.31 | 25.35 | 25.68 | 26.04 | 25.39 | 23.76 | 22.20 |
| 9 | 26.07 | 25.60 | 25.17 | 25.22 | 25.13 | 25.30 | 25.36 | 25.69 | 26.03 | 25.34 | 23.70 | 22.16 |
| 10 | 26.05 | 25.58 | 25.19 | 25.20 | 25.16 | 25.29 | 25.37 | 25.69 | 26.01 | 25.32 | 23.66 | 22.12 |
| 11 | 26.03 | 25.56 | 25.21 | 25.18 | 25.16 | 25.28 | 25.38 | 25.70 | 25.99 | 25.29 | 23.60 | 22.10 |
| 12 | 26.01 | 25.54 | 25.23 | 25.17 | 25.16 | 25.27 | 25.39 | 25.70 | 25.98 | 25.24 | 23.56 | 22.08 |
| 13 | 26.00 | 25.52 | 25.25 | 25.16 | 25.17 | 25.26 | 25.40 | 25.70 | 25.96 | 25.19 | 23.52 | 22.06 |
| 14 | 25.99 | 25.50 | 25.27 | 25.14 | 25.17 | 25.25 | 25.42 | 25.69 | 25.94 | 25.14 | 23.46 | 22.04 |
| 15 | 25.98 | 25.48 | 25.30 | 25.12 | 25.17 | 25.24 | 25.43 | 25.69 | 25.89 | 25.09 | 23.42 | 22.02 |
| 16 | 25.96 | 25.46 | 25.33 | 25.10 | 25.17 | 25.23 | 25.44 | 25.68 | 25.89 | 25.00 | 23.38 | 22.00 |
| 17 | 25.95 | 25.45 | 25.34 | 25.08 | 25.18 | 25.22 | 25.44 | 25.68 | 25.89 | 24.90 | 23.34 | 21.96 |
| 18 | 25.93 | 25.43 | 25.35 | 25.06 | 25.19 | 25.21 | 25.44 | 25.67 | 25.79 | 24.86 | 23.28 | 21.94 |
| 19 | 25.92 | 25.41 | 25.36 | 25.05 | 25.21 | 25.20 | 25.44 | 25.67 | 25.74 | 24.84 | 23.22 | 21.90 |
| 20 | 25.90 | 25.39 | 25.37 | 25.03 | 25.23 | 25.18 | 25.45 | 25.68 | 25.74 | 24.76 | 23.16 | 21.88 |
| 21 | 25.89 | 25.38 | 25.38 | 25.02 | 25.26 | 25.17 | 25.45 | 25.68 | 25.74 | 24.69 | 23.10 | 21.86 |
| 22 | 25.86 | 25.35 | 25.39 | 25.01 | 25.28 | 25.17 | 25.46 | 25.69 | 25.79 | 24.66 | 23.04 | 21.84 |
| 23 | 25.84 | 25.34 | 25.39 | 24.99 | 25.29 | 25.18 | 25.48 | 25.70 | 25.79 | 24.60 | 23.00 | 21.82 |
| 24 | 25.83 | 25.32 | 25.39 | 24.99 | 25.30 | 25.20 | 25.50 | 25.72 | 25.79 | 24.55 | 22.96 | 21.80 |
| 25 | 25.82 | 25.31 | 25.39 | 24.99 | 25.31 | 25.21 | 25.53 | 25.73 | 25.81 | 24.50 | 22.90 | 21.78 |
| 26 | 25.80 | 25.29 | 25.39 | 24.98 | 25.32 | 25.23 | 25.56 | 25.75 | 25.81 | 24.45 | 22.84 | 21.74 |
| 27 | 25.79 | 25.27 | 25.39 | 24.97 | 25.34 | 25.25 | 25.58 | 25.78 | 25.79 | 24.40 | 22.78 | 21.71 |
| 28 | 25.78 | 25.26 | 25.39 | 24.97 | 25.35 | 25.26 | 25.60 | 25.80 | 25.79 | 24.30 | 22.72 | 21.68 |
| 29 | 25.76 | 25.25 | 25.38 | 24.96 | ----- | 25.27 | 25.61 | 25.82 | 25.74 | 24.24 | 22.66 | 21.68 |
| 30 | 25.74 | 25.24 | 25.37 | 24.96 | ----- | 25.27 | 25.62 | 25.84 | 25.72 | 24.20 | 22.60 | 21.68 |
| 31 | 25.72 | ----- | 25.36 | 24.97 | ----- | 25.28 | ----- | 25.85 | ----- | 24.12 | 22.56 | ----- |

NOTE.—Add 2,200.00 feet to obtain elevation above mean sea level, U. S. Coast and Geodetic Survey datum.

SPOKANE VALLEY FARMS CO.'S CANAL AT POST FALLS, IDAHO

LOCATION.—Staff gage in NE. $\frac{1}{4}$ sec. 4, T. 50 N., R. 5 W., 1,200 feet below head gates and half a mile west of Post Falls.

RECORDS AVAILABLE.—May, 1911, to September, 1917; September, 1919, to September, 1930.

EXTREMES.—Maximum discharge during year, 240 second-feet July 13, Aug. 6-18; maximum gage height, 4.85 feet Aug. 17, 18; no flow Oct. 1 to Mar. 28, Sept. 18-30.

1911-1917, 1919-1930: Maximum discharge, 286 second-feet July 18, 1927 (gage height, 4.95 feet); no flow during nonirrigation season.

REMARKS.—Records fair. Canal diverts water for irrigation from Spokane River in SE. $\frac{1}{4}$ sec. 3, T. 50 N., R. 5 W. Gage-height record furnished by Spokane Valley Farms Co.

Daily and monthly discharge, in second-feet, 1930

| Day | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|------|-----|-------|------|------|-------|
| 1 | | 90 | 155 | 183 | 204 | 233 | 204 |
| 2 | | 90 | 155 | 176 | 211 | 233 | 204 |
| 3 | | 90 | 155 | 176 | 211 | 233 | 197 |
| 4 | | 90 | 155 | 176 | 211 | 233 | 197 |
| 5 | | 90 | 155 | 176 | 211 | 233 | 197 |
| 6 | | 90 | 155 | 190 | 204 | 240 | 197 |
| 7 | | 102 | 155 | 197 | 204 | 240 | 197 |
| 8 | | 102 | 149 | 197 | 204 | 240 | 190 |
| 9 | | 102 | 169 | 197 | 218 | 240 | 190 |
| 10 | | 102 | 190 | 204 | 211 | 240 | 190 |
| 11 | | 102 | 190 | 204 | 211 | 240 | 190 |
| 12 | | 102 | 190 | 211 | 211 | 240 | 190 |
| 13 | | 102 | 190 | 211 | 240 | 240 | 183 |
| 14 | | 102 | 190 | 218 | 190 | 240 | 183 |
| 15 | | 102 | 197 | 218 | 10 | 240 | 120 |
| 16 | | 102 | 204 | 218 | 211 | 240 | 20 |
| 17 | | 102 | 211 | 218 | 218 | 240 | 20 |
| 18 | | 121 | 218 | 218 | 218 | 240 | ----- |
| 19 | | 121 | 218 | 218 | 218 | 233 | ----- |
| 20 | | 121 | 218 | 211 | 218 | 233 | ----- |
| 21 | | 121 | 218 | 204 | 225 | 233 | ----- |
| 22 | | 135 | 218 | 204 | 233 | 233 | ----- |
| 23 | | 135 | 218 | 204 | 233 | 225 | ----- |
| 24 | | 135 | 218 | 204 | 233 | 225 | ----- |
| 25 | | 135 | 218 | 204 | 233 | 225 | ----- |
| 26 | | 135 | 218 | 204 | 233 | 225 | ----- |
| 27 | | 135 | 225 | 204 | 233 | 233 | ----- |
| 28 | | 155 | 225 | 204 | 233 | 233 | ----- |
| 29 | 49 | 155 | 225 | 204 | 233 | 225 | ----- |
| 30 | 90 | 155 | 225 | 204 | 233 | 225 | ----- |
| 31 | 90 | | 225 | ----- | 233 | 225 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|------|----------------------|
| March 29-31 | 90 | 40 | 73.3 | 436 |
| April | 155 | 90 | 114 | 6,780 |
| May | 225 | 149 | 195 | 12,000 |
| June | 218 | 176 | 202 | 12,000 |
| July | 240 | 10 | 213 | 13,100 |
| August | 240 | 225 | 234 | 14,400 |
| September 1-17 | 204 | 20 | 169 | 5,700 |
| The period | | | | 64,400 |

LITTLE SPOKANE RIVER AT DARTFORD, WASH.

LOCATION.—Staff gage in sec. 6, T. 26 N., R. 43 E., 50 feet below highway bridge at Dartford and 6 miles above mouth.

DRAINAGE AREA.—600 square miles.

RECORDS AVAILABLE.—April, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 910 second-feet Feb. 5 (gage height, 2.74 feet); minimum, 63 second-feet July 24 (gage height 1.07 feet). 1929-30: Maximum discharge, that of Feb. 5, 1930; minimum, that of July 24, 1930.

REMARKS.—Records fair except those for Jan. 10 to Feb. 1, which were estimated because of ice and are poor. No diversions of any consequence above station.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|------|------|------|------|-----|------|------|------|-------|
| 1..... | 99 | 103 | 143 | 146 | 110 | 164 | 192 | 164 | 149 | 88 | 71 | 83 |
| 2..... | 112 | 105 | 140 | 140 | 137 | 155 | 184 | 155 | 152 | 92 | 72 | 83 |
| 3..... | 99 | 107 | 143 | 137 | 188 | 158 | 181 | 155 | 149 | 130 | 74 | 85 |
| 4..... | 96 | 110 | 130 | 146 | 206 | 155 | 181 | 152 | 137 | 110 | 71 | 87 |
| 5..... | 105 | 105 | 143 | 140 | 910 | 149 | 177 | 149 | 132 | 92 | 71 | 85 |
| 6..... | 99 | 110 | 137 | 135 | 439 | 152 | 177 | 143 | 122 | 90 | 72 | 85 |
| 7..... | 96 | 117 | 137 | 130 | 408 | 149 | 181 | 140 | 107 | 88 | 72 | 87 |
| 8..... | 103 | 119 | 140 | 124 | 642 | 152 | 177 | 135 | 101 | 85 | 71 | 90 |
| 9..... | 107 | 124 | 146 | 119 | 258 | 155 | 177 | 135 | 99 | 81 | 69 | 87 |
| 10..... | 112 | 114 | 155 | | 244 | 152 | 170 | 132 | 94 | 81 | 71 | 85 |
| 11..... | 117 | 107 | 161 | | 248 | 152 | 174 | 132 | 92 | 83 | 76 | 88 |
| 12..... | 117 | 107 | 155 | | 202 | 155 | 170 | 135 | 90 | 85 | 74 | 88 |
| 13..... | 112 | 105 | 161 | | 181 | 152 | 167 | 130 | 88 | 79 | 72 | 92 |
| 14..... | 105 | 107 | 188 | | 155 | 158 | 170 | 127 | 99 | 79 | 76 | 90 |
| 15..... | 112 | 105 | 244 | 90 | 155 | 152 | 167 | 122 | 87 | 79 | 78 | 92 |
| 16..... | 119 | 107 | 206 | | 161 | 146 | 167 | 119 | 99 | 78 | 88 | 92 |
| 17..... | 117 | 107 | 188 | | 188 | 152 | 161 | 119 | 90 | 76 | 81 | 90 |
| 18..... | 114 | 105 | 167 | | 235 | 149 | 161 | 117 | 87 | 74 | 79 | 85 |
| 19..... | 110 | 103 | 161 | | 312 | 152 | 158 | 117 | 85 | 76 | 81 | 87 |
| 20..... | 114 | 101 | 155 | | 439 | 149 | 155 | 130 | 94 | 74 | 87 | 87 |
| 21..... | 110 | 105 | 149 | | 379 | 146 | 152 | 149 | 90 | 74 | 88 | 90 |
| 22..... | 119 | 103 | 143 | | 262 | 152 | 149 | 135 | 101 | 74 | 87 | 88 |
| 23..... | 114 | 110 | 170 | | 282 | 152 | 146 | 135 | 117 | 69 | 85 | 90 |
| 24..... | 107 | 107 | 181 | | 258 | 158 | 161 | 130 | 112 | 63 | 87 | 92 |
| 25..... | 114 | 105 | 174 | | 262 | 199 | 174 | 124 | 101 | 68 | 83 | 90 |
| 26..... | 110 | 110 | 167 | 80 | 188 | 227 | 177 | 114 | 96 | 66 | 85 | 88 |
| 27..... | 117 | 140 | 161 | | 177 | 223 | 174 | 112 | 94 | 68 | 87 | 92 |
| 28..... | 114 | 149 | 152 | | 174 | 223 | 170 | 110 | 92 | 72 | 83 | 94 |
| 29..... | 119 | 140 | 143 | | | 214 | 181 | 114 | 92 | 71 | 81 | 103 |
| 30..... | 107 | 146 | 146 | | | 210 | 174 | 119 | 94 | 78 | 79 | 99 |
| 31..... | 105 | | 149 | | | 202 | | 127 | | 71 | 81 | |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 119 | 96 | 110 | 0.183 | 0.21 | 6,760 |
| November..... | 149 | 101 | 113 | .188 | .21 | 6,720 |
| December..... | 244 | 130 | 156 | .265 | .31 | 9,780 |
| January..... | 146 | | 99.6 | .166 | .17 | 6,120 |
| February..... | 910 | 110 | 279 | .465 | .48 | 15,500 |
| March..... | 227 | 146 | 167 | .278 | .32 | 10,300 |
| April..... | 192 | 146 | 170 | .283 | .32 | 10,100 |
| May..... | 164 | 110 | 132 | .220 | .25 | 8,120 |
| June..... | 152 | 85 | 105 | .175 | .20 | 6,250 |
| July..... | 130 | 63 | 90.5 | .134 | .15 | 4,950 |
| August..... | 88 | 69 | 78.5 | .131 | .15 | 4,830 |
| September..... | 103 | 83 | 89.1 | .148 | .17 | 5,300 |
| The year..... | 910 | 63 | 131 | .218 | 2.96 | 94,700 |

OKANOGAN RIVER BASIN

OSOYOOS LAKE NEAR OROVILLE, WASH.

LOCATION.—Water-stage recorder in lot 1, sec. 8, T. 40 N., R. 27 E., 1 mile south of Canadian boundary and 3 miles north of Oroville. Gage set to sea level datum.

DRAINAGE AREA.—3,250 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1930.

EXTREMES.—Maximum stage recorded during year, 913.15 feet June 8; minimum, 911.21 feet Oct. 14.

1928-1930: Maximum stage recorded, 916.01 feet July 28, 1928; minimum, that of Oct. 14, 1929.

REMARKS.—Records good. Diversion in Canada for irrigation. Okanogan River subject to natural regulation in several lakes and, in the interest of navigation, to artificial regulation in Okanogan Lake.

Daily elevation, in feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 11.34 | 11.28 | 11.31 | 11.39 | 11.32 | 11.48 | 11.68 | 12.30 | 12.89 | 12.75 | 11.91 | 11.59 |
| 2..... | 11.33 | 11.27 | 11.31 | 11.39 | 11.32 | 11.48 | 11.69 | 12.32 | 12.91 | 12.75 | 11.86 | 11.58 |
| 3..... | 11.31 | 11.26 | 11.30 | 11.39 | 11.32 | 11.45 | 11.69 | 12.35 | 12.96 | 12.74 | 11.86 | 11.57 |
| 4..... | 11.29 | 11.26 | 11.30 | 11.39 | 11.32 | 11.46 | 11.69 | 12.37 | 12.99 | 12.74 | 11.81 | 11.57 |
| 5..... | 11.27 | 11.26 | 11.30 | 11.39 | 11.32 | 11.47 | 11.69 | 12.37 | 13.02 | 12.74 | 11.78 | 11.57 |
| 6..... | 11.25 | 11.26 | 11.30 | 11.39 | 11.32 | 11.47 | 11.70 | 12.38 | 13.04 | 12.70 | 11.76 | 11.57 |
| 7..... | 11.22 | 11.27 | 11.30 | 11.38 | 11.32 | 11.47 | 11.71 | 12.39 | 13.06 | 12.67 | 11.76 | 11.56 |
| 8..... | 11.22 | 11.27 | 11.31 | 11.38 | 11.33 | 11.47 | 11.72 | 12.39 | 13.15 | 12.62 | 11.76 | 11.56 |
| 9..... | 11.22 | 11.27 | 11.31 | 11.38 | 11.33 | 11.51 | 11.72 | 12.40 | 13.13 | 12.57 | 11.76 | 11.55 |
| 10..... | 11.23 | 11.27 | 11.31 | 11.37 | 11.33 | 11.51 | 11.73 | 12.40 | 13.11 | 12.55 | 11.75 | 11.54 |
| 11..... | 11.22 | 11.27 | 11.32 | 11.37 | 11.33 | 11.51 | 11.74 | 12.45 | 13.10 | 12.53 | 11.75 | 11.55 |
| 12..... | 11.23 | 11.27 | 11.32 | 11.37 | 11.33 | 11.52 | 11.75 | 12.49 | 13.09 | 12.52 | 11.75 | 11.55 |
| 13..... | 11.22 | 11.27 | 11.33 | 11.36 | 11.33 | 11.52 | 11.76 | 12.49 | 13.08 | 12.51 | 11.75 | 11.55 |
| 14..... | 11.21 | 11.27 | 11.33 | 11.36 | 11.33 | 11.52 | 11.78 | 12.59 | 13.06 | 12.48 | 11.74 | 11.53 |
| 15..... | 11.22 | 11.27 | 11.35 | 11.35 | 11.33 | 11.52 | 11.82 | 12.64 | 13.04 | 12.43 | 11.73 | 11.54 |
| 16..... | 11.23 | 11.27 | 11.36 | 11.35 | 11.34 | 11.53 | 11.84 | 12.68 | 13.02 | 12.37 | 11.72 | 11.55 |
| 17..... | 11.25 | 11.27 | 11.38 | 11.34 | 11.34 | 11.58 | 11.86 | 12.71 | 12.99 | 12.29 | 11.73 | 11.55 |
| 18..... | 11.25 | 11.27 | 11.38 | 11.33 | 11.36 | 11.53 | 11.90 | 12.73 | 12.96 | 12.21 | 11.73 | 11.54 |
| 19..... | 11.24 | 11.27 | 11.38 | 11.33 | 11.38 | 11.54 | 11.92 | 12.75 | 12.90 | 12.15 | 11.73 | 11.51 |
| 20..... | 11.24 | 11.27 | 11.38 | 11.32 | 11.42 | 11.54 | 11.94 | 12.76 | 12.84 | 12.14 | 11.73 | 11.49 |
| 21..... | 11.25 | 11.27 | 11.38 | 11.32 | 11.45 | 11.54 | 11.97 | 12.77 | 12.78 | 12.13 | 11.73 | 11.50 |
| 22..... | 11.27 | 11.27 | 11.38 | 11.32 | 11.46 | 11.54 | 12.00 | 12.77 | 12.77 | 12.12 | 11.73 | 11.50 |
| 23..... | 11.27 | 11.27 | 11.39 | 11.31 | 11.47 | 11.55 | 12.04 | 12.79 | 12.77 | 12.11 | 11.73 | 11.49 |
| 24..... | 11.28 | 11.28 | 11.39 | 11.31 | 11.47 | 11.55 | 12.09 | 12.80 | 12.76 | 12.10 | 11.72 | 11.48 |
| 25..... | 11.28 | 11.28 | 11.40 | 11.30 | 11.47 | 11.63 | 12.14 | 12.81 | 12.76 | 12.09 | 11.71 | 11.47 |
| 26..... | 11.28 | 11.29 | 11.41 | 11.30 | 11.48 | 11.63 | 12.16 | 12.82 | 12.75 | 12.08 | 11.69 | 11.46 |
| 27..... | 11.27 | 11.29 | 11.41 | 11.30 | 11.48 | 11.63 | 12.15 | 12.82 | 12.74 | 12.05 | 11.67 | 11.46 |
| 28..... | 11.27 | 11.30 | 11.41 | 11.31 | 11.48 | 11.63 | 12.20 | 12.83 | 12.73 | 12.02 | 11.65 | 11.52 |
| 29..... | 11.27 | 11.30 | 11.40 | 11.31 | ----- | 11.63 | 12.27 | 12.84 | 12.74 | 11.97 | 11.64 | 11.54 |
| 30..... | 11.25 | 11.30 | 11.40 | 11.31 | ----- | 11.66 | 12.26 | 12.84 | 12.75 | 11.95 | 11.63 | 11.51 |
| 31..... | 11.26 | ----- | 11.40 | 11.32 | ----- | 11.68 | ----- | 12.85 | ----- | 11.93 | 11.61 | ----- |

NOTE.—Add 900 feet to obtain elevation above mean sea level.

OKANOGAN RIVER NEAR TONASKET, WASH.

LOCATION.—Water-stage recorder in lot 3, sec. 8, T. 36 N., R. 27 E., 1,000 feet above Chewiliken Creek and $5\frac{1}{2}$ miles south of Tonasket.

DRAINAGE AREA.—7,250 square miles.

RECORDS AVAILABLE.—April, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 8,310 second-feet June 9 (gage height, 10.06 feet); minimum, 262 second-feet Oct. 1 (gage height, 3.65 feet).
1929-30: Maximum discharge, 8,500 second-feet June 10, 1929 (gage height, 10.16 feet); minimum, 236 second-feet Sept. 5, 1929 (gage height, 3.59 feet).

REMARKS.—Records excellent. Numerous diversions above station for irrigation. Flow subject to natural regulation in several lakes and, in the interest of navigation, to artificial regulation in Okanogan Lake. Operation of power plant with pondage on Similkameen River affects low-water flow slightly.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1..... | 262 | 436 | 436 | 447 | 325 | 720 | 1,110 | 5,240 | 6,640 | 3,340 | 783 | 288 |
| 2..... | 283 | 425 | 425 | 457 | 325 | 672 | 1,150 | 5,240 | 6,460 | 3,270 | 755 | 330 |
| 3..... | 297 | 425 | 404 | 459 | 330 | 612 | 1,230 | 5,580 | 6,280 | 3,130 | 720 | 341 |
| 4..... | 341 | 425 | 404 | 473 | 325 | 606 | 1,810 | 5,590 | 6,280 | 2,960 | 690 | 335 |
| 5..... | 341 | 425 | 404 | 554 | 356 | 565 | 1,350 | 5,240 | 6,280 | 2,670 | 666 | 330 |
| 6..... | 341 | 431 | 330 | 583 | 383 | 559 | 1,310 | 4,900 | 6,280 | 2,550 | 588 | 311 |
| 7..... | 346 | 425 | 335 | 356 | 372 | 505 | 1,310 | 4,730 | 6,640 | 2,440 | 559 | 306 |
| 8..... | 473 | 425 | 335 | 341 | 383 | 526 | 1,490 | 4,400 | 7,740 | 2,390 | 537 | 311 |
| 9..... | 505 | 425 | 394 | 292 | 394 | 510 | 1,890 | 4,000 | 7,930 | 2,240 | 531 | 321 |
| 10..... | 473 | 420 | 500 | 351 | 399 | 505 | 2,190 | 5,770 | 7,550 | 2,140 | 516 | 362 |
| 11..... | 457 | 415 | 321 | 330 | 410 | 500 | 2,190 | 3,770 | 7,740 | 2,040 | 521 | 478 |
| 12..... | 457 | 410 | 356 | 325 | 436 | 494 | 2,040 | 4,000 | 7,930 | 2,090 | 516 | 516 |
| 13..... | 457 | 410 | 330 | 335 | 452 | 478 | 2,040 | 4,080 | 7,180 | 1,990 | 494 | 478 |
| 14..... | 452 | 410 | 316 | 302 | 457 | 516 | 2,240 | 4,560 | 6,100 | 1,940 | 489 | 447 |
| 15..... | 447 | 399 | 325 | 351 | 436 | 478 | 2,920 | 5,580 | 5,580 | 1,840 | 473 | 431 |
| 16..... | 447 | 399 | 346 | 351 | 436 | 441 | 3,480 | 6,640 | 5,240 | 1,790 | 457 | 415 |
| 17..... | 436 | 404 | 346 | 346 | 457 | 441 | 3,550 | 7,550 | 5,410 | 1,640 | 484 | 447 |
| 18..... | 431 | 415 | 356 | 346 | 516 | 410 | 3,340 | 7,740 | 5,240 | 1,600 | 505 | 447 |
| 19..... | 420 | 415 | 394 | 335 | 548 | 431 | 3,270 | 6,820 | 4,560 | 1,510 | 494 | 441 |
| 20..... | 410 | 436 | 410 | 330 | 660 | 436 | 3,270 | 6,100 | 4,240 | 1,470 | 484 | 356 |
| 21..... | 431 | 410 | 425 | 311 | 1,190 | 457 | 3,550 | 5,750 | 4,240 | 1,430 | 478 | 335 |
| 22..... | 431 | 372 | 436 | 325 | 1,150 | 492 | 3,920 | 5,410 | 4,240 | 1,310 | 452 | 341 |
| 23..... | 457 | 351 | 436 | 306 | 1,070 | 441 | 4,900 | 4,900 | 4,730 | 1,230 | 452 | 321 |
| 24..... | 447 | 390 | 457 | 316 | 1,000 | 473 | 5,010 | 4,560 | 4,730 | 1,190 | 441 | 316 |
| 25..... | 447 | 341 | 441 | 316 | 965 | 473 | 6,280 | 4,400 | 4,730 | 1,150 | 431 | 316 |
| 26..... | 441 | 378 | 431 | 302 | 895 | 468 | 6,100 | 4,240 | 4,400 | 1,070 | 404 | 316 |
| 27..... | 441 | 447 | 447 | 302 | 839 | 447 | 6,280 | 4,000 | 4,080 | 1,040 | 399 | 325 |
| 28..... | 436 | 521 | 420 | 302 | 769 | 489 | 6,280 | 3,920 | 3,920 | 1,000 | 394 | 335 |
| 29..... | 425 | 425 | 420 | 302 | ----- | 594 | 5,920 | 4,240 | 3,840 | 990 | 394 | 335 |
| 30..... | 425 | 436 | 447 | 306 | ----- | 690 | 5,410 | 5,240 | 3,620 | 888 | 526 | 306 |
| 31..... | 436 | ----- | 537 | 316 | ----- | 1,000 | ----- | 5,750 | ----- | 818 | 335 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|----------------------|
| October..... | 505 | 262 | 413 | 25,600 |
| November..... | 521 | 330 | 413 | 24,600 |
| December..... | 537 | 316 | 369 | 24,500 |
| January..... | 583 | 292 | 369 | 22,100 |
| February..... | 1,190 | 325 | 581 | 32,300 |
| March..... | 1,000 | 410 | 520 | 32,500 |
| April..... | 6,280 | 1,110 | 3,240 | 193,000 |
| May..... | 7,740 | 3,770 | 5,090 | 313,000 |
| June..... | 7,930 | 3,620 | 5,660 | 337,000 |
| July..... | 3,340 | 818 | 1,840 | 113,000 |
| August..... | 783 | 335 | 515 | 31,700 |
| September..... | 516 | 288 | 365 | 21,700 |
| The year..... | 7,930 | 262 | 1,620 | 1,170,000 |

SIMILKAMEEN RIVER NEAR NIGHTHAWK, WASH.

LOCATION.—Water-stage recorder in NW. $\frac{1}{4}$ sec. 7, T. 40 N., R. 26 E., about $1\frac{1}{4}$ miles below Nighthawk, Wash.

DRAINAGE AREA.—3,420 square miles.

RECORDS AVAILABLE.—September, 1928, to September, 1930.

EXTREMES.—Maximum discharge during year, 8,500 second-feet June 8 (gage height, 9.08 feet); minimum, 120 second-feet Jan. 6 (gage height, 2.05 feet).

1928-1930: Maximum discharge, 8,500 second-feet May 23, 1929, and June 8, 1930; minimum, that of Jan. 6, 1930.

High-water marks indicate a stage of about 13.0 feet in May, 1928.

REMARKS.—Records excellent except those for Jan. 7 to Feb. 18, which were estimated and are poor. Some regulation caused by natural diversion into Palmer Lake. Small diversions for irrigation above station. Some discharge measurements furnished by Dominion Water Power and Hydrometric Bureau, Department of the Interior, Canada.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 1. | 265 | 329 | 318 | 329 | 250 | 490 | 1,130 | 5,420 | 6,740 | 3,180 | 779 | 375 |
| 2. | 265 | 326 | 312 | 329 | | 465 | 1,170 | 5,600 | 6,360 | 3,110 | 758 | 371 |
| 3. | 265 | 322 | 297 | 322 | | 470 | 1,250 | 5,980 | 6,360 | 2,900 | 737 | 364 |
| 4. | 263 | 326 | 268 | 329 | | 470 | 1,290 | 5,600 | 6,360 | 2,640 | 702 | 349 |
| 5. | 263 | 329 | 252 | 277 | | 475 | 1,290 | 5,240 | 6,360 | 2,520 | 662 | 338 |
| 6. | 283 | 322 | 239 | 152 | 180 | 470 | 1,250 | 5,060 | 6,550 | 2,460 | 628 | 384 |
| 7. | 422 | 322 | 249 | | | 455 | 1,380 | 4,700 | 7,310 | 2,400 | 615 | 338 |
| 8. | 408 | 318 | 322 | | | 440 | 1,700 | 4,260 | 8,300 | 2,230 | 583 | 356 |
| 9. | 370 | 312 | 322 | | | 435 | 2,280 | 3,940 | 7,700 | 2,120 | 564 | 396 |
| 10. | 354 | 309 | 224 | | | 430 | 2,230 | 3,780 | 7,500 | 2,020 | 564 | 503 |
| 11. | 350 | 309 | 224 | 180 | 270 | 417 | 2,120 | 3,940 | 7,900 | 2,020 | 558 | 570 |
| 12. | 358 | 315 | 221 | | | 412 | 2,060 | 4,180 | 7,500 | 1,970 | 536 | 514 |
| 13. | 350 | 303 | 194 | | | 422 | 2,230 | 4,520 | 6,740 | 1,920 | 519 | 468 |
| 14. | 343 | 300 | 205 | | | 412 | 2,680 | 5,240 | 5,790 | 1,820 | 508 | 444 |
| 15. | 332 | 306 | 205 | | | 394 | 3,550 | 6,360 | 5,240 | 1,780 | 488 | 430 |
| 16. | 326 | 309 | 229 | | 200 | 366 | 3,780 | 7,310 | 5,240 | 1,640 | 514 | 417 |
| 17. | 322 | 309 | 260 | | | 358 | 3,620 | 7,900 | 5,420 | 1,500 | 530 | 417 |
| 18. | 312 | 329 | 291 | | | 358 | 3,490 | 7,310 | 4,880 | 1,420 | 525 | 404 |
| 19. | 318 | 325 | 306 | 200 | | 362 | 3,420 | 6,360 | 4,350 | 1,340 | 514 | 388 |
| 20. | 340 | 288 | 318 | | | 1,130 | 370 | 3,550 | 5,980 | 4,100 | 1,340 | 498 |
| 21. | 343 | 265 | 318 | | 210 | 946 | 378 | 3,940 | 5,600 | 4,100 | 1,300 | 488 |
| 22. | 346 | 244 | 318 | | | 874 | 374 | 4,700 | 5,240 | 4,700 | 1,220 | 488 |
| 23. | 350 | 231 | 318 | | | 818 | 378 | 5,980 | 4,700 | 4,700 | 1,180 | 463 |
| 24. | 346 | 254 | 315 | | | 762 | 390 | 6,550 | 4,520 | 4,880 | 1,140 | 444 |
| 25. | 343 | 294 | 322 | | | 696 | 404 | 6,550 | 4,350 | 4,520 | 1,100 | 435 |
| 26. | 340 | 306 | 326 | | 210 | 642 | 382 | 6,360 | 4,180 | 4,180 | 1,060 | 426 |
| 27. | 332 | 312 | 326 | | | 594 | 440 | 6,550 | 3,940 | 3,940 | 1,020 | 421 |
| 28. | 326 | 315 | 332 | | | 546 | 534 | 6,360 | 4,100 | 3,860 | 970 | 412 |
| 29. | 332 | 318 | 343 | | | 663 | 5,980 | 4,880 | 3,700 | 918 | 396 | 349 |
| 30. | 340 | 322 | 340 | | | 946 | 5,600 | 5,600 | 3,400 | 865 | 383 | 352 |
| 31. | 332 | | 332 | | | 1,090 | | 6,360 | | 821 | 375 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|----------------------|
| October..... | 422 | 263 | 330 | 20,300 |
| November..... | 329 | 231 | 306 | 18,200 |
| December..... | 343 | 194 | 285 | 17,500 |
| January..... | 329 | | 215 | 13,200 |
| February..... | 1,130 | | 442 | 24,500 |
| March..... | 1,090 | 358 | 466 | 28,700 |
| April..... | 6,550 | 1,130 | 3,470 | 206,000 |
| May..... | 7,900 | 3,780 | 5,230 | 322,000 |
| June..... | 8,300 | 3,400 | 5,620 | 334,000 |
| July..... | 3,180 | 821 | 1,740 | 107,000 |
| August..... | 779 | 375 | 533 | 32,800 |
| September..... | 570 | 334 | 391 | 23,300 |
| The year..... | 8,300 | | 1,590 | 1,150,000 |

SINLAHEKIN CREEK ABOVE BLUE LAKE, NEAR LOOMIS, WASH.

LOCATION.—Water-stage recorder in NE. $\frac{1}{4}$ sec. 20, T. 37 N., R. 25 E., 1,800 feet above Blue Lake diversion dam and $9\frac{1}{2}$ miles southwest of Loomis.

DRAINAGE AREA.—41.7 square miles.

RECORDS AVAILABLE.—April, 1924, to September, 1930, when records were discontinued; June to October, 1920, half a mile downstream; May, 1921, to September, 1923, at Twin Bridges 4 miles downstream.

EXTREMES.—Maximum discharge during year, 26 second-feet June 27, 23 (gage height, 1.12 feet); minimum, 0.4 second-foot Sept. 20 (gage height, 0.42 foot).

1920-1930 Maximum discharge, 363 second-feet May 18, 1922 (gage height, 2.6 feet, on Twin Bridges gage); minimum, that of Sept. 20, 1930.

REMARKS.—Records fair. No diversions or regulation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Apr. | May | June | July | Aug. | Sept. |
|-------------|---------|---------|------------------|----------------------|------|------|-------|
| 1 | 1.9 | | 7.6 | 6.4 | 9.6 | 1.9 | 0.8 |
| 2 | 1.8 | | 8.0 | 9.5 | 8.8 | 2.3 | .8 |
| 3 | 1.8 | | 7.3 | 12 | 8.0 | 2.1 | .8 |
| 4 | 1.9 | | 6.7 | 10 | 7.6 | 1.7 | .7 |
| 5 | 1.9 | | 6.4 | 10 | 7.3 | 1.6 | .7 |
| 6 | 1.8 | | 6.7 | 10 | 7.3 | 1.5 | .8 |
| 7 | 1.9 | | 5.9 | 12 | 6.7 | 1.4 | 1.1 |
| 8 | 2.3 | | 5.8 | 10 | 6.4 | 1.4 | 5.0 |
| 9 | 2.9 | | 6.1 | 8.8 | 6.4 | 1.7 | 3.1 |
| 10 | 2.3 | | 6.4 | 8.0 | 7.0 | 1.7 | 1.7 |
| 11 | 2.1 | | 5.8 | 7.6 | 6.4 | 1.5 | 1.5 |
| 12 | 2.0 | | 5.5 | 7.3 | 5.5 | 1.3 | 1.3 |
| 13 | 2.0 | 6.4 | 5.2 | 6.7 | 5.2 | 1.2 | 1.2 |
| 14 | 2.0 | 9.2 | 5.8 | 6.4 | 4.9 | 1.2 | 1.1 |
| 15 | 1.9 | 8.4 | 5.8 | 6.1 | 4.3 | 1.1 | 1.0 |
| 16 | 1.8 | 6.7 | 5.8 | 5.8 | 3.9 | 1.4 | .8 |
| 17 | 1.8 | 6.1 | 5.8 | 5.5 | 3.9 | 1.5 | .8 |
| 18 | 1.8 | 5.5 | 5.2 | 5.5 | 4.3 | 1.2 | .6 |
| 19 | 1.9 | 5.5 | 5.2 | 5.2 | 7.5 | 1.5 | .6 |
| 20 | 1.8 | 6.7 | 5.8 | 6.1 | 5.8 | 2.1 | .5 |
| 21 | 1.8 | 8.4 | 5.2 | 16 | 4.9 | 1.6 | .5 |
| 22 | 1.8 | 10 | 4.6 | 18 | 4.3 | 1.3 | .5 |
| 23 | 1.8 | 9.2 | 4.3 | 21 | 3.9 | 1.1 | .5 |
| 24 | 1.7 | 11 | 4.6 | 18 | 3.7 | 1.1 | .6 |
| 25 | 1.7 | 9.2 | 4.3 | 14 | 3.3 | 1.3 | .7 |
| 26 | 1.7 | 9.6 | 4.1 | 14 | 3.3 | 1.5 | .7 |
| 27 | 1.8 | 11 | 4.3 | 14 | 3.1 | 1.3 | 1.0 |
| 28 | 1.7 | 9.2 | 4.6 | 12 | 2.9 | 1.2 | 1.5 |
| 29 | 1.3 | 7.6 | 5.8 | 10 | 2.7 | 1.1 | 1.3 |
| 30 | 1.3 | 7.3 | 8.4 | 10 | 2.5 | 1.0 | 1.2 |
| 31 | 1.3 | | 8.0 | | 2.3 | 1.0 | |
| Month | Maximum | Minimum | Mean | Run-off in acre-feet | | | |
| October | 2.9 | 1.3 | 1.8 ^K | 114 | | | |
| April 13-30 | 11 | 5.5 | 8.17 | 292 | | | |
| May | 8.4 | 4.1 | 5.8 ⁴ | 359 | | | |
| June | 21 | 5.2 | 10.2 | 607 | | | |
| July | 9.6 | 2.3 | 5.28 | 325 | | | |
| August | 2.3 | 1.0 | 1.45 | 89.2 | | | |
| September | 5.0 | .5 | 1.11 | 66.0 | | | |

Note.—No records from Nov. 1 to Apr. 13 because of ice.

CHELAN RIVER BASIN

STEHEKIN RIVER AT STEHEKIN, WASH.

LOCATION.—Water-stage recorder in SE. $\frac{1}{4}$ sec. 26, T. 33 N., R. 17 E., 1,200 feet above Boulder Creek and 2 miles above Chelan Lake and Stehekin. Flow of Boulder Creek included in records of discharge.

DRAINAGE AREA.—372 square miles.

RECORDS AVAILABLE.—December, 1910, to October, 1915; January, 1927, to September, 1930.

EXTREMES.—Maximum discharge during year, 4,720 second-feet May 16 (gage height, 23.50 feet); minimum, 56 second-feet Jan. 12 (gage height, 18.59 feet).

1910-1915, 1927-1930: Maximum discharge, 11,400 second-feet June 12, 1911, May 22, 1928; minimum, that of Jan. 12, 1930.

REMARKS.—Records excellent. Gage-height record and many discharge measurements furnished by Washington Water Power Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 224 | 178 | 121 | 133 | 90 | 262 | 1,550 | 2,040 | 1,980 | 2,450 | 1,210 | 540 |
| 2 | 218 | 190 | 112 | 125 | 112 | 246 | 1,550 | 2,220 | 2,040 | 2,120 | 1,050 | 604 |
| 3 | 224 | 176 | 100 | 136 | 150 | 240 | 1,550 | 2,160 | 1,820 | 1,930 | 980 | 645 |
| 4 | 590 | 168 | 96 | 140 | 159 | 236 | 1,450 | 1,980 | 1,820 | 2,000 | 1,100 | 666 |
| 5 | 492 | 168 | 142 | 127 | 207 | 233 | 1,350 | 1,980 | 2,160 | 2,380 | 1,220 | 688 |
| 6 | 323 | 166 | 150 | 100 | 243 | 224 | 1,350 | 1,880 | 2,860 | 2,520 | 1,230 | 645 |
| 7 | 259 | 161 | 117 | 74 | 215 | 215 | 1,670 | 1,710 | 3,920 | 2,260 | 1,250 | 545 |
| 8 | 259 | 155 | 110 | 86 | 196 | 210 | 2,160 | 1,600 | 3,280 | 2,190 | 1,300 | 760 |
| 9 | 266 | 155 | 117 | 73 | 173 | 207 | 1,930 | 1,660 | 2,960 | 2,450 | 1,300 | 652 |
| 10 | 243 | 148 | 112 | 73 | 166 | 213 | 1,710 | 1,760 | 3,590 | 2,990 | 1,350 | 631 |
| 11 | 221 | 140 | 114 | 59 | 168 | 252 | 1,980 | 1,980 | 3,820 | 2,990 | 1,350 | 680 |
| 12 | 236 | 136 | 114 | 58 | 164 | 304 | 1,660 | 2,160 | 2,850 | 2,990 | 1,250 | 610 |
| 13 | 230 | 140 | 108 | 60 | 159 | 283 | 1,900 | 2,520 | 2,320 | 3,280 | 1,220 | 598 |
| 14 | 221 | 150 | 82 | 71 | 155 | 272 | 2,280 | 3,050 | 2,060 | 3,140 | 1,240 | 993 |
| 15 | 249 | 146 | 119 | 78 | 159 | 272 | 2,340 | 3,860 | 2,340 | 2,520 | 1,220 | 302 |
| 16 | 266 | 161 | 136 | 79 | 196 | 272 | 2,200 | 4,440 | 2,920 | 2,120 | 1,090 | 645 |
| 17 | 323 | 190 | 131 | 76 | 324 | 283 | 2,120 | 3,750 | 2,380 | 1,800 | 870 | 631 |
| 18 | 252 | 155 | 127 | 74 | 481 | 316 | 2,040 | 2,780 | 2,120 | 1,620 | 814 | 704 |
| 19 | 233 | 136 | 129 | 78 | 540 | 393 | 2,040 | 2,340 | 2,380 | 1,740 | 940 | 525 |
| 20 | 221 | 110 | 125 | 81 | 535 | 393 | 2,220 | 2,280 | 2,780 | 1,740 | 787 | 505 |
| 21 | 227 | 121 | 125 | 82 | 447 | 429 | 2,580 | 1,980 | 3,520 | 1,860 | 728 | 535 |
| 22 | 218 | 144 | 121 | 79 | 397 | 457 | 3,360 | 1,780 | 2,920 | 1,930 | 680 | 438 |
| 23 | 210 | 133 | 108 | 79 | 355 | 438 | 3,440 | 1,660 | 2,780 | 2,000 | 704 | 372 |
| 24 | 204 | 133 | 133 | 79 | 331 | 476 | 3,140 | 1,600 | 2,710 | 1,860 | 666 | 335 |
| 25 | 207 | 140 | 166 | 79 | 308 | 698 | 2,920 | 1,550 | 2,580 | 1,500 | 598 | 304 |
| 26 | 243 | 131 | 159 | 79 | 301 | 912 | 2,850 | 1,450 | 2,520 | 2,520 | 574 | 646 |
| 27 | 218 | 125 | 148 | 79 | 283 | 1,040 | 2,650 | 1,550 | 2,780 | 1,130 | 580 | 542 |
| 28 | 201 | 125 | 136 | 82 | 272 | 1,500 | 2,340 | 1,880 | 2,450 | 1,110 | 598 | 538 |
| 29 | 188 | 121 | 129 | 82 | ----- | 1,950 | 2,100 | 2,160 | 2,320 | 1,250 | 617 | 376 |
| 30 | 183 | 123 | 136 | 82 | ----- | 1,820 | 1,980 | 2,160 | 2,380 | 1,500 | 610 | 335 |
| 31 | 180 | ----- | 138 | 82 | ----- | 1,060 | ----- | 2,100 | ----- | 1,400 | 540 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|-----------|---------|---------|-------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October | 590 | 180 | 253 | 0.680 | 0.78 | 15,600 |
| November | 190 | 110 | 148 | .398 | .44 | 8,810 |
| December | 166 | 82 | 125 | .336 | .39 | 7,690 |
| January | 140 | 58 | 86.0 | .231 | .27 | 5,290 |
| February | 540 | 90 | 260 | .699 | .73 | 14,400 |
| March | 1,930 | 207 | 538 | 1.45 | 1.67 | 33,100 |
| April | 3,440 | 1,350 | 2,130 | 5.73 | 6.39 | 127,000 |
| May | 4,440 | 1,450 | 2,180 | 5.89 | 6.79 | 135,000 |
| June | 3,920 | 1,820 | 2,650 | 7.12 | 7.94 | 158,000 |
| July | 3,290 | 1,110 | 2,110 | 5.67 | 6.54 | 130,000 |
| August | 1,550 | 540 | 957 | 2.57 | 2.96 | 58,800 |
| September | 993 | 304 | 583 | 1.57 | 1.75 | 34,700 |
| The year | 4,440 | 58 | 1,000 | 2.69 | 36.65 | 728,000 |

LAKE CHELAN AT CHELAN, WASH.

LOCATION.—Water-stage recorder in lot 3, sec. 15, T. 27 N., R. 22 E., 2 miles west of Chelan. Gage set to sea level datum.

DRAINAGE AREA.—950 square miles.

RECORDS AVAILABLE.—September, 1897, to December, 1899; January to June, 1905; December, 1910, to September, 1930.

EXTREMES.—Maximum water surface elevation during year, 1,099.88 feet July 13; minimum, 1,081.81 feet Feb. 3.

1897–1899, 1905, 1910–1930: Maximum water-surface elevation, that of July 13, 1930; minimum, 1,076.78 feet Jan. 27, 28, Dec. 2, 3, 1897.

REMARKS.—Records excellent. Lake level regulated under stipulation of Federal Power Commission for power and for scenic effect during tourist season. Gage-height record furnished by Washington Water Power Co.

Daily elevation, in feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 94.44 | 90.82 | 87.12 | 84.35 | 81.83 | 82.53 | 84.15 | 89.27 | 94.78 | 99.45 | 99.64 | 97.77 |
| 2 | 94.32 | 90.70 | 86.99 | 84.28 | 81.84 | 82.53 | 84.27 | 89.46 | 94.98 | 99.45 | 99.59 | 97.70 |
| 3 | 94.20 | 90.50 | 86.85 | 84.23 | 81.84 | 82.54 | 84.39 | 89.67 | 95.15 | 99.44 | 99.48 | 97.62 |
| 4 | 94.09 | 90.45 | 86.72 | 84.17 | 81.84 | 82.56 | 84.51 | 89.78 | 95.27 | 99.44 | 99.44 | 97.56 |
| 5 | 94.02 | 90.34 | 86.57 | 84.12 | 81.87 | 82.60 | 84.61 | 89.95 | 95.43 | 99.48 | 99.39 | 97.50 |
| 6 | 93.89 | 90.21 | 86.45 | 84.05 | 81.87 | 82.58 | 84.70 | 90.10 | 95.65 | 99.54 | 99.36 | 97.47 |
| 7 | 93.77 | 90.07 | 86.34 | 83.98 | 81.92 | 82.62 | 84.87 | 90.23 | 95.95 | 99.54 | 99.32 | 97.39 |
| 8 | 93.66 | 89.94 | 86.22 | 83.90 | 81.94 | 82.63 | 85.03 | 90.34 | 96.22 | 99.51 | 99.32 | 97.35 |
| 9 | 93.55 | 89.80 | 86.12 | 83.81 | 81.94 | 82.65 | 85.17 | 90.45 | 96.48 | 99.52 | 99.26 | 97.31 |
| 10 | 93.42 | 89.67 | 86.00 | 83.73 | 81.97 | 82.66 | 85.32 | 90.58 | 96.78 | 99.63 | 99.22 | 97.22 |
| 11 | 93.29 | 89.57 | 85.90 | 83.67 | 81.99 | 82.71 | 85.43 | 90.74 | 97.14 | 99.74 | 99.19 | 97.17 |
| 12 | 93.18 | 89.43 | 85.77 | 83.60 | 82.02 | 82.71 | 85.55 | 90.90 | 97.37 | 99.83 | 99.18 | 97.13 |
| 13 | 93.08 | 89.32 | 85.65 | 83.54 | 82.03 | 82.73 | 85.71 | 91.08 | 97.55 | 99.85 | 99.11 | 97.05 |
| 14 | 92.96 | 89.18 | 85.60 | 83.46 | 82.04 | 82.76 | 85.87 | 91.32 | 97.64 | 99.80 | 99.03 | 97.00 |
| 15 | 92.85 | 89.05 | 85.53 | 83.39 | 82.03 | 82.77 | 86.07 | 91.62 | 97.77 | 99.71 | 99.00 | 96.96 |
| 16 | 92.75 | 88.93 | 85.47 | 83.30 | 82.04 | 82.80 | 86.23 | 92.00 | 98.01 | 99.68 | 98.97 | 96.89 |
| 17 | 92.65 | 88.85 | 85.38 | 83.24 | 82.05 | 82.84 | 86.38 | 92.35 | 98.17 | 99.69 | 98.89 | 96.81 |
| 18 | 92.52 | 88.70 | 85.28 | 83.16 | 82.12 | 82.87 | 86.54 | 92.58 | 98.23 | 99.73 | 98.86 | 96.79 |
| 19 | 92.39 | 88.57 | 85.18 | 83.05 | 82.18 | 82.96 | 86.72 | 92.78 | 98.32 | 99.73 | 98.83 | 96.70 |
| 20 | 92.29 | 88.45 | 85.09 | 82.96 | 82.28 | 82.94 | 86.88 | 93.00 | 98.46 | 99.76 | 98.77 | 96.63 |
| 21 | 92.18 | 88.33 | 85.03 | 82.84 | 82.34 | 83.01 | 87.08 | 93.18 | 98.70 | 99.76 | 98.67 | 96.59 |
| 22 | 92.05 | 88.17 | 84.96 | 82.74 | 82.37 | 83.07 | 87.33 | 93.32 | 98.95 | 99.72 | 98.60 | 96.53 |
| 23 | 91.94 | 88.05 | 84.91 | 82.64 | 82.43 | 83.10 | 87.62 | 93.43 | 99.12 | 99.72 | 98.55 | 96.38 |
| 24 | 91.81 | 87.93 | 84.82 | 82.53 | 82.46 | 83.17 | 87.90 | 93.61 | 99.24 | 99.76 | 98.49 | 96.29 |
| 25 | 91.69 | 87.81 | 84.76 | 82.43 | 82.49 | 83.23 | 88.14 | 93.72 | 99.28 | 99.76 | 98.40 | 96.23 |
| 26 | 91.55 | 87.67 | 84.71 | 82.33 | 82.50 | 83.33 | 88.40 | 93.80 | 99.23 | 99.73 | 98.31 | 96.14 |
| 27 | 91.50 | 87.55 | 84.64 | 82.22 | 82.53 | 83.41 | 88.62 | 93.93 | 99.30 | 99.71 | 98.18 | 96.06 |
| 28 | 91.36 | 87.43 | 84.55 | 82.12 | 82.55 | 83.53 | 88.87 | 94.08 | 99.34 | 99.71 | 98.09 | 96.03 |
| 29 | 91.20 | 87.32 | 84.49 | 82.04 | ----- | 83.72 | 89.03 | 94.25 | 99.37 | 99.69 | 98.03 | 95.97 |
| 30 | 91.06 | 87.23 | 84.46 | 81.96 | ----- | 83.86 | 89.17 | 94.43 | 99.40 | 99.71 | 98.00 | 95.87 |
| 31 | 90.95 | ----- | 84.43 | 81.88 | ----- | 84.00 | ----- | 94.65 | ----- | 99.68 | 97.88 | ----- |

NOTE.—Add 1,000 feet to obtain elevation above mean sea level.

CHELAN RIVER AT CHELAN, WASH.

LOCATION.—Water-stage recorder in NE. ¼ sec. 30, T. 27 N., R. 23 E., half a mile above mouth and 2 miles southeast of Chelan. Gage set to sea level datum.

DRAINAGE AREA.—950 square miles.

RECORDS AVAILABLE.—November, 1903, to September, 1930.

EXTREMES.—Maximum mean daily discharge during year, 5,650 second-feet July 14; minimum, 28 second-feet on many days.

1903-1930: Maximum discharge, 11,600 second-feet June 8, 1921; no flow at times during winter, owing to artificial regulation.

REMARKS.—Records good. Small diversion for irrigation above station. Chelan Electric Co. diverts water from point in town of Chelan for power purposes and for irrigation of small area; this diversion included in daily discharge. Flow regulated by operation of power plant. Records of diversion, gage-height record, and discharge measurements furnished by Chelan Electric Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|------|-------|-----|-------|-------|-------|-------|
| 1 | 2,470 | 2,390 | 2,100 | 1,060 | 1,040 | 28 | 35 | 109 | 156 | 2,460 | 2,220 | 1,800 |
| 2 | 2,470 | 2,400 | 2,200 | 1,160 | 349 | 28 | 35 | 109 | 164 | 2,770 | 2,340 | 1,900 |
| 3 | 2,420 | 2,390 | 2,320 | 1,210 | 142 | 36 | 35 | 108 | 175 | 2,500 | 2,070 | 1,940 |
| 4 | 2,510 | 2,360 | 2,320 | 1,130 | 134 | 37 | 35 | 48 | 157 | 1,950 | 2,200 | 1,940 |
| 5 | 2,420 | 2,360 | 2,300 | 778 | 91 | 37 | 41 | 105 | 158 | 1,860 | 2,240 | 1,990 |
| 6 | 2,300 | 2,350 | 2,320 | 1,150 | 71 | 37 | 41 | 116 | 159 | 2,130 | 2,200 | 1,900 |
| 7 | 2,330 | 2,360 | 2,300 | 1,420 | 81 | 37 | 41 | 157 | 260 | 2,770 | 2,200 | 1,710 |
| 8 | 2,440 | 2,340 | 2,300 | 1,500 | 28 | 28 | 41 | 202 | 325 | 2,620 | 2,170 | 1,430 |
| 9 | 2,420 | 2,340 | 2,300 | 1,370 | 28 | 28 | 40 | 182 | 202 | 1,800 | 2,220 | 1,830 |
| 10 | 2,340 | 2,340 | 2,330 | 1,240 | 37 | 28 | 114 | 161 | 167 | 1,870 | 2,210 | 1,700 |
| 11 | 2,470 | 2,340 | 2,220 | 1,020 | 148 | 44 | 42 | 162 | 161 | 1,610 | 2,260 | 1,710 |
| 12 | 2,420 | 2,320 | 2,240 | 956 | 301 | 28 | 42 | 171 | 174 | 2,320 | 2,280 | 1,890 |
| 13 | 2,170 | 2,320 | 2,270 | 1,010 | 404 | 62 | 42 | 163 | 290 | 4,320 | 2,300 | 1,530 |
| 14 | 2,280 | 2,320 | 2,100 | 1,060 | 288 | 116 | 54 | 159 | 392 | 5,650 | 2,360 | 1,580 |
| 15 | 2,450 | 2,320 | 1,700 | 1,240 | 137 | 30 | 60 | 162 | 362 | 3,860 | 2,380 | 1,890 |
| 16 | 2,450 | 2,350 | 1,770 | 1,380 | 28 | 30 | 121 | 169 | 317 | 2,040 | 2,370 | 1,840 |
| 17 | 2,420 | 2,300 | 1,750 | 1,410 | 37 | 38 | 43 | 212 | 718 | 1,210 | 1,620 | 1,800 |
| 18 | 2,380 | 2,350 | 1,760 | 1,690 | 31 | 34 | 43 | 159 | 1,120 | 1,400 | 2,030 | 1,670 |
| 19 | 2,380 | 2,340 | 1,730 | 1,650 | 31 | 82 | 43 | 162 | 1,100 | 1,430 | 2,100 | 1,670 |
| 20 | 2,280 | 2,340 | 1,650 | 1,680 | 144 | 112 | 43 | 161 | 941 | 941 | 2,120 | 2,000 |
| 21 | 2,160 | 2,320 | 1,660 | 1,650 | 73 | 62 | 43 | 167 | 726 | 3,030 | 2,290 | 1,640 |
| 22 | 2,380 | 2,320 | 1,529 | 1,700 | 66 | 71 | 174 | 168 | 594 | 3,000 | 2,400 | 1,690 |
| 23 | 2,380 | 2,310 | 1,670 | 1,830 | 28 | 29 | 46 | 158 | 901 | 2,300 | 2,150 | 1,860 |
| 24 | 2,350 | 2,330 | 1,670 | 1,860 | 30 | 29 | 103 | 163 | 1,560 | 1,710 | 1,950 | 1,850 |
| 25 | 2,380 | 2,190 | 930 | 1,860 | 28 | 28 | 46 | 150 | 3,410 | 1,580 | 2,280 | 1,860 |
| 26 | 2,380 | 2,280 | 1,520 | 1,790 | 28 | 36 | 46 | 160 | 3,100 | 1,560 | 2,400 | 1,780 |
| 27 | 2,340 | 2,270 | 1,490 | 1,860 | 34 | 28 | 46 | 163 | 2,290 | 966 | 2,350 | 1,610 |
| 28 | 2,300 | 2,010 | 1,320 | 1,820 | 35 | 28 | 89 | 161 | 2,400 | 1,200 | 2,330 | 1,480 |
| 29 | 2,370 | 2,160 | 754 | 1,710 | ----- | 35 | 128 | 174 | 2,080 | 1,540 | 2,150 | 1,590 |
| 30 | 2,360 | 2,300 | 1,310 | 1,620 | ----- | 39 | 436 | 161 | 2,140 | 2,050 | 2,200 | 1,740 |
| 31 | 2,300 | ----- | 1,170 | 1,570 | ----- | 35 | ----- | 164 | ----- | 2,160 | 1,920 | ----- |

| Month | Observed | | | | Gain or loss in storage in Chelan Lake (acre-feet) | Corrected for storage | | | |
|----------------|--------------------------|--------------|-------|----------------------------|---|----------------------------|-----------------------------|-----------------------|--------------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run-off in acre-feet | Discharge in second-feet | | Run- off in inches |
| | Maxi- mum | Mini- mum | Mean | | | | Mean | Per square mile | |
| October..... | 2,510 | 2,160 | 2,370 | 146,000 | -117,000 | 29,000 | 472 | 0.497 | 0.57 |
| November..... | 2,400 | 2,010 | 2,310 | 137,000 | -120,000 | 17,000 | 286 | .301 | .34 |
| December..... | 2,330 | 754 | 1,840 | 113,000 | -90,400 | 22,600 | 368 | .387 | .45 |
| January..... | 1,860 | 778 | 1,430 | 87,900 | -79,300 | 8,600 | 140 | .147 | .17 |
| February..... | 1,040 | 28 | 138 | 7,660 | +20,600 | 28,300 | 510 | .537 | .56 |
| March..... | 116 | 28 | 42.6 | 2,620 | +46,000 | 48,600 | 790 | .832 | .96 |
| April..... | 436 | 35 | 71.6 | 4,260 | +165,000 | 169,000 | 2,840 | 2.99 | 3.34 |
| May..... | 212 | 48 | 154 | 9,470 | +177,000 | 186,000 | 3,020 | 3.18 | 3.67 |
| June..... | 3,410 | 156 | 890 | 53,000 | +158,000 | 211,000 | 3,550 | 3.74 | 4.17 |
| July..... | 5,650 | 941 | 2,210 | 136,000 | +7,870 | 144,000 | 2,340 | 2.46 | 2.84 |
| August..... | 2,400 | 1,620 | 2,200 | 135,000 | -60,400 | 74,600 | 1,210 | 1.27 | 1.46 |
| September..... | 2,000 | 1,430 | 1,760 | 105,000 | -63,700 | 41,300 | 694 | .731 | .82 |
| The year..... | 5,650 | 28 | 1,300 | 937,000 | +43,700 | 980,000 | 1,350 | 1.42 | 19.35 |

RAILROAD CREEK AT LUCERNE, WASH.

LOCATION.—Water-stage recorder in sec. 9, T. 31 N., R. 18 E., half a mile above mouth and southwest of Lucerne.

DRAINAGE AREA.—64 square miles.

RECORDS AVAILABLE.—December, 1910, to June, 1913; January, 1927, to September, 1930.

EXTREMES.—Maximum discharge during year, 674 second-feet June 10, 11 (gage height, 4.18 feet); minimum, less than 10 second-feet some time during Jan. 15-25, when stage-discharge relation was affected by ice.

1910-1913, 1927-1930: Maximum discharge, 1,910 second-feet June 8, 1927 (gage height, 5.3 feet); minimum occurred during January, 1930.

REMARKS.—Records good except those for Jan. 6 to Feb. 27, which were estimated because of ice. No diversions or regulation. Gage-height record and many discharge measurements furnished by Chelan Electric Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1..... | 30 | 29 | 13 | 23 | 15 | 36 | 162 | 267 | 293 | 354 | 209 | 111 |
| 2..... | 28 | 28 | 11 | 23 | | 34 | 162 | 276 | 304 | 298 | 191 | 114 |
| 3..... | 29 | 26 | 10 | 23 | | 35 | 158 | 276 | 278 | 320 | 181 | 120 |
| 4..... | 40 | 25 | 15 | 23 | | 32 | 150 | 262 | 258 | 268 | 181 | 122 |
| 5..... | 54 | 25 | 16 | 21 | | 32 | 140 | 258 | 283 | 326 | 194 | 122 |
| 6..... | 51 | 25 | 16 | 15 | 20 | 32 | 140 | 258 | 399 | 359 | 205 | 122 |
| 7..... | 43 | 24 | 15 | | | 31 | 166 | 240 | 588 | 332 | 198 | 114 |
| 8..... | 38 | 23 | 15 | | | 31 | 207 | 236 | 559 | 304 | 201 | 120 |
| 9..... | 38 | 22 | 15 | | | 30 | 190 | 240 | 523 | 310 | 198 | 114 |
| 10..... | 37 | 21 | 15 | | | 28 | 170 | 245 | 595 | 405 | 191 | 111 |
| 11..... | 35 | 19 | 17 | 15 | 20 | 32 | 162 | 276 | 588 | 424 | 191 | 114 |
| 12..... | 34 | 19 | 16 | | | 35 | 162 | 305 | 431 | 418 | 194 | 117 |
| 13..... | 35 | 19 | 30 | | | 35 | 190 | 358 | 337 | 443 | 184 | 114 |
| 14..... | 35 | 19 | 98 | | | 35 | 223 | 439 | 298 | 456 | 184 | 114 |
| 15..... | 37 | 18 | 84 | | | 35 | 228 | 524 | 320 | 371 | 187 | 152 |
| 16..... | 40 | 18 | 45 | 10 | 40 | 36 | 219 | 604 | 437 | 310 | 177 | 131 |
| 17..... | 51 | 19 | 25 | | | 37 | 219 | 588 | 365 | 358 | 161 | 120 |
| 18..... | 52 | 15 | 20 | | | 38 | 219 | 471 | 310 | 226 | 152 | 122 |
| 19..... | 45 | 11 | 20 | | | 42 | 219 | 385 | 315 | 230 | 149 | 117 |
| 20..... | 42 | 25 | 21 | | | 42 | 232 | 358 | 365 | 235 | 143 | 103 |
| 21..... | 42 | 59 | 21 | 10 | 40 | 45 | 276 | 320 | 483 | 243 | 134 | 97 |
| 22..... | 40 | 28 | 20 | | | 49 | 341 | 271 | 443 | 263 | 131 | 94 |
| 23..... | 40 | 14 | 19 | | | 45 | 380 | 254 | 382 | 268 | 128 | 78 |
| 24..... | 38 | 15 | 21 | | | 46 | 374 | 235 | 365 | 263 | 128 | 68 |
| 25..... | 38 | 18 | 23 | | | 82 | 368 | 218 | 359 | 235 | 120 | 58 |
| 26..... | 38 | 15 | 23 | 34 | 34 | 108 | 358 | 209 | 342 | 201 | 117 | 60 |
| 27..... | 37 | 14 | 23 | | | 115 | 341 | 214 | 399 | 177 | 114 | 68 |
| 28..... | 37 | 15 | 23 | | | 143 | 315 | 253 | 348 | 170 | 117 | 86 |
| 29..... | 35 | 15 | 23 | | | 182 | 271 | 332 | 320 | 174 | 117 | 76 |
| 30..... | 34 | 13 | 23 | | | 178 | 271 | 337 | 332 | 198 | 122 | 60 |
| 31..... | 32 | ----- | 23 | 12 | ----- | 166 | ----- | 315 | ----- | 222 | 117 | ----- |

| Month | Maximum | Minimum | Mean | Per square mile | Run-off | |
|----------------|---------|---------|------|-----------------|---------|-----------|
| | | | | | Inches | Acre-feet |
| October..... | 54 | 28 | 38.9 | 0.608 | 0.7c | 2,380 |
| November..... | 59 | 11 | 21.2 | .331 | .37 | 1,260 |
| December..... | 98 | 10 | 24.5 | .383 | .44 | 1,510 |
| January..... | ----- | ----- | 14.2 | .222 | .28 | 873 |
| February..... | ----- | ----- | 26.4 | .412 | .45 | 1,470 |
| March..... | 182 | 28 | 59.6 | .931 | 1.07 | 3,660 |
| April..... | 380 | 140 | 234 | 3.66 | 4.08 | 13,900 |
| May..... | 604 | 209 | 317 | 4.96 | 5.71 | 19,500 |
| June..... | 595 | 258 | 387 | 6.05 | 6.75 | 23,000 |
| July..... | 456 | 170 | 296 | 4.62 | 5.35 | 18,200 |
| August..... | 209 | 114 | 162 | 2.53 | 2.92 | 9,960 |
| September..... | 152 | 58 | 105 | 1.64 | 1.85 | 6,250 |
| The year..... | 604 | ----- | 141 | 2.20 | 29.85 | 102,000 |

WENATCHEE RIVER BASIN

WENATCHEE RIVER AT PESHAstin, WASH.

LOCATION.—Staff gage in NW. ¼ sec. 21, T. 24 N., R. 18 E., 1,000 feet below highway bridge at Peshastin.

DRAINAGE AREA.—1,000 square miles.

RECORDS AVAILABLE.—February, 1929, to September, 1930.

EXTREMES.—Maximum discharge during year, 8,070 second-feet May 16 (gage height, 5.70 feet); minimum, 270 second-feet Oct. 2 (gage height, 0.50 foot).
1929-30: Maximum discharge, 11,600 second-feet May 27, 24, 1929 (gage height, 7.1 feet); minimum, that of Oct. 2, 1929.

REMARKS.—Records good except those for Jan. 12-19, 21-31, Feb. 1-11, 13-27, which were estimated because of ice. Several diversions for irrigation above station. Slight regulation at mill pond at Leavenworth.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 331 | 290 | 300 | 500 | | 1,310 | 2,770 | 5,210 | 4,450 | 3,730 | 1,210 | * 478 |
| 2..... | 270 | 331 | 315 | 500 | | 1,150 | 2,640 | 5,410 | 4,450 | 3,390 | 1,100 | 464 |
| 3..... | 320 | 342 | 310 | 535 | | 1,150 | 2,250 | 5,410 | 4,090 | 3,060 | 1,000 | 464 |
| 4..... | 315 | 353 | 320 | 500 | | 1,100 | 2,380 | 5,010 | 3,730 | 2,910 | 1,000 | 464 |
| 5..... | 353 | 331 | 300 | 500 | | 1,050 | 2,510 | 4,820 | 4,090 | 3,060 | 955 | 492 |
| 6..... | 435 | 310 | 310 | 500 | 880 | 1,000 | 2,380 | 4,820 | 4,820 | 3,390 | 955 | 555 |
| 7..... | 435 | 300 | 320 | 468 | | 1,000 | 3,910 | 4,270 | 6,700 | 3,220 | 955 | 492 |
| 8..... | 435 | 290 | 320 | 435 | | 950 | 5,210 | 4,090 | 6,480 | 3,060 | 910 | 506 |
| 9..... | 435 | 300 | 305 | 435 | | 900 | 5,010 | 3,910 | 6,040 | 2,770 | 955 | 520 |
| 10..... | 405 | 310 | 310 | * 372 | | 900 | 4,630 | 3,910 | 6,260 | 3,220 | 955 | 506 |
| 11..... | 375 | 320 | 326 | 310 | | 950 | 4,270 | 4,270 | 6,260 | 3,390 | 910 | 485 |
| 12..... | 375 | 300 | 342 | | 996 | 1,050 | 4,450 | 4,630 | 5,210 | 3,220 | 868 | 506 |
| 13..... | 375 | 290 | 364 | | | 950 | 4,630 | 5,210 | 4,450 | 3,390 | 868 | 492 |
| 14..... | 375 | 295 | 435 | | | 1,000 | 4,820 | 6,040 | 3,910 | 3,390 | 868 | 471 |
| 15..... | 364 | 310 | 500 | | | 1,000 | 5,210 | 7,370 | 4,090 | 2,910 | 825 | 499 |
| 16..... | 353 | 320 | 570 | 340 | | 950 | 5,010 | 8,070 | 4,630 | 2,510 | 825 | 478 |
| 17..... | 375 | 331 | 608 | | | 1,000 | 4,820 | 7,830 | 4,270 | 2,250 | 825 | 499 |
| 18..... | 435 | 435 | 645 | | | 1,100 | 4,630 | 6,700 | 3,730 | 2,000 | 745 | 464 |
| 19..... | 435 | 435 | 645 | | | 1,150 | 4,630 | 5,610 | 3,730 | 1,880 | 705 | 492 |
| 20..... | 435 | 320 | 685 | 317 | 1,000 | 1,200 | 5,210 | 5,820 | 4,090 | 1,880 | 705 | 464 |
| 21..... | 435 | 310 | 645 | | | 1,360 | 5,610 | 5,210 | 4,450 | 1,760 | 665 | 450 |
| 22..... | 405 | 300 | 645 | | | 1,650 | 7,600 | 4,630 | 4,450 | 1,760 | 628 | 450 |
| 23..... | 375 | 310 | 645 | | | 1,650 | 7,830 | 4,270 | 4,090 | 1,760 | 628 | 430 |
| 24..... | 364 | 435 | 645 | | | 1,770 | 7,600 | 4,090 | 4,090 | 1,880 | 590 | 373 |
| 25..... | 342 | 375 | 608 | | | 2,150 | 7,140 | 3,730 | 3,910 | 1,650 | 555 | 373 |
| 26..... | 342 | 375 | 608 | 450 | | 2,700 | 7,140 | 3,730 | 3,730 | 1,430 | 520 | 349 |
| 27..... | 331 | 353 | 570 | | | 2,850 | 6,920 | 3,730 | 4,090 | 1,320 | 520 | 367 |
| 28..... | 358 | 320 | 570 | | 1,000 | 3,470 | 6,260 | 3,910 | 3,910 | 1,210 | 506 | 385 |
| 29..... | 375 | 300 | 500 | | | 4,500 | 5,410 | 4,630 | 3,560 | 1,210 | 520 | 385 |
| 30..... | 364 | 290 | 500 | | | 4,500 | 5,010 | 4,820 | 3,560 | 1,210 | * 506 | 392 |
| 31..... | 320 | | 535 | | | 4,500 | | 4,630 | | 1,210 | * 492 | |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|----------------|---------|---------|-------|----------------------|
| October..... | 435 | 270 | 376 | 23,100 |
| November..... | 435 | 290 | 329 | 19,600 |
| December..... | 685 | 300 | 474 | 29,100 |
| January..... | | | 421 | 25,900 |
| February..... | | | 953 | 52,900 |
| March..... | 4,500 | 900 | 1,680 | 103,000 |
| April..... | 7,830 | 2,250 | 4,930 | 293,000 |
| May..... | 8,070 | 3,730 | 5,030 | 309,000 |
| June..... | 6,700 | 3,560 | 4,510 | 268,000 |
| July..... | 3,730 | 1,210 | 2,420 | 149,000 |
| August..... | 1,210 | 492 | 783 | 48,100 |
| September..... | 555 | 349 | 458 | 27,300 |
| The year..... | 8,070 | 270 | 1,860 | 1,350,000 |

* Interpolated.

PHELPS CREEK NEAR PLAIN, WASH.

LOCATION.—Staff gage one-fourth mile above mouth and 25 miles northwest of Plain. Zero of gage 2,772.75 feet above mean sea level.

DRAINAGE AREA.—16.8 square miles.

RECORDS AVAILABLE.—November, 1926, to September, 1930.

EXTREMES.—Maximum discharge during year, 208 second-feet May 14 (gage height, 1.70 feet); minimum, 1.2 second-feet Dec. 7-13 (gage height, -0.10 foot).

1926-1930: Maximum discharge, 1,080 second-feet June 7, 1927 (gage height, 3.9 feet); no flow Feb. 20-23, Mar. 1-12, 1927, because of snowslides into gorge above station.

REMARKS.—Records good. A considerable percentage of low-water flow diverted 2 miles above gage for operation of mine power plant. (See table of miscellaneous discharge measurements.) Gage-height record and many discharge measurements furnished by Royal Development Co.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|----------------|---------|-------|------|------|-------|---------|-------|------------------|-------|----------------------|------|-------|
| 1..... | 4.5 | 3.7 | 2.1 | 2.2 | 4.7 | 2.8 | 36 | 108 | 98 | 92 | 22 | 5.4 |
| 2..... | 4.7 | 3.0 | 2.1 | 2.0 | 2.9 | 2.4 | 35 | 119 | 94 | 78 | 23 | 5.4 |
| 3..... | 4.3 | 3.3 | 1.7 | 2.1 | 2.4 | 2.4 | 36 | 108 | 81 | 72 | 21 | 5.9 |
| 4..... | 8.0 | 3.3 | 1.8 | 2.1 | 4.4 | 2.1 | 33 | 110 | 72 | 72 | 20 | 5.0 |
| 5..... | 5.5 | 2.6 | 1.6 | 2.0 | 7.3 | 2.2 | 29 | 112 | 103 | 75 | 20 | 4.6 |
| 6..... | 2.8 | 3.0 | 1.4 | 2.0 | 5.3 | 2.0 | 31 | 108 | 120 | 86 | 20 | 4.6 |
| 7..... | 2.8 | 2.6 | 1.2 | 2.0 | 4.5 | 2.0 | 40 | 104 | 185 | 80 | 18 | 5.9 |
| 8..... | 2.5 | 2.5 | 1.3 | 2.0 | 4.5 | 2.1 | 44 | 102 | 166 | 78 | 16 | 9.4 |
| 9..... | 3.5 | 2.6 | 1.3 | 2.0 | 4.4 | 2.2 | 39 | 106 | 195 | 84 | 14 | 3.6 |
| 10..... | 3.0 | 2.7 | 1.3 | 2.0 | 3.0 | 2.2 | 38 | 110 | 166 | 100 | 14 | 5.4 |
| 11..... | 2.7 | 2.3 | 1.2 | 2.0 | 2.2 | 3.3 | 38 | 128 | 138 | 89 | 13 | 5.9 |
| 12..... | 3.8 | 2.1 | 1.2 | 2.0 | 2.8 | 2.8 | 40 | 140 | 108 | 89 | 12 | 5.4 |
| 13..... | 2.8 | 2.1 | 1.2 | 1.9 | 2.8 | 2.8 | 62 | 160 | 92 | 89 | 11 | 4.1 |
| 14..... | 2.9 | 2.0 | 1.6 | 1.8 | 2.0 | 2.7 | 74 | 190 | 90 | 86 | 11 | 13 |
| 15..... | 3.2 | 1.8 | 2.2 | 1.8 | 2.3 | 2.5 | 72 | 187 | 112 | 58 | 9.5 | 7.1 |
| 16..... | 2.9 | 2.2 | 2.3 | 1.8 | 3.0 | 2.5 | 69 | 182 | 118 | 48 | 8.7 | 5.9 |
| 17..... | 4.7 | 2.4 | 2.0 | 1.8 | 4.9 | 2.8 | 72 | 164 | 101 | 47 | 8.2 | 6.5 |
| 18..... | 3.0 | 1.7 | 2.0 | 1.8 | 7.3 | 4.0 | 79 | 145 | 95 | 40 | 7.9 | 4.6 |
| 19..... | 4.2 | 1.7 | 2.0 | 2.0 | 7.9 | 4.5 | 79 | 115 | 103 | 48 | 8.4 | 4.6 |
| 20..... | 3.5 | 1.7 | 2.0 | 1.8 | 8.4 | 3.8 | 88 | 102 | 108 | 42 | 7.3 | 4.1 |
| 21..... | 3.2 | 1.9 | 2.0 | 1.8 | 5.1 | 4.2 | 115 | 81 | 147 | 42 | 9.2 | 2.8 |
| 22..... | 2.9 | 1.8 | 2.0 | 1.8 | 3.8 | 3.7 | 157 | 72 | 108 | 40 | 8.2 | 5.0 |
| 23..... | 3.0 | 1.8 | 2.0 | 1.8 | 4.0 | 2.8 | 157 | 70 | 100 | 41 | 8.2 | 5.0 |
| 24..... | 3.0 | 1.7 | 2.0 | 1.8 | 2.8 | 4.4 | 150 | 68 | 103 | 37 | 7.1 | 3.2 |
| 25..... | 3.0 | 1.9 | 2.4 | 1.8 | 2.7 | 9.0 | 150 | 60 | 112 | 33 | 6.2 | 4.6 |
| 26..... | 4.0 | 1.9 | 2.4 | 1.8 | 2.5 | 14 | 152 | 56 | 101 | 28 | 6.2 | 5.9 |
| 27..... | 4.0 | 2.0 | 2.1 | 1.8 | 3.3 | 14 | 133 | 72 | 100 | 25 | 6.4 | 5.4 |
| 28..... | 3.7 | 2.1 | 2.0 | 1.8 | 3.0 | 29 | 124 | 85 | 95 | 25 | 4.1 | 9.3 |
| 29..... | 3.5 | 1.9 | 2.0 | 2.0 | ----- | 40 | 106 | 100 | 92 | 26 | 6.0 | 4.1 |
| 30..... | 3.3 | 1.5 | 2.2 | 2.0 | ----- | 37 | 103 | 100 | 93 | 25 | 6.5 | 4.1 |
| 31..... | 3.8 | ----- | 2.0 | 1.9 | ----- | 36 | ----- | 94 | ----- | 23 | 5.4 | ----- |
| Month | Maximum | | | | | Minimum | | Mean | | Run-off in acre-feet | | |
| October..... | 8.0 | | | | | 2.5 | | 3.64 | | 224 | | |
| November..... | 3.7 | | | | | 1.5 | | 2.26 | | 134 | | |
| December..... | 2.4 | | | | | 1.2 | | 1.83 | | 113 | | |
| January..... | 2.2 | | | | | 1.8 | | 1.9? | | 118 | | |
| February..... | 8.4 | | | | | 2.0 | | 4.08 | | 227 | | |
| March..... | 40 | | | | | 2.0 | | 8.0 ¹ | | 493 | | |
| April..... | 157 | | | | | 29 | | 79.5 | | 4,730 | | |
| May..... | 190 | | | | | 56 | | 112 | | 6,890 | | |
| June..... | 195 | | | | | 72 | | 113 | | 6,720 | | |
| July..... | 100 | | | | | 23 | | 58.0 | | 3,570 | | |
| August..... | 23 | | | | | 4.1 | | 11.5 | | 707 | | |
| September..... | 13 | | | | | 2.8 | | 5.4 ⁹ | | 327 | | |
| The year..... | 195 | | | | | 1.2 | | 33.5 | | 24,300 | | |

YAKIMA RIVER BASIN

YAKIMA RIVER NEAR MARTIN, WASH.

LOCATION.—Water-stage recorder below dam at outlet of Keechelus Lake, 3½ miles northwest of Martin.

DRAINAGE AREA.—55 square miles.

RECORDS AVAILABLE.—October, 1903, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,590 second-feet July 19–28 (gage height, 8.60 feet); minimum, 1 second-foot Nov. 7–29; result of regulation. 1903–1930: Maximum discharge, 7,370 second-feet Mar. 25, 1915, when temporary crib dam was washed out; practically no flow when gates in Keechelus Reservoir Dam are closed.

REMARKS.—Records excellent. No diversions above station. Flow partly controlled by storage and release of water at Keechelus Reservoir. Complete records furnished by United States Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1929–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|-------|-------|-------|
| 1..... | 322 | 88 | 5 | 5 | 6 | 10 | 14 | 14 | 18 | 191 | 1,450 | 643 |
| 2..... | 269 | 91 | 5 | 5 | 6 | 10 | 12 | 14 | 18 | 220 | 1,450 | 643 |
| 3..... | 228 | 85 | 5 | 5 | 6 | 10 | 12 | 14 | 18 | 205 | 1,450 | 643 |
| 4..... | 189 | 68 | 5 | 5 | 6 | 10 | 12 | 14 | 18 | 198 | 1,450 | 643 |
| 5..... | 162 | 29 | 5 | 5 | 6 | 10 | 12 | 14 | 18 | 269 | 1,410 | 643 |
| 6..... | 136 | 2 | 5 | 6 | 6 | 10 | 12 | 14 | 18 | 305 | 1,410 | 643 |
| 7..... | 120 | 1 | 5 | 6 | 6 | 10 | 12 | 14 | 18 | 324 | 1,320 | 643 |
| 8..... | 110 | 1 | 5 | 6 | 6 | 10 | 12 | 14 | 18 | 354 | 1,030 | 643 |
| 9..... | 100 | 1 | 5 | 6 | 6 | 10 | 14 | 14 | 18 | 397 | 802 | 643 |
| 10..... | 114 | 1 | 5 | 6 | 6 | 10 | 14 | 14 | 18 | 455 | 892 | 643 |
| 11..... | 149 | 1 | 5 | 6 | 6 | 11 | 13 | 14 | 18 | 531 | 838 | 643 |
| 12..... | 146 | 1 | 5 | 6 | 6 | 11 | 13 | 14 | 18 | 586 | 803 | 643 |
| 13..... | 133 | 1 | 5 | 6 | 6 | 11 | 13 | 14 | 18 | 586 | 704 | 643 |
| 14..... | 116 | 1 | 5 | 6 | 6 | 11 | 14 | 14 | 18 | 600 | 643 | 643 |
| 15..... | 100 | 1 | 5 | 6 | 6 | 11 | 14 | 14 | 18 | 628 | 643 | 643 |
| 16..... | 89 | 1 | 5 | 6 | 6 | 11 | 14 | 15 | 18 | 704 | 643 | 628 |
| 17..... | 85 | 1 | 5 | 6 | 7 | 11 | 14 | 15 | 18 | 752 | 643 | 628 |
| 18..... | 78 | 1 | 5 | 6 | 8 | 11 | 14 | 16 | 18 | 1,280 | 643 | 628 |
| 19..... | 74 | 1 | 5 | 6 | 8 | 11 | 14 | 16 | 18 | 1,590 | 643 | 628 |
| 20..... | 69 | 1 | 5 | 6 | 8 | 11 | 14 | 16 | 18 | 1,590 | 643 | 628 |
| 21..... | 64 | 1 | 5 | 6 | 8 | 11 | 14 | 16 | 18 | 1,590 | 643 | 586 |
| 22..... | 62 | 1 | 5 | 6 | 9 | 11 | 14 | 17 | 18 | 1,590 | 643 | 505 |
| 23..... | 61 | 1 | 5 | 6 | 10 | 11 | 14 | 17 | 18 | 1,590 | 643 | 455 |
| 24..... | 112 | 1 | 5 | 6 | 10 | 11 | 14 | 18 | 117 | 1,590 | 643 | 386 |
| 25..... | 114 | 1 | 5 | 6 | 10 | 11 | 14 | 18 | 191 | 1,590 | 643 | 324 |
| 26..... | 124 | 1 | 5 | 6 | 10 | 11 | 14 | 18 | 191 | 1,590 | 643 | 269 |
| 27..... | 117 | 1 | 5 | 6 | 10 | 12 | 14 | 18 | 191 | 1,590 | 643 | 220 |
| 28..... | 108 | 1 | 5 | 6 | 10 | 13 | 14 | 18 | 191 | 1,590 | 643 | 205 |
| 29..... | 99 | 1 | 5 | 6 | ----- | 14 | 14 | 18 | 191 | 1,540 | 643 | 177 |
| 30..... | 100 | 3 | 5 | 6 | ----- | 14 | 14 | 18 | 191 | 1,450 | 643 | 164 |
| 31..... | 97 | ----- | 5 | 6 | ----- | 14 | ----- | 18 | ----- | 1,450 | 643 | ----- |

| Month | Observed | | | | Gain or loss in storage in Lake Keechelus (acre-feet) | Corrected for storage | | | |
|----------------|--------------------------|--------------|------|----------------------------|--|----------------------------|-----------------------------|-----------------------|-------------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run-off in acre-feet | Discharge in second-feet | | Run-off in inches |
| | Maxi- mum | Mini- mum | Mean | | | | Mean | Per square mile | |
| October..... | 322 | 61 | 124 | 7,630 | -4,880 | 2,750 | 44.7 | 0.813 | 0.94 |
| November..... | 91 | 1 | 13.0 | 772 | +2,020 | 2,790 | 46.9 | .853 | .95 |
| December..... | 5 | 5 | 5.00 | 307 | +6,990 | 7,300 | 119 | 2.16 | 2.49 |
| January..... | 6 | 5 | 5.84 | 359 | +6,650 | 7,010 | 114 | 2.07 | 2.39 |
| February..... | 10 | 6 | 7.29 | 405 | +23,500 | 23,900 | 430 | 7.82 | 8.14 |
| March..... | 14 | 10 | 11.1 | 680 | +17,400 | 18,100 | 294 | 5.35 | 6.17 |
| April..... | 14 | 12 | 13.4 | 799 | +36,100 | 36,900 | 620 | 11.3 | 12.61 |
| May..... | 18 | 14 | 15.5 | 956 | +25,900 | 26,900 | 437 | 7.95 | 9.16 |
| June..... | 191 | 18 | 55.9 | 3,330 | +13,700 | 17,000 | 286 | 5.20 | 5.80 |
| July..... | 1,590 | 191 | 933 | 57,400 | -51,600 | 5,800 | 94.3 | 1.71 | 1.97 |
| August..... | 1,450 | 643 | 860 | 52,900 | -49,700 | 3,200 | 52.0 | .945 | 1.09 |
| September..... | 643 | 164 | 536 | 31,900 | -29,100 | 2,800 | 47.1 | .856 | .96 |
| The year..... | 1,590 | 1 | 217 | 157,000 | -3,620 | 154,000 | 213 | 3.87 | 52.67 |

YAKIMA RIVER AT CLE ELUM, WASH.

LOCATION.—Water-stage recorder in sec. 27, T. 20 N., R. 15 E., at highway bridge at Cle Elum, just above Roslyn Creek.

DRAINAGE AREA.—500 square miles.

RECORDS AVAILABLE.—August, 1906, to September, 1930.

EXTREMES.—Maximum discharge during year, 4,490 second-feet Apr. 23 (gage height, 4.27 feet); minimum, 64 second-feet Nov. 16, 17 (gage height, -0.31 foot).

1906-1930: Maximum discharge, about 25,600 second-feet Nov. 14, 1906 (gage height, 12.5 feet; from high-water marks); minimum, that of Nov. 16, 17, 1929.

REMARKS.—Records excellent. Kittitas Canal diverts above gage; diversions included in monthly-discharge table. Flow partly regulated by several reservoirs upstream. Complete records furnished by United States Bureau of Reclamation.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1..... | 531 | 177 | 76 | 321 | 464 | 908 | 3,530 | 2,240 | 1,530 | 2,707 | 2,980 | 438 |
| 2..... | 537 | 151 | 76 | 448 | 443 | 858 | 3,290 | 2,370 | 1,440 | 2,911 | 2,980 | 422 |
| 3..... | 613 | 128 | 76 | 392 | 481 | 823 | 3,140 | 2,440 | 1,530 | 2,777 | 2,980 | 400 |
| 4..... | 699 | 122 | 79 | 358 | 525 | 721 | 2,840 | 2,300 | 1,580 | 2,707 | 2,980 | 395 |
| 5..... | 762 | 131 | 79 | 339 | 695 | 734 | 2,500 | 2,120 | 1,630 | 2,637 | 2,980 | 754 |
| 6..... | 762 | 131 | 81 | 330 | 915 | 734 | 2,370 | 1,940 | 1,730 | 2,707 | 2,980 | 960 |
| 7..... | 422 | 119 | 79 | 299 | 1,050 | 714 | 2,500 | 1,780 | 1,940 | 2,707 | 2,980 | 1,010 |
| 8..... | 294 | 106 | 81 | 285 | 975 | 676 | 3,140 | 1,630 | 1,840 | 2,707 | 2,840 | 1,050 |
| 9..... | 554 | 101 | 83 | 257 | 879 | 594 | 3,370 | 1,630 | 1,680 | 2,777 | 2,560 | 1,050 |
| 10..... | 601 | 99 | 85 | 230 | 830 | 534 | 3,060 | 2,440 | 1,630 | 2,777 | 2,500 | 1,060 |
| 11..... | 749 | 97 | 85 | 237 | 788 | 540 | 2,770 | 3,140 | 1,580 | 2,847 | 2,440 | 1,010 |
| 12..... | 595 | 79 | 87 | 249 | 760 | 594 | 2,630 | 2,980 | 1,530 | 2,910 | 2,370 | 1,010 |
| 13..... | 595 | 70 | 85 | 245 | 734 | 600 | 2,840 | 2,560 | 1,630 | 2,987 | 2,300 | 968 |
| 14..... | 601 | 70 | 106 | 253 | 734 | 594 | 3,210 | 2,770 | 1,680 | 2,987 | 2,190 | 952 |
| 15..... | 613 | 68 | 177 | 241 | 714 | 582 | 3,370 | 2,560 | 1,780 | 2,987 | 2,190 | 930 |
| 16..... | 589 | 66 | 215 | 245 | 844 | 570 | 3,210 | 2,910 | 1,680 | 2,987 | 2,120 | 893 |
| 17..... | 601 | 68 | 234 | 245 | 774 | 570 | 2,980 | 2,980 | 1,300 | 3,067 | 2,120 | 844 |
| 18..... | 613 | 81 | 253 | 321 | 886 | 588 | 2,770 | 2,700 | 1,210 | 3,210 | 2,060 | 858 |
| 19..... | 643 | 81 | 245 | 330 | 1,260 | 714 | 2,560 | 2,300 | 1,130 | 2,987 | 2,000 | 865 |
| 20..... | 307 | 81 | 219 | 330 | 2,370 | 851 | 2,560 | 2,120 | 1,130 | 2,987 | 1,890 | 865 |
| 21..... | 211 | 79 | 211 | 377 | 2,560 | 1,010 | 2,910 | 2,240 | 1,300 | 2,910 | 1,530 | 802 |
| 22..... | 170 | 79 | 211 | 358 | 2,180 | 1,630 | 3,870 | 2,120 | 1,440 | 2,840 | 1,010 | 708 |
| 23..... | 158 | 79 | 219 | 387 | 1,730 | 1,530 | 4,490 | 1,840 | 1,530 | 2,910 | 938 | 552 |
| 24..... | 139 | 76 | 226 | 402 | 1,480 | 1,630 | 4,220 | 2,000 | 1,730 | 2,987 | 858 | 433 |
| 25..... | 104 | 89 | 226 | 407 | 1,300 | 2,060 | 3,960 | 1,940 | 2,240 | 3,210 | 795 | 330 |
| 26..... | 81 | 81 | 241 | 392 | 1,170 | 2,840 | 3,700 | 1,780 | 2,770 | 3,140 | 740 | 296 |
| 27..... | 72 | 81 | 234 | 344 | 1,090 | 3,060 | 3,530 | 1,680 | 2,840 | 3,140 | 688 | 260 |
| 28..... | 70 | 79 | 226 | 367 | 1,130 | 3,370 | 3,210 | 1,790 | 2,770 | 3,140 | 643 | 224 |
| 29..... | 70 | 79 | 190 | 353 | ----- | 4,040 | 2,840 | 1,840 | 2,770 | 3,140 | 582 | 194 |
| 30..... | 83 | 79 | 177 | 330 | ----- | 4,220 | 2,440 | 1,840 | 2,700 | 2,987 | 540 | 174 |
| 31..... | 234 | ----- | 215 | 339 | ----- | 3,960 | ----- | 1,840 | ----- | 2,987 | 482 | ----- |

Monthly discharge of Yakima River at Cle Elum, Wash., 1929-30

| Month | Observed | | | | Gain or loss in storage in Lakes Keechee, Kachess, and Cle Elum (acre-feet) | Diverted by Kittitas Canal (acre-feet) | Corrected for storage and diversions | | | |
|----------------|--------------------------|---------|-------|----------------------|---|--|--------------------------------------|--------------------------|-----------------|-------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | | Run-off in acre-feet | Discharge in second-feet | | Run-off in inches |
| | Maximum | Minimum | Mean | | | | | Mean | Per square mile | |
| October..... | 762 | 70 | 422 | 25,900 | -16,100 | ----- | 9,800 | 159 | 0.318 | 0.37 |
| November..... | 177 | 66 | 94.2 | 5,610 | -7,620 | ----- | 13,200 | 222 | .444 | .50 |
| December..... | 253 | 76 | 157 | 9,670 | +22,000 | ----- | 31,700 | 516 | 1.03 | 1.19 |
| January..... | 448 | 230 | 323 | 19,900 | +10,200 | ----- | 30,100 | 490 | .980 | 1.13 |
| February..... | 2,560 | 443 | 1,060 | 59,000 | +44,400 | ----- | 103,000 | 1,850 | 3.70 | 3.85 |
| March..... | 4,220 | 534 | 1,380 | 85,000 | +39,200 | ----- | 124,000 | 2,020 | 4.04 | 4.66 |
| April..... | 4,490 | 2,370 | 3,130 | 186,000 | +69,600 | ----- | 256,000 | 4,300 | 8.60 | 9.60 |
| May..... | 3,140 | 1,630 | 2,220 | 136,000 | +32,900 | 5,820 | 175,000 | 2,850 | 5.70 | 6.57 |
| June..... | 2,840 | 1,130 | 1,780 | 106,000 | -9,770 | 9,180 | 105,000 | 1,760 | 3.52 | 3.93 |
| July..... | 3,210 | 2,630 | 2,920 | 180,000 | -146,000 | 13,300 | 47,300 | 789 | 1.54 | 1.78 |
| August..... | 2,980 | 482 | 1,910 | 117,000 | -110,000 | 17,700 | 24,700 | 402 | .804 | .93 |
| September..... | 1,050 | 174 | 690 | 41,100 | -59,200 | 31,800 | 13,700 | 230 | .460 | .51 |
| The year..... | 4,490 | 66 | 1,340 | 972,000 | -115,000 | 77,800 | 934,000 | 1,290 | 2.58 | 35.02 |

YAKIMA RIVER NEAR PROSSER, WASH.

LOCATION.—Water-stage recorder in SE. ¼ sec. 36, T. 9 N., R. 24 E., 1¼ miles northwest of Prosser.

DRAINAGE AREA.—5,340 square miles.

RECORDS AVAILABLE.—June, 1904, to October, 1906; August, 1913, to October, 1918; irrigation seasons, April, 1919, to September, 1922; October, 1926, to September, 1930.

EXTREMES.—Maximum discharge during year, 7,520 second-feet Mar. 31 (gage height, 6.60 feet); minimum, 993 second-feet Sept. 20 (gage height, 2.21 feet).

1904-1906, 1913-1922, 1926-1930: Maximum discharge, about 62,800 second-feet (measured by floats) Nov. 17, 1906; minimum, about 40 second-feet Aug. 19, 26, 30, 31, Sept. 30, 1906.

REMARKS.—Records excellent. Water diverted above gage for irrigation of about 250,000 acres. Flow partly regulated by diversions and by storage and release of water in several reservoirs upstream. Complete records furnished by United States Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 1,140 | 1,140 | 1,180 | 1,350 | 1,350 | 2,950 | 7,080 | 2,540 | 1,780 | 1,140 | 1,110 | 1,110 |
| 2 | 1,140 | 1,110 | 1,180 | 1,350 | 1,680 | 2,810 | 6,450 | 2,110 | 1,780 | 1,110 | 1,070 | 1,140 |
| 3 | 1,110 | 1,180 | 1,180 | 1,400 | 2,230 | 2,540 | 5,850 | 1,890 | 1,630 | 1,110 | 1,070 | 1,140 |
| 4 | 1,110 | 1,220 | 1,140 | 1,530 | 2,050 | 2,350 | 5,470 | 2,050 | 1,490 | 1,270 | 1,110 | 1,220 |
| 5 | 1,110 | 1,180 | 1,140 | 1,530 | 2,170 | 2,290 | 4,920 | 2,110 | 1,440 | 1,310 | 1,110 | 1,180 |
| 6 | 1,070 | 1,180 | 1,140 | 1,530 | 2,480 | 2,170 | 4,400 | 1,890 | 1,400 | 1,220 | 1,110 | 1,140 |
| 7 | 1,110 | 1,140 | 1,140 | 1,490 | 2,410 | 2,170 | 3,910 | 1,630 | 1,350 | 1,140 | 1,140 | 1,140 |
| 8 | 1,110 | 1,180 | 1,220 | 1,400 | 2,540 | 2,170 | 3,760 | 1,530 | 1,350 | 1,140 | 1,140 | 1,220 |
| 9 | 1,220 | 1,180 | 1,180 | 1,310 | 2,740 | 2,110 | 4,400 | 1,400 | 1,630 | 1,110 | 1,140 | 1,220 |
| 10 | 1,220 | 1,180 | 1,180 | 1,310 | 2,610 | 2,000 | 4,570 | 1,310 | 1,680 | 1,110 | 1,140 | 1,270 |
| 11 | 1,140 | 1,140 | 1,180 | 1,350 | 2,480 | 1,890 | 4,070 | 1,350 | 1,580 | 1,110 | 1,140 | 1,270 |
| 12 | 1,140 | 1,140 | 1,180 | 1,180 | 2,410 | 1,830 | 3,450 | 1,780 | 1,490 | 1,070 | 1,180 | 1,310 |
| 13 | 1,140 | 1,110 | 1,270 | 1,350 | 2,350 | 1,730 | 3,020 | 1,940 | 1,400 | 1,180 | 1,180 | 1,220 |
| 14 | 1,180 | 1,140 | 1,270 | 1,350 | 2,230 | 1,780 | 3,090 | 1,630 | 1,270 | 1,270 | 1,110 | 1,140 |
| 15 | 1,110 | 1,110 | 1,270 | 1,270 | 2,050 | 1,780 | 3,450 | 1,440 | 1,220 | 1,310 | 1,140 | 1,110 |
| 16 | 1,110 | 1,110 | 1,350 | 1,270 | 2,000 | 1,680 | 3,680 | 1,630 | 1,220 | 1,310 | 1,110 | 1,080 |
| 17 | 1,070 | 1,110 | 1,400 | 1,270 | 2,170 | 1,580 | 3,450 | 1,890 | 1,180 | 1,180 | 1,070 | 1,070 |
| 18 | 1,070 | 1,110 | 1,440 | 1,310 | 2,740 | 1,530 | 2,950 | 2,410 | 1,140 | 1,140 | 1,070 | 1,110 |
| 19 | 1,070 | 1,140 | 1,400 | 1,310 | 2,880 | 1,580 | 3,760 | 2,480 | 1,180 | 1,030 | 1,070 | 1,110 |
| 20 | 1,030 | 1,270 | 1,440 | 1,270 | 3,300 | 1,580 | 3,380 | 2,170 | 1,140 | 1,180 | 1,070 | 1,070 |
| 21 | 1,110 | 1,270 | 1,440 | 1,270 | 4,920 | 1,780 | 2,740 | 2,000 | 1,140 | 1,270 | 1,110 | 1,070 |
| 22 | 1,180 | 1,220 | 1,440 | 1,220 | 5,280 | 1,890 | 2,480 | 2,110 | 1,140 | 1,140 | 1,140 | 1,110 |
| 23 | 1,350 | 1,270 | 1,400 | 1,220 | 4,920 | 2,410 | 3,530 | 2,110 | 1,140 | 1,030 | 1,110 | 1,110 |
| 24 | 1,400 | 1,220 | 1,400 | 1,270 | 4,400 | 3,090 | 4,740 | 1,890 | 1,270 | 1,030 | 1,180 | 1,110 |
| 25 | 1,350 | 1,220 | 1,440 | 1,270 | 3,900 | 2,880 | 4,920 | 1,730 | 1,220 | 1,030 | 1,140 | 1,070 |
| 26 | 1,310 | 1,220 | 1,440 | 1,310 | 3,680 | 3,450 | 4,740 | 1,780 | 1,110 | 1,140 | 1,070 | 1,070 |
| 27 | 1,270 | 1,220 | 1,490 | 1,310 | 3,300 | 4,920 | 4,070 | 1,680 | 1,350 | 1,220 | 1,110 | 1,110 |
| 28 | 1,220 | 1,220 | 1,490 | 1,310 | 3,020 | 5,470 | 3,990 | 1,490 | 1,490 | 1,180 | 1,110 | 1,110 |
| 29 | 1,180 | 1,180 | 1,490 | 1,310 | ----- | 5,850 | 3,680 | 1,490 | 1,350 | 1,180 | 1,110 | 1,140 |
| 30 | 1,180 | 1,180 | 1,440 | 1,310 | ----- | 6,870 | 3,160 | 1,530 | 1,220 | 1,180 | 1,070 | 1,110 |
| 31 | 1,140 | ----- | 1,400 | 1,350 | ----- | 7,520 | ----- | 1,680 | ----- | 1,180 | 1,030 | ----- |

| Month | Maximum | Minimum | Mean | Run-off in acre-feet |
|-----------|---------|---------|-------|-------------------------|
| October | 1,400 | 1,030 | 1,160 | 71,600 |
| November | 1,270 | 1,110 | 1,180 | 70,000 |
| December | 1,490 | 1,140 | 1,310 | 80,800 |
| January | 1,530 | 1,180 | 1,330 | 81,900 |
| February | 5,280 | 1,350 | 2,870 | 159,000 |
| March | 7,520 | 1,530 | 2,800 | 172,000 |
| April | 7,080 | 2,480 | 4,110 | 244,000 |
| May | 2,540 | 1,310 | 1,830 | 112,000 |
| June | 1,780 | 1,110 | 1,360 | 80,900 |
| July | 1,310 | 1,030 | 1,160 | 71,400 |
| August | 1,180 | 1,030 | 1,110 | 68,400 |
| September | 1,310 | 1,030 | 1,140 | 67,900 |
| The year | 7,520 | 1,030 | 1,770 | 1,280,000 |

KACHESS RIVER NEAR EASTON, WASH.

LOCATION.—Water-stage recorder in sec. 3, T. 20 N., R. 13 E., three-fourths mile below Kachess Lake and 2 miles northwest of Easton.

DRAINAGE AREA.—64 square miles.

RECORDS AVAILABLE.—November, 1903, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,940 second-feet July 16 (gage height, 6.32 feet); practically no flow when gates in dam are closed.

1903-1930: Maximum discharge, 2,240 second-feet (computed from gate opening) Aug. 27, 1920; practically no flow when gates in dam are closed.

REMARKS.—Records excellent except those for extremely low flow. Leakage, when gates are closed, based on current-meter measurements. No diversions. Flow regulated by Kachess Lake Reservoir. Complete records furnished by United States Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-------|-------|-------|-------|-------|
| 1 | 60 | 1 | 1 | 1 | 1 | 2 | 6 | 2 | 1 | 1,860 | 1,090 | 155 |
| 2 | 193 | 1 | 1 | 1 | 1 | 2 | 6 | 2 | 126 | 1,930 | 1,090 | 188 |
| 3 | 329 | 1 | 1 | 1 | 1 | 2 | 6 | 2 | 332 | 1,930 | 1,090 | 223 |
| 4 | 440 | 1 | 1 | 1 | 1 | 2 | 6 | 2 | 485 | 1,930 | 1,090 | 284 |
| 5 | 481 | 1 | 1 | 1 | 2 | 2 | 5 | 2 | 525 | 1,930 | 1,090 | 332 |
| 6 | 324 | 1 | 1 | 1 | 2 | 2 | 5 | 2 | 525 | 1,930 | 1,090 | 388 |
| 7 | 7 | 1 | 1 | 1 | 2 | 2 | 5 | 2 | 283 | 1,930 | 1,090 | 428 |
| 8 | 266 | 1 | 1 | 1 | 2 | 2 | 5 | 2 | 61 | 1,930 | 1,090 | 466 |
| 9 | 408 | 1 | 1 | 1 | 1 | 3 | 5 | 555 | 1 | 1,930 | 1,090 | 482 |
| 10 | 848 | 1 | 1 | 1 | 1 | 3 | 4 | 1,170 | 1 | 1,930 | 1,090 | 482 |
| 11 | 978 | 1 | 1 | 1 | 2 | 3 | 4 | 1,540 | 1 | 1,930 | 1,090 | 482 |
| 12 | 758 | 1 | 1 | 1 | 2 | 2 | 4 | 740 | 122 | 1,930 | 1,090 | 482 |
| 13 | 462 | 1 | 1 | 1 | 1 | 2 | 4 | 589 | 355 | 1,930 | 1,090 | 482 |
| 14 | 422 | 1 | 1 | 1 | 1 | 2 | 4 | 240 | 670 | 1,930 | 1,090 | 482 |
| 15 | 462 | 1 | 1 | 1 | 1 | 2 | 4 | 1 | 799 | 1,930 | 1,090 | 482 |
| 16 | 519 | 1 | 1 | 1 | 2 | 2 | 4 | 1 | 415 | 1,930 | 1,090 | 482 |
| 17 | 519 | 1 | 1 | 1 | 2 | 2 | 3 | 1 | 103 | 1,930 | 1,090 | 509 |
| 18 | 500 | 1 | 1 | 1 | 2 | 2 | 3 | 1 | 103 | 1,550 | 1,090 | 569 |
| 19 | 401 | 1 | 1 | 1 | 2 | 2 | 3 | 1 | 103 | 898 | 1,090 | 629 |
| 20 | 104 | 1 | 1 | 1 | 2 | 2 | 3 | 1 | 272 | 898 | 978 | 650 |
| 21 | 93 | 1 | 1 | 1 | 2 | 2 | 3 | 1 | 529 | 836 | 447 | 670 |
| 22 | 125 | 1 | 1 | 1 | 3 | 3 | 2 | 1 | 629 | 823 | 134 | 650 |
| 23 | 84 | 1 | 1 | 1 | 4 | 4 | 2 | 119 | 847 | 872 | 134 | 629 |
| 24 | 34 | 1 | 1 | 1 | 3 | 3 | 2 | 406 | 1,230 | 1,000 | 134 | 670 |
| 25 | 73 | 1 | 1 | 1 | 3 | 4 | 2 | 406 | 1,670 | 1,090 | 134 | 690 |
| 26 | 73 | 1 | 1 | 1 | 3 | 5 | 2 | 406 | 1,800 | 1,090 | 134 | 711 |
| 27 | 73 | 1 | 1 | 1 | 2 | 5 | 2 | 462 | 1,760 | 1,090 | 134 | 711 |
| 28 | 73 | 1 | 1 | 1 | 2 | 5 | 2 | 529 | 1,740 | 1,090 | 134 | 711 |
| 29 | 25 | 1 | 1 | 1 | ----- | 6 | 2 | 447 | 1,740 | 1,090 | 134 | 589 |
| 30 | 1 | 1 | 1 | 1 | ----- | 6 | 2 | 406 | 1,740 | 1,090 | 134 | 440 |
| 31 | 1 | ----- | 1 | 1 | ----- | 6 | ----- | 161 | ----- | 1,090 | 134 | ----- |

| Month | Observed | | | | Gain or loss in storage in Lake Kachess (acre-feet) | Corrected for storage | | | |
|----------------|--------------------------|--------------|--------|----------------------------|--|----------------------------|-----------------------------|-----------------------|-------------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run-off in acre-feet | Discharge in second-feet | | Run-off in inches |
| | Maxi- mum | Mini- mum | Mean | | | | Mean | Per square mile | |
| October..... | 978 | 1 | 288 | 17, 700 | -16, 800 | 900 | 14. 6 | 0. 228 | 0. 26 |
| November..... | 1 | 1 | 1. 00 | 59. 5 | +1, 300 | 1, 360 | 22. 9 | . 358 | . 40 |
| December..... | 1 | 1 | 1. 00 | 61. 5 | +6, 450 | 6, 510 | 106 | 1. 66 | 1. 91 |
| January..... | 1 | 1 | 1. 00 | 61. 5 | +3, 590 | 3, 650 | 59. 4 | . 928 | 1. 07 |
| February..... | 4 | 1 | 1. 89 | 105 | +19, 600 | 19, 700 | 355 | 5. 55 | 5. 78 |
| March..... | 6 | 2 | 2. 97 | 182 | +18, 900 | 19, 100 | 311 | 4. 86 | 5. 60 |
| April..... | 6 | 2 | 3. 67 | 218 | +34, 300 | 34, 500 | 580 | 9. 06 | 10. 11 |
| May..... | 1, 540 | 1 | 265 | 16, 300 | +7, 690 | 24, 000 | 390 | 6. 09 | 7. 02 |
| June..... | 1, 800 | 1 | 633 | 37, 600 | -22, 500 | 15, 100 | 254 | 3. 97 | 4. 43 |
| July..... | 1, 930 | 823 | 1, 520 | 93, 700 | -88, 800 | 4, 900 | 79. 7 | 1. 25 | 1. 44 |
| August..... | 1, 090 | 134 | 757 | 46, 600 | -46, 200 | 400 | 6. 51 | . 102 | . 12 |
| September..... | 711 | 155 | 505 | 30, 000 | -28, 900 | 1, 100 | 18. 5 | . 289 | . 32 |
| The year..... | 1, 930 | 1 | 335 | 243, 000 | -111, 000 | 131, 000 | 181 | 2. 83 | 38. 45 |

CLE ELUM RIVER NEAR ROSLYN, WASH.

LOCATION.—Water-stage recorder in sec. 10, T. 20 N., R. 14 E., below Cle Elum Lake, 4 miles northwest of Roslyn.

DRAINAGE AREA.—202 square miles.

RECORDS AVAILABLE.—October, 1903, to September, 1930.

EXTREMES.—Maximum discharge during year, 3,010 second-feet Apr. 23 (gage height, 5.77 feet); minimum, 11 second-feet Oct. 15 (gage height, 0.08 foot).
1903-1930: Maximum discharge, 18,700 second-feet Nov. 15, 1916 (gage height, 14.05 feet); practically no flow Sept. 28, 1914.

REMARKS.—Records excellent. No diversions above station. Flow partly controlled by storage and release of water at Cle Elum Lake Reservoir. Complete records furnished by United States Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 15 | 12 | 12 | 115 | 144 | 494 | 2,000 | 1,490 | 1,210 | 726 | 526 | 169 |
| 2 | 15 | 12 | 12 | 198 | 181 | 463 | 1,840 | 1,610 | 1,150 | 699 | 526 | 164 |
| 3 | 14 | 12 | 12 | 188 | 231 | 425 | 1,720 | 1,720 | 1,090 | 647 | 526 | 162 |
| 4 | 14 | 12 | 12 | 186 | 275 | 381 | 1,610 | 1,640 | 1,000 | 607 | 526 | 155 |
| 5 | 13 | 12 | 12 | 183 | 377 | 370 | 1,420 | 1,490 | 974 | 587 | 526 | 161 |
| 6 | 13 | 12 | 12 | 174 | 578 | 344 | 1,350 | 1,380 | 1,060 | 583 | 531 | 146 |
| 7 | 13 | 12 | 12 | 169 | 726 | 326 | 1,450 | 1,280 | 1,310 | 587 | 521 | 142 |
| 8 | 13 | 12 | 12 | 157 | 647 | 312 | 1,760 | 1,150 | 1,450 | 587 | 535 | 136 |
| 9 | 13 | 12 | 12 | 138 | 559 | 305 | 1,920 | 1,090 | 1,420 | 568 | 535 | 130 |
| 10 | 13 | 12 | 12 | 120 | 521 | 298 | 1,800 | 1,030 | 1,380 | 563 | 526 | 134 |
| 11 | 13 | 12 | 12 | 108 | 442 | 305 | 1,610 | 1,060 | 1,350 | 587 | 526 | 136 |
| 12 | 13 | 12 | 12 | 97 | 430 | 312 | 1,530 | 1,120 | 1,280 | 597 | 521 | 132 |
| 13 | 13 | 12 | 13 | 92 | 434 | 326 | 1,640 | 1,310 | 1,180 | 612 | 521 | 130 |
| 14 | 13 | 12 | 12 | 87 | 409 | 340 | 1,880 | 1,570 | 1,030 | 617 | 521 | 128 |
| 15 | 13 | 12 | 13 | 90 | 377 | 340 | 1,960 | 1,840 | 917 | 607 | 526 | 128 |
| 16 | 13 | 12 | 14 | 90 | 401 | 344 | 1,920 | 2,130 | 917 | 563 | 512 | 136 |
| 17 | 13 | 12 | 13 | 87 | 459 | 344 | 1,800 | 2,180 | 946 | 535 | 463 | 140 |
| 18 | 13 | 12 | 14 | 84 | 573 | 370 | 1,680 | 1,920 | 861 | 526 | 417 | 140 |
| 19 | 12 | 12 | 14 | 87 | 834 | 409 | 1,570 | 1,640 | 806 | 512 | 381 | 138 |
| 20 | 12 | 12 | 14 | 84 | 1,450 | 438 | 1,570 | 1,570 | 806 | 499 | 351 | 138 |
| 21 | 12 | 12 | 14 | 81 | 1,490 | 583 | 1,800 | 1,610 | 834 | 512 | 319 | 134 |
| 22 | 12 | 12 | 15 | 80 | 1,310 | 752 | 2,510 | 1,530 | 861 | 521 | 298 | 128 |
| 23 | 12 | 12 | 14 | 76 | 1,030 | 779 | 2,930 | 1,350 | 861 | 517 | 275 | 126 |
| 24 | 12 | 12 | 14 | 75 | 917 | 861 | 2,820 | 1,250 | 806 | 535 | 254 | 124 |
| 25 | 12 | 12 | 14 | 72 | 779 | 946 | 2,610 | 1,180 | 806 | 526 | 239 | 122 |
| 26 | 12 | 12 | 14 | 75 | 673 | 1,180 | 2,410 | 1,090 | 806 | 521 | 220 | 118 |
| 27 | 12 | 12 | 14 | 76 | 602 | 1,420 | 2,310 | 1,060 | 806 | 526 | 211 | 117 |
| 28 | 12 | 12 | 14 | 76 | 535 | 1,610 | 2,130 | 1,060 | 806 | 526 | 198 | 115 |
| 29 | 12 | 12 | 16 | 90 | ----- | 2,060 | 1,840 | 1,120 | 779 | 512 | 188 | 116 |
| 30 | 12 | 12 | 45 | 92 | ----- | 2,180 | 1,610 | 1,210 | 779 | 517 | 181 | 111 |
| 31 | 12 | ----- | 72 | 97 | ----- | 2,130 | ----- | 1,250 | ----- | 535 | 176 | ----- |

| Month | Observed | | | | Gain or loss in storage in Cle Elum Lake (acre- feet) | Corrected for storage | | | |
|----------------|--------------------------|--------------|-------|----------------------------|---|----------------------------|-----------------------------|-----------------------|-------------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run-off in acre-feet | Discharge in second-feet | | Run-off in inches |
| | Maxi- mum | Mini- mum | Mean | | | | Mean | Per square mi/e | |
| October..... | 15 | 12 | 12.8 | 785 | +5,600 | 6,380 | 104 | 0.515 | 0.59 |
| November..... | 12 | 12 | 12.0 | 714 | +4,300 | 5,010 | 84.2 | .417 | .47 |
| December..... | 72 | 12 | 16.0 | 986 | +8,510 | 9,500 | 154 | .762 | .88 |
| January..... | 198 | 72 | 110 | 6,790 | -90 | 6,700 | 109 | .540 | .62 |
| February..... | 1,490 | 144 | 621 | 34,500 | +1,290 | 35,800 | 645 | 3.1^ | 3.32 |
| March..... | 2,180 | 298 | 701 | 43,100 | +2,920 | 46,000 | 748 | 3.7^ | 4.27 |
| April..... | 2,930 | 1,350 | 1,900 | 113,000 | -773 | 112,000 | 1,880 | 9.31 | 10.39 |
| May..... | 2,180 | 1,030 | 1,420 | 87,100 | -721 | 86,400 | 1,410 | 6.98 | 8.05 |
| June..... | 1,450 | 779 | 1,010 | 60,100 | -971 | 59,100 | 993 | 4.62 | 5.49 |
| July..... | 726 | 499 | 566 | 34,800 | -5,440 | 29,400 | 478 | 2.37 | 2.73 |
| August..... | 535 | 176 | 406 | 24,900 | -13,900 | 11,000 | 179 | .898 | 1.02 |
| September..... | 169 | 111 | 135 | 8,020 | -1,180 | 6,840 | 115 | .599 | .63 |
| The year..... | 2,930 | 12 | 573 | 415,000 | -455 | 414,000 | 572 | 2.8^ | 38.46 |

BUMPING RIVER NEAR NILE, WASH.

LOCATION.—Water-stage recorder one-fourth mile below spillway of Bumping Lake Dam and 19 miles west of Nile.

DRAINAGE AREA.—68 square miles.

RECORDS AVAILABLE.—June to July, 1906; April, 1909, to September, 1930.

EXTREMES.—Maximum discharge during year, 890 second-feet May 21 (gage height, 3.99 feet); minimum, 2 second-feet Oct. 1, 2, 4.

1906, 1909–1930: Maximum discharge, 5,180 second-feet Dec. 29, 1917 (gage height, 9.33 feet); practically no flow when gates in outlet conduit are closed.

REMARKS.—Records good. No diversions above stations. Flow partly controlled by storage and release of water at Bumping Lake Reservoir. Complete records furnished by United States Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1927–30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-----|-------|------|------|-------|
| 1 | 2 | 30 | 19 | 140 | 54 | 8 | 17 | 484 | 415 | 221 | 71 | 438 |
| 2 | 2 | 30 | 19 | 140 | 59 | 8 | 18 | 557 | 415 | 221 | 74 | 438 |
| 3 | 3 | 30 | 18 | 140 | 64 | 7 | 19 | 582 | 415 | 191 | 74 | 438 |
| 4 | 2 | 29 | 18 | 140 | 74 | 7 | 19 | 532 | 415 | 180 | 74 | 438 |
| 5 | 3 | 29 | 18 | 140 | 83 | 7 | 19 | 484 | 415 | 178 | 86 | 438 |
| 6 | 3 | 29 | 18 | 140 | 93 | 7 | 19 | 438 | 415 | 178 | 100 | 438 |
| 7 | 3 | 29 | 18 | 140 | 108 | 7 | 22 | 484 | 415 | 178 | 100 | 438 |
| 8 | 4 | 29 | 18 | 138 | 117 | 7 | 24 | 508 | 415 | 178 | 102 | 438 |
| 9 | 4 | 28 | 19 | 132 | 125 | 7 | 24 | 371 | 532 | 178 | 273 | 415 |
| 10 | 4 | 24 | 21 | 123 | 132 | 7 | 24 | 329 | 608 | 178 | 438 | 415 |
| 11 | 4 | 24 | 21 | 121 | 136 | 7 | 24 | 164 | 608 | 124 | 438 | 415 |
| 12 | 4 | 24 | 22 | 117 | 136 | 7 | 25 | 30 | 608 | 82 | 438 | 371 |
| 13 | 4 | 24 | 23 | 113 | 56 | 7 | 27 | 41 | 608 | 82 | 438 | 329 |
| 14 | 4 | 24 | 26 | 110 | 56 | 7 | 30 | 51 | 608 | 59 | 438 | 290 |
| 15 | 12 | 23 | 26 | 108 | 58 | 7 | 30 | 220 | 608 | 46 | 438 | 254 |
| 16 | 24 | 19 | 26 | 93 | 59 | 7 | 30 | 393 | 608 | 46 | 438 | 221 |
| 17 | 25 | 19 | 25 | 82 | 59 | 7 | 30 | 557 | 608 | 45 | 438 | 186 |
| 18 | 26 | 19 | 22 | 80 | 13 | 7 | 31 | 608 | 608 | 45 | 438 | 167 |
| 19 | 26 | 19 | 20 | 78 | 15 | 7 | 123 | 608 | 608 | 45 | 438 | 125 |
| 20 | 26 | 19 | 19 | 77 | 16 | 8 | 310 | 661 | 771 | 45 | 438 | 100 |
| 21 | 26 | 19 | 19 | 74 | 14 | 8 | 461 | 771 | 771 | 45 | 438 | 82 |
| 22 | 29 | 19 | 19 | 72 | 12 | 8 | 634 | 715 | 771 | 44 | 438 | 69 |
| 23 | 29 | 19 | 32 | 68 | 11 | 9 | 715 | 582 | 771 | 44 | 438 | 58 |
| 24 | 29 | 19 | 121 | 62 | 10 | 10 | 715 | 461 | 634 | 45 | 438 | 51 |
| 25 | 30 | 19 | 132 | 56 | 10 | 11 | 688 | 461 | 557 | 59 | 438 | 47 |
| 26 | 30 | 19 | 132 | 53 | 9 | 10 | 688 | 532 | 415 | 72 | 438 | 45 |
| 27 | 30 | 19 | 130 | 51 | 9 | 11 | 688 | 661 | 129 | 72 | 438 | 42 |
| 28 | 30 | 19 | 123 | 48 | 9 | 12 | 661 | 661 | 16 | 72 | 438 | 40 |
| 29 | 30 | 19 | 121 | 52 | ----- | 15 | 557 | 661 | 15 | 72 | 438 | 38 |
| 30 | 30 | 19 | 125 | 52 | ----- | 16 | 508 | 508 | 142 | 72 | 438 | 36 |
| 31 | 30 | ----- | 138 | 52 | ----- | 17 | ----- | 415 | ----- | 72 | 438 | ----- |

| Month | Observed | | | | Gain or loss in storage in Bumping Lake (acre-feet) | Corrected for storage | | | |
|----------------|--------------------------|--------------|------|----------------------------|---|----------------------------|-----------------------------|-----------------------|-------------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run-off in acre-feet | Discharge in second-feet | | Run-off in inches |
| | Maxi- mum | Mini- mum | Mean | | | | Mean | Per square mile | |
| October..... | 30 | 2 | 16.4 | 1,010 | +979 | 1,990 | 32.4 | 0.476 | 0.55 |
| November..... | 30 | 19 | 23.0 | 1,370 | +54 | 1,420 | 23.9 | .351 | .39 |
| December..... | 138 | 18 | 48.6 | 2,990 | +988 | 3,980 | 64.7 | .951 | 1.10 |
| January..... | 140 | 48 | 96.5 | 5,930 | -3,080 | 2,850 | 46.4 | .682 | .79 |
| February..... | 136 | 9 | 57.0 | 3,170 | +10,100 | 13,300 | 239 | 3.51 | 3.66 |
| March..... | 17 | 7 | 8.71 | 536 | +7,730 | 8,270 | 134 | 1.97 | 2.27 |
| April..... | 715 | 17 | 239 | 14,200 | +14,500 | 28,700 | 482 | 7.09 | 7.91 |
| May..... | 771 | 30 | 469 | 28,800 | +2,050 | 30,800 | 501 | 7.37 | 8.50 |
| June..... | 771 | 15 | 500 | 29,800 | -5,720 | 24,100 | 405 | 5.96 | 6.65 |
| July..... | 221 | 44 | 102 | 6,290 | +495 | 6,780 | 110 | 1.62 | 1.87 |
| August..... | 438 | 71 | 342 | 21,000 | -16,900 | 4,100 | 66.7 | .981 | 1.13 |
| September..... | 438 | 36 | 243 | 14,500 | -12,400 | 2,100 | 35.3 | .519 | .58 |
| The year..... | 771 | 2 | 179 | 130,000 | -1,200 | 128,000 | 177 | 2.60 | 35.40 |

TETTON RIVER AT TETTON DAM, NEAR NACHES, WASH.

LOCATION.—Water-stage recorder 100 feet above Wild Cat Creek, 2,000 feet below Tieton Dam, and 22 miles southwest of Naches.

DRAINAGE AREA.—187 square miles.

RECORDS AVAILABLE.—August, 1908, to September, 1914 (fragmentary); October, 1918, to March, 1919; April, 1925, to September, 1930.

EXTREMES.—Maximum discharge during year, 2,060 second-feet Sept. 1 (gage height, 5.22 feet); no flow Apr. 4-6, 10.

1908-1914, 1918-19, 1925-1930: Maximum discharge, 4,380 second-feet June 1, 1928 (gage height, 7.8 feet); no flow Apr. 4-6, 10, 1930.

Gage height, 9.5 feet (present datum) Dec. 18, 19, 1917 (discharge 8,400 second-feet), reported by Bureau of Reclamation engineers.

REMARKS.—Records excellent except those for estimated periods. No diversions. Flow regulated by storage and release of water at Tieton Reservoir. Complete records furnished by United States Bureau of Reclamation.

Daily discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|-----|------|-------|------|------|-------|------|-------|-----|-------|------|-------|-------|
| 1 | 261 | 130 | 128 | * 9 | 74 | 6 | 3 | 256 | 290 | 337 | 997 | 1,960 |
| 2 | 261 | 130 | 106 | * 9 | 8 | 6 | 3 | 246 | 290 | 376 | 1,000 | 2,010 |
| 3 | 313 | 130 | 98 | 9 | 6 | 6 | 2 | 259 | 276 | 393 | 1,020 | 1,860 |
| 4 | 345 | 130 | 95 | 9 | 7 | 6 | 0 | 266 | 280 | 368 | 1,010 | 1,910 |
| 5 | 345 | 130 | 93 | 9 | 19 | 6 | 0 | 270 | 273 | 410 | 1,000 | 1,910 |
| 6 | 345 | 130 | 97 | 39 | 7 | 5 | 0 | 263 | 273 | 424 | 1,030 | 1,860 |
| 7 | 518 | 130 | 98 | 78 | 6 | 5 | 4 | 270 | 273 | 466 | 1,090 | 1,760 |
| 8 | 590 | 130 | 104 | 86 | 6 | 5 | 5 | 266 | 270 | 521 | 1,090 | 1,670 |
| 9 | 440 | 130 | 106 | 86 | 6 | 5 | 2 | 476 | 276 | 643 | 1,090 | 1,410 |
| 10 | 353 | 130 | 106 | 86 | 6 | 5 | 0 | 569 | 273 | 749 | 1,090 | 973 |
| 11 | 316 | 130 | 106 | 86 | 6 | 5 | 1 | 337 | 273 | 810 | 1,090 | 776 |
| 12 | 283 | 130 | 106 | 86 | 5 | 6 | 2 | 280 | 353 | 797 | 1,040 | 637 |
| 13 | 246 | 130 | 106 | 86 | 6 | 6 | 21 | 287 | 471 | 733 | 1,020 | 569 |
| 14 | 227 | 130 | 111 | 86 | 5 | 5 | 18 | 290 | 558 | 733 | 1,020 | 542 |
| 15 | 202 | 130 | 115 | 86 | * 6 | 5 | 28 | 298 | 569 | 817 | 1,020 | 542 |
| 16 | 146 | 130 | 79 | 86 | * 8 | 5 | 30 | 280 | 564 | 875 | 981 | 553 |
| 17 | 120 | 86 | 46 | 86 | * 8 | 5 | 56 | 273 | 939 | 889 | 1,000 | 516 |
| 18 | 120 | 128 | 77 | 86 | * 9 | 6 | 69 | 266 | 1,130 | 882 | 1,030 | 553 |
| 19 | 126 | 122 | 88 | 86 | * 10 | 6 | 87 | 290 | 1,210 | 803 | 1,010 | 655 |
| 20 | 128 | 122 | 111 | 86 | * 10 | 6 | 115 | 280 | 1,210 | 749 | 1,020 | 667 |
| 21 | 128 | 122 | 111 | 86 | * 8 | 7 | 145 | 276 | 1,130 | 749 | 1,040 | 608 |
| 22 | 130 | 150 | 111 | 86 | * 7 | 8 | 162 | 276 | 1,130 | 817 | 1,480 | 496 |
| 23 | 130 | 169 | 117 | 86 | * 6 | 6 | 162 | 370 | 889 | 927 | 1,670 | 501 |
| 24 | 130 | 171 | 85 | 86 | 6 | 8 | 177 | 569 | 776 | 927 | 1,670 | 558 |
| 25 | 130 | 171 | 12 | 86 | 6 | 17 | 199 | 405 | 763 | 927 | 1,720 | 603 |
| 26 | 132 | 171 | 11 | 86 | 6 | 16 | 212 | 284 | 457 | 927 | 1,750 | 603 |
| 27 | 130 | 171 | 11 | 86 | 6 | 14 | 209 | 284 | 290 | 965 | 1,760 | 603 |
| 28 | 130 | 171 | 11 | 86 | 6 | 17 | 232 | 280 | 287 | 965 | 1,760 | 569 |
| 29 | 130 | 171 | 9 | 86 | ----- | 12 | 242 | 290 | 374 | 965 | 1,810 | 548 |
| 30 | 130 | 171 | 9 | 86 | ----- | 6 | 333 | 280 | 443 | 965 | 1,910 | 496 |
| 31 | 130 | ----- | 9 | 86 | ----- | 4 | ----- | 276 | ----- | 981 | 1,960 | ----- |

* Estimated.

Monthly discharge of Tieton River at Tieton Dam, near Naches, Wash., 1929-30.

| Month | Observed | | | | Gain or loss in storage in Tieton Reservoir (acre-feet) | Corrected for storage | | | |
|----------------|--------------------------|--------------|--------|----------------------------|--|----------------------------|-----------------------------|-----------------------|-------------------------|
| | Discharge in second-feet | | | Run-off in acre-feet | | Run-off in acre-feet | Discharge in second-feet | | Run-off in inches |
| | Maxi- mum | Mini- mum | Mean | | | | Mean | Per square mile | |
| October..... | 590 | 120 | 230 | 14, 100 | -6, 110 | 7, 990 | 130 | 0. 695 | 0. 80 |
| November..... | 171 | 86 | 139 | 8, 280 | -5, 530 | 2, 750 | 46. 2 | . 247 | . 28 |
| December..... | 128 | 9 | 80. 2 | 4, 930 | +6, 060 | 11, 000 | 179 | . 957 | 1. 10 |
| January..... | 89 | 9 | 71. 9 | 4, 420 | +3, 750 | 8, 170 | 133 | . 711 | . 82 |
| February..... | 74 | 5 | 9. 61 | 534 | +20, 900 | 21, 400 | 385 | 2. 06 | 2. 14 |
| March..... | 17 | 4 | 7. 26 | 446 | +21, 100 | 21, 500 | 350 | 1. 87 | 2. 16 |
| April..... | 333 | 0 | 84. 0 | 5, 000 | +39, 500 | 44, 500 | 748 | 4. 00 | 4. 46 |
| May..... | 569 | 246 | 310 | 19, 100 | +23, 500 | 42, 600 | 693 | 3. 71 | 4. 28 |
| June..... | 1, 210 | 270 | 553 | 32, 900 | +5, 190 | 38, 100 | 640 | 3. 42 | 3. 82 |
| July..... | 981 | 337 | 743 | 45, 700 | -19, 400 | 26, 300 | 428 | 2. 29 | 2. 64 |
| August..... | 1, 960 | 981 | 1, 260 | 77, 700 | -55, 500 | 22, 200 | 361 | 1. 93 | 2. 22 |
| September..... | 2, 010 | 496 | 964 | 57, 400 | -44, 200 | 13, 200 | 222 | 1. 19 | 1. 33 |
| The year..... | 2, 010 | 0 | 374 | 270, 000 | -10, 700 | 260, 000 | 359 | 1. 92 | 26. 05 |

TETON RIVER AT HEADWORKS OF TETON CANAL, NEAR NACHES, WASH.

LOCATION.—Water-stage recorder in sec. 30, T. 14 N., R. 15 E. (unsurveyed), below intake of Teton Canal 16 miles southwest of Naches.

DRAINAGE AREA.—240 square miles.

RECORDS AVAILABLE.—April to September, 1906 (fragmentary gage-height record); July, 1907, to September, 1930.

EXTREMES.—Maximum discharge during year, 1,810 second-feet Sept. 1 (gage height, 5.0 feet); minimum, 1 second-foot Feb. 25, 26 (gage height, 1.40 feet). 1907-1930: Maximum discharge, 6,150 second-feet Dec. 13, 1921 (gage height, 8.15 feet); no flow Mar. 27, 28, Nov. 25-28, 1926, Apr. 9, 1929.

REMARKS.—Records excellent except those for Dec. 14 to Feb. 4, which were estimated and are fair. Diversions by Teton Canal included in monthly-discharge table. Flow regulated by Teton Reservoir, 7 miles above gage. Complete records furnished by United States Bureau of Reclamation.

Daily and monthly discharge, in second-feet, 1929-30

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------|------|-------|------|------|-------|------|-------|-----|-------|------|-------|-------|
| 1..... | 27 | 3 | 112 | 11 | 75 | 34 | 69 | 29 | 17 | 61 | 678 | 1,770 |
| 2..... | 27 | 8 | 107 | 11 | 10 | 31 | 58 | 11 | 24 | 77 | 685 | 1,770 |
| 3..... | 117 | 18 | 102 | 11 | 7 | 29 | 40 | 15 | 7 | 102 | 692 | 1,600 |
| 4..... | 362 | 17 | 98 | 11 | 25 | 28 | 24 | 30 | 23 | 108 | 699 | 1,600 |
| 5..... | 362 | 16 | 95 | 11 | 37 | 30 | 12 | 24 | 22 | 118 | 699 | 1,660 |
| 6..... | 372 | 16 | 95 | 40 | 25 | 29 | 16 | 16 | 14 | 131 | 706 | 1,660 |
| 7..... | 515 | 16 | 98 | 80 | 24 | 30 | 30 | 14 | 13 | 176 | 762 | 1,540 |
| 8..... | 632 | 16 | 98 | 88 | 24 | 31 | 35 | 7 | 6 | 233 | 770 | 1,440 |
| 9..... | 490 | 37 | 100 | 88 | 29 | 31 | 21 | 168 | 13 | 384 | 770 | 1,120 |
| 10..... | 382 | 80 | 110 | 88 | 27 | 33 | 11 | 278 | 6 | 461 | 770 | 640 |
| 11..... | 337 | 110 | 107 | 88 | 25 | 41 | 8 | 84 | 12 | 500 | 762 | 508 |
| 12..... | 309 | 112 | 105 | 88 | 22 | 54 | 4 | 16 | 80 | 500 | 741 | 375 |
| 13..... | 264 | 115 | 102 | 88 | 18 | 46 | 25 | 21 | 198 | 494 | 727 | 318 |
| 14..... | 247 | 115 | 112 | 88 | 21 | 40 | 32 | 28 | 277 | 500 | 727 | 293 |
| 15..... | 218 | 118 | 116 | 88 | 26 | 34 | 21 | 30 | 301 | 527 | 720 | 285 |
| 16..... | 163 | 118 | 80 | 88 | 60 | 30 | 6 | 21 | 301 | 566 | 685 | 293 |
| 17..... | 120 | 126 | 47 | 88 | 47 | 36 | 4 | 9 | 611 | 572 | 685 | 265 |
| 18..... | 120 | 129 | 78 | 88 | 51 | 42 | 6 | 13 | 830 | 578 | 713 | 269 |
| 19..... | 120 | 110 | 89 | 88 | 62 | 49 | 2 | 18 | 902 | 505 | 696 | 375 |
| 20..... | 126 | 100 | 112 | 88 | 93 | 53 | 6 | 18 | 934 | 450 | 699 | 390 |
| 21..... | 126 | 100 | 112 | 88 | 50 | 66 | 15 | 14 | 838 | 445 | 706 | 336 |
| 22..... | 126 | 107 | 112 | 88 | 31 | 74 | 27 | 13 | 830 | 488 | 1,180 | 245 |
| 23..... | 126 | 105 | 118 | 88 | 20 | 63 | 7 | 76 | 682 | 596 | 1,440 | 257 |
| 24..... | 126 | 102 | 86 | 88 | 3 | 74 | 6 | 281 | 478 | 608 | 1,440 | 346 |
| 25..... | 126 | 102 | 14 | 88 | 1 | 115 | 13 | 153 | 472 | 620 | 1,490 | 395 |
| 26..... | 126 | 100 | 13 | 88 | 11 | 120 | 18 | 15 | 218 | 620 | 1,540 | 415 |
| 27..... | 129 | 98 | 13 | 88 | 39 | 115 | 4 | 14 | 23 | 640 | 1,540 | 420 |
| 28..... | 102 | 95 | 12 | 88 | 35 | 125 | 10 | 11 | 21 | 652 | 1,490 | 390 |
| 29..... | 8 | 93 | 11 | 88 | ----- | 125 | 11 | 19 | 83 | 652 | 1,540 | 375 |
| 30..... | 14 | 93 | 11 | 88 | ----- | 90 | 85 | 16 | 170 | 646 | 1,710 | 380 |
| 31..... | 10 | ----- | 11 | 90 | ----- | 74 | ----- | 9 | ----- | 652 | 1,710 | ----- |

| Month | Observed | | | | Gain or loss in storage in Tieton Reser- voir (acre- feet) | Diverted by Tieton Canal (acre- feet) | Corrected for storage and diversions | | | |
|----------------|-----------------------------|--------------|------|-----------------------------|--|--|---|-----------------------------|-----------------------|-------------------------|
| | Discharge in second-feet | | | Run-off in acre- feet | | | Run-off in acre- feet | Discharge in second-feet | | Run-off in inches |
| | Max- imum | Min- imum | Mean | | | | | Mean | Per square mile | |
| October..... | 632 | 8 | 204 | 12,600 | -6,110 | 2,320 | 8,810 | 143 | 0.596 | 0.69 |
| November..... | 129 | 3 | 79.2 | 4,710 | -5,530 | 3,640 | 2,820 | 47.4 | .198 | .22 |
| December..... | 118 | 11 | 79.9 | 4,910 | +6,060 | 58 | 11,000 | 179 | .746 | .86 |
| January..... | 90 | 11 | 73.8 | 4,540 | +3,750 | ----- | 8,290 | 135 | .562 | .65 |
| February..... | 93 | 1 | 32.1 | 1,780 | +20,900 | 510 | 23,200 | 418 | 1.74 | 1.81 |
| March..... | 125 | 28 | 57.2 | 3,510 | +21,100 | 391 | 25,000 | 407 | 1.70 | 1.96 |
| April..... | 85 | 2 | 20.9 | 1,240 | +39,500 | 8,330 | 49,100 | 825 | 3.44 | 3.84 |
| May..... | 281 | 7 | 47.5 | 2,920 | +23,500 | 18,600 | 45,000 | 732 | 3.05 | 3.52 |
| June..... | 934 | 6 | 279 | 16,600 | +5,190 | 17,800 | 39,600 | 666 | 2.78 | 3.10 |
| July..... | 652 | 61 | 440 | 27,000 | -19,400 | 19,100 | 26,700 | 434 | 1.81 | 2.09 |
| August..... | 1,710 | 678 | 973 | 59,900 | -55,500 | 19,300 | 23,700 | 385 | 1.60 | 1.84 |
| September..... | 1,770 | 245 | 724 | 43,100 | -44,200 | 16,500 | 15,400 | 259 | 1.08 | 1.20 |
| The year.. | 1,770 | 1 | 252 | 183,000 | -10,700 | 107,000 | 279,000 | 385 | 1.60 | 21.78 |

MISCELLANEOUS DISCHARGE MEASUREMENTS

In addition to the records of stream flow obtained at gaging stations and reported in the preceding pages, measurements of flow were made at other points as shown by the following table:

Miscellaneous discharge measurements in Pacific slope basins in Washington and Upper Columbia River Basin during the year ending Sept. 30, 1930

Dosewallips River Basin

| Date | Stream | Tributary to or diverting from— | Locality | Gage height | Discharge |
|--------|---------------------------------|---------------------------------|---|-------------|------------------|
| Nov. 2 | Dosewallips River. ^a | Hood Canal..... | 400 feet below Rocky Brook, near Brinnon, Wash. | Feet | Sec.-ft. 86.5 |

Duckabush River Basin

| | | | | | |
|---------|-------------------------------|-----------------|---|-------|------|
| Oct. 12 | Duckabush River. ^a | Hood Canal..... | 500 feet below fish hatchery, near Duckabush, Wash. | ----- | 86.0 |
|---------|-------------------------------|-----------------|---|-------|------|

Hamma Hamma River Basin

| | | | | | |
|--------|--------------------|-----------------|--|-------|------|
| Nov. 2 | Hamma Hamma River. | Hood Canal..... | 600 feet above lower dam site, about 5 miles above mouth near Eldon, Wash. | ----- | 50.0 |
|--------|--------------------|-----------------|--|-------|------|

Chambers Creek Basin

| | | | | | |
|---------|------------------|------------------|---|-------|------|
| July 18 | Chambers Creek.. | Puget Sound..... | 600 feet above fish trap, near Stellacon, Wash. | ----- | 51.2 |
|---------|------------------|------------------|---|-------|------|

Snohomish River Basin

| | | | | | |
|---------|-------------------|-------------------|---|------|-------|
| Dec. 20 | Snoqualmie River. | Snohomish River.. | Cable bridge three-fourths mile below Snoqualmie Falls, Wash. | 4.22 | 2,170 |
| May 27 | do..... | do..... | do..... | 6.28 | 4,750 |
| 22 | do..... | do..... | do..... | 6.79 | 5,720 |

Stillaguamish River Basin

| | | | | | |
|----------|-----------------|--------------------|---|-------|------|
| June 4 | Lake Creek..... | Pilchuck Creek.... | 1,500 feet below outlet of Cavanaugh Lake near Pilchuck, Wash. | ----- | 22.3 |
| May 16 | do..... | do..... | Half a mile below outlet of Cavanaugh Lake near Pilchuck, Wash. | ----- | 9.0 |
| Aug. 22 | do..... | do..... | do..... | ----- | .3 |
| Sept. 29 | do..... | do..... | do..... | ----- | 10.0 |

Skagit River Basin

| | | | | | |
|---------|-----------------------------|-------------------|---|-------|-------|
| Oct. 15 | Skagit River ^b | Skagit Bay..... | Gaging station 1¼ miles above Ruby Creek, near Marblemount, Wash. | 4.18 | 638 |
| Dec. 5 | do..... | do..... | do..... | 3.60 | 366 |
| Feb. 1 | do..... | do..... | do..... | 3.84 | 500 |
| Apr. 6 | do..... | do..... | do..... | 7.44 | 4,180 |
| May 2 | do..... | do..... | do..... | 7.63 | 4,600 |
| June 11 | do..... | do..... | do..... | 9.26 | 7,750 |
| Sept. 9 | do..... | do..... | do..... | 4.85 | 1,200 |
| Oct. 16 | Ruby Creek ^b | Skagit River..... | Gaging station 1 mile above mouth, near Marblemount, Wash. | 7.06 | 92.6 |
| Dec. 5 | do..... | do..... | do..... | 6.78 | 70.3 |
| Jan. 31 | do..... | do..... | do..... | 6.75 | 59.0 |
| May 1 | do..... | do..... | do..... | 10.00 | 1,020 |
| June 12 | do..... | do..... | do..... | 10.84 | 1,590 |
| Sept. 9 | do..... | do..... | do..... | 7.89 | 269 |
| Oct. 18 | Colonial Creek ^b | Thunder Creek.... | At mouth near Marblemount, Wash. | ----- | 8.7 |
| Dec. 7 | do..... | do..... | do..... | ----- | .7 |

^a Results furnished by city of Tacoma.

^b Results furnished by city of Seattle.

Clark Fork Basin

| | | | | |
|---------|---------------------|-----------------|---------------------------------------|------|
| Oct. 4 | Sullivan Creek..... | Clark Fork..... | At mouth at Metaline Falls, Wash..... | 62.8 |
| Dec. 4 | do..... | do..... | do..... | 82.1 |
| Jan. 19 | do..... | do..... | do..... | 88.9 |
| Apr. 7 | do..... | do..... | do..... | 62.5 |
| May 21 | do..... | do..... | do..... | 246 |
| June 6 | do..... | do..... | do..... | 183 |
| May 28 | do..... | do..... | do..... | 95.7 |
| July 18 | do..... | do..... | do..... | 63.8 |
| Aug. 16 | do..... | do..... | do..... | 48.2 |

Kettle River Basin

| | | | | |
|---------|-----------------|-------------------|----------------------------------|-----|
| Apr. 15 | Deep Creek..... | Kettle River..... | At mouth near Laurier, Wash..... | 4.7 |
|---------|-----------------|-------------------|----------------------------------|-----|

Spokane River Basin

| | | | | | |
|----------|------------------------------------|---------------------|--|-------|-------|
| May 14 | Spokane River..... | Columbia River..... | Gaging station at Liberty Bridge near Spokane, Wash. | 12.27 | 5,040 |
| Sept. 26 | Little Spokane River. ^c | Spokane River..... | 2 miles above gage at Dartford, Wash. | | 81.0 |
| 26 | do ^c | do..... | At mouth, near Spokane, Wash..... | | 358 |

Okanogan River Basin

| | | | | | |
|---------|---------------------------------------|----------------------------------|--|--------|-------|
| June 10 | Similkameen River..... | Okanogan River..... | Former gaging station near Oroville, Wash. | 972.80 | 6,970 |
| Apr. 25 | Sinlahekin Creek..... | Palmer Lake..... | At highway bridge just above Chopaka Creek near Loomis, Wash. | | 8.1 |
| 24 | Palmer Creek..... | Similkameen River..... | At highway bridge half a mile below Palmer Lake Outlet, near Night-hawk, Wash. | | 652 |
| 28 | Oroville-Tonasket Irrig. Dist. Canal. | Left side Similkameen River..... | Former gaging station near Oroville, Wash. | 2.28 | 131 |
| June 10 | do..... | do..... | do..... | 2.72 | 139 |

Chelan River Basin

| | | | | | |
|----------|-----------------------------------|------------------|--|--|------|
| Sept. 12 | Railroad Creek ^c | Lake Chelan..... | Below Holden Creek about 13 miles above mouth, near Lucerne, Wash. | | 29.8 |
| Aug. 8 | Domke Creek ^c | do..... | 600 feet below Domke Lake, near Lucerne, Wash. | | 5.5 |
| Sept. 13 | do ^c | do..... | do..... | | 2.8 |

Wenatchee River Basin

| | | | | | |
|----------|--|--------------------------|--|--|------|
| Oct. 22 | Tailrace Royal Development Co.'s power plant. ^a | Right side Phelps Creek. | 200 feet below mill at plant near Plain, Wash. | | 7.7 |
| Nov. 21 | do ^a | do..... | do..... | | 6.6 |
| Dec. 19 | do ^a | do..... | do..... | | 3.8 |
| Jan. 20 | do ^a | do..... | do..... | | 3.4 |
| Feb. 25 | do ^a | do..... | do..... | | 7.0 |
| Mar. 18 | do ^a | do..... | do..... | | 8.3 |
| Apr. 11 | do ^a | do..... | do..... | | 7.6 |
| May 27 | do..... | do..... | do..... | | 10.8 |
| June 24 | do..... | do..... | do..... | | 11.7 |
| July 16 | do ^a | do..... | do..... | | 12.0 |
| Aug. 1 | do..... | do..... | do..... | | 13.8 |
| Sept. 25 | do ^a | do..... | do..... | | 9.8 |

^c Furnished by Chelan Electric Co.^a Flowing back into lake.^b Furnished by Royal Development Co.

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