

Compilation of Records of Surface Waters of the United States through September 1950

Part 12. Pacific Slope Basins in Washington and Upper Columbia River Basin

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

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1316



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PREFACE

This report contains summaries of streamflow records in the Pacific slope basins in Washington and upper Columbia River basin. It was prepared by the United States Geological Survey in the Water Resources Division, C. G. Paulsen, Chief, under the general direction of J. V. B. Wells, Chief, Surface Water Branch, and B. J. Peterson, Chief, Annual Reports Section.

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COMPILATION OF RECORDS OF SURFACE WATERS OF PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN, THROUGH 1950

PURPOSE AND SCOPE

This volume is one of a series of reports presenting monthly and yearly summaries of streamflow and reservoir data collected by the Geological Survey. Included with these data are some records furnished by other Federal, State, and private agencies.

The purpose of this series of reports is to make available in summarized form all the surface-water records collected up to September 30, 1950.

The first known streamflow records to be systematically collected in the United States are those for Eaton and Madison Brooks in Madison County, N. Y., by John B. Jervis during 1835. Stream gaging by the United States Geological Survey was begun in 1888. At that time the Congress authorized the Irrigation Survey to be conducted by the Geological Survey in connection with special studies relating to irrigation. The work consisted of the measurement of stage and discharge of a few streams in the West. Since that time the work has expanded so that measurements of stage and discharge of streams and of stage and content of lakes and reservoirs have been made at more than 12,000 gaging stations in the 48 states and the territories of Hawaii and Alaska, of which about 6,400 were in operation on September 30, 1950. The details of the records collected at those stations are contained in annual reports, bulletins, and water-supply papers, which have been issued usually on an annual basis. Most of the records collected over the years are found only in numerous individual volumes, many of which are out of print and difficult to obtain.

The records have been collected mainly in cooperation with State, municipal, and Federal agencies and published in annual reports by the Geological Survey. This series of compilation reports has been prepared by the Geological Survey as a special project not included in the cooperative program.

The data presented in this series of reports consist of records of discharge of streams and contents of reservoirs summarized on a monthly and yearly basis. Results of miscellaneous discharge measurements and, in general, stage records have been excluded. Also included are a bar chart showing the period of record covered by each gaging station and a map of the area showing the location of each station (pl. 1). The reports of this series are uniform in the type of data they contain and in the form of presentation.

In compiling the data for these summary reports, one important feature of the project was to review the analyses and computations originally made on the basis of all information now available. For some stations additional base data, obtained subsequently, allowed for reinterpretation and recomputation of more accurate records of discharge. All records were examined for major computation errors and tested wherever possible by comparison with records of discharge at other stations and weather data. Records that were found to be in need of substantial revision were computed or omitted if revision was not feasible. Estimates of discharge were made to fill short gaps to complete the continuity of the record, whenever practical.

Records furnished by other agencies are incorporated in these reports when they supplement records collected by the Geological Survey, and appeared consistent and reliable. Furnished records were reviewed in the same manner as Geological Survey records whenever base data were available and detailed study was feasible.

STREAM-GAGING PROGRAM

The Geological Survey began to collect records of streamflow in the area covered by this report (fig. 1), which includes the Pacific slope basins in Washington and the upper Columbia River basin, in August 1893 when gaging stations were established on the Yakima and Naches Rivers in Washington. The Washington Water Power Co. installed a staff gage at their dam on Spokane River at Spokane, Wash., in March 1891 and began a systematic collection of stage records. A gaging station on this stream at Spokane was established by the Geological Survey in October 1896. The data from this station supplemented by those obtained from the Washington Water Power Co.'s gage provides a continuous discharge record from 1891 to the present time, which is the longest record in the area covered by this report.

During the period 1891-99, 20 gaging stations were established throughout the area. These were installed to determine water supplies available for irrigation and water power. The records from most of them are of only a few years duration.

The stream-gaging program in the Pacific Northwest has grown continuously since its inception. In general, expansion of the work has come in surges, rather than as a gradual growth as might be expected. The years 1902-3 mark the start of such an era of expansion, resulting from the needs of the newly created United States Reclamation Service for basic streamflow data in the investigation and design of projects in eastern Washington, Idaho, and western Montana. In 1906 the Geological Survey began a State cooperative stream-gaging program with Montana. This was the forerunner of two others soon to follow in 1909, with Idaho and Washington. Participation by the States gave impetus to the expanded program and provided the principal source of funds to sustain the work during the next 20 years.

The Corps of Engineers, U. S. Army, as a result of their congressional authorization to make a comprehensive report on the rivers in the United States, supported a considerable expansion of the work in the Pacific Northwest during 1928. Likewise, this same year the United States Department of State sponsored investigations of the Kootenai River and other international streams in Idaho, Montana, and Washington. The initiation of both programs had a significant effect in advancing stream-gaging activities in the area.

A more recent expansion in the program began in 1942, resulting in part from interest in water supplies available for development of fish resources in Washington, and in part from increased demands for surface-water data incident to the accelerated growth in population, industry, and farming in the region, induced by World War II.

Numerous municipal and private organizations have assisted the Geological Survey in the stream-gaging program, as have many bureaus of the United States and Canadian governments. Details of the cooperation have been acknowledged in the annual water-supply papers.

DESCRIPTION OF DATA

The gaging-station records are arranged in a downstream order. The order used in this report is the same as that adopted for use in the annual series of reports on surface water supply beginning with the water year 1951. In this report, in a downstream direction along the main stem, all stations on a tributary entering above a main-stem station are listed before that station. If a

tributary enters between two main-stem stations, it is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indentation in the listing of gaging stations in the bar chart (see p. 10) represents one rank. This downstream order and system of indentation show which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

The order of listing used in the annual reports through the water year 1950 was different. In those reports all stations on the main stem are listed first in order, proceeding from the headwaters toward the mouth, then all stations on the uppermost tributary from its source to mouth, followed by all stations from source to mouth on the tributaries to the tributary.

The data presented for most of the gaging stations comprise a description of the station, tables of monthly discharge and runoff, and a yearly summary table. The station description gives the location of the gaging station, drainage area, supplemental records available (for some stations), types and datums of gages, average discharge, extremes of discharge, and general remarks concerning the data. When records were furnished by another agency the fact is so stated.

The location of the gaging station and the drainage area are obtained from the best available maps. When more than one site was used and the difference in drainage areas is significant, the area for the latest site is shown first followed by the areas for other sites in chronological order. In some instances drainage-area figures have not been obtained because of the lack of suitable maps or because the boundaries cannot be defined or the effective drainage area determined.

For some stations a paragraph headed "Supplemental records available" gives reference to records other than those given in the present report. Such records may consist of gage-height records for periods other than those for which discharge records are presented, records concerning quality of the water, or the results of periodic discharge measurements.

The gage described first is the present gage or the one used most recently. Information is then given in chronological order for all gages used earlier, giving changes in location, type of gage, or datum. The location or datum of all earlier gages is given with reference to the present or most recently used gage. The datum of the gage is the elevation of the zero of the gage above mean sea level. Where information as to datum is not available, the altitude of the gage is given. This may be determined from topographic maps, river-profile surveys, barometric levels, or where nothing better is available, by estimates based on average fall between a known elevation and the gage or on other known factors. The degree of accuracy of an altitude determination is indicated by the source of the information and to some extent by the refinement to which the figure is given.

The average discharge for a station is the average of all complete water years and is published only if there are five or more complete water years of record. The years used to determine the average are not necessarily consecutive. The average discharge is not published for some stations because of extensive changes in diversion or storage, or other water development, that have occurred upstream.

In general, the momentary maximum and minimum discharges and stages for the entire period of record are published in the "Extremes" paragraph. These are qualified if necessary according to the type of gage used and the completeness of the record. Maximum and minimum discharges at nonrecord-

ing gaging stations are qualified as "observed" unless determined from a graph drawn through actual gage heights which approximates the actual hydrograph.

Under "Remarks" information is given on factors which affect the basin yield and runoff characteristics. These include upstream regulation, diversion, and utilization—a history of changes in these items is given when known. Also, references are made to the records of storage or diversion upstream, if published. When discharge records are furnished by another agency, credit is given under "Cooperation."

The streamflow data summarized in this paper are generally contained in two monthly tables and one yearly table. The first monthly table is a tabulation of monthly and yearly mean discharge in cubic feet per second. These figures represent discharge passing the station; they are unadjusted for storage or diversion upstream. Each monthly figure is the mean flow for the entire month; generally no record for part of a month is tabulated. Likewise, each yearly figure is the mean flow for a full year, and no figure is shown for a partial year. Usually the months are arranged on a water-year basis. Exceptions to this rule are made in connection with seasonal records wherein the months are grouped to give a complete season for each calendar year.

The second monthly table is a tabulation of monthly and yearly runoff in acre-feet.

The third table contains a yearly summary of the streamflow data. The column headed "W. S. P. no." lists the number of the water-supply paper or other publication in which the figures of daily and monthly discharge are published; for early years for which daily discharges were not published, that column lists the report that contains daily gage heights, rating tables, and monthly discharge. If a part of the record has been revised and published, then reference is made to both the original report and the one containing the revised record; if the daily discharge record for the entire year has been republished to include revisions, then only the later report is listed. For some stations the third table is omitted, however, the report containing records for any particular year can generally be found by reference to the tables given on p. 8.

In the third table the momentary maximum discharge for each water year and the date of its occurrence is given whenever obtainable. This is maximum discharge for the water year unless otherwise qualified. For nonrecording gage records, momentary maximums were often obtained from graphs drawn through the gage readings. If a graph was not feasible, then the discharge was computed from the maximum gage height observed, provided it was believed to be of significant value. Momentary maximum discharge believed to be representative of the absolute maximum for the water year is not qualified in any way. Occasionally maximum daily discharges are tabulated, but only when it was not practicable to give momentary maximums and when figures may have general statistical value.

The minimum daily discharge for each water year is listed if known. The annual mean discharge listed in the third table is the same as that given in the yearly column in the first table.

Other data in this table are given for both the water and calendar year and consist of runoff in inches or in acre-feet, or both. These are adjusted or unadjusted for storage or diversion as the occasion demands, but in general no adjustments have been made in the West. In arid regions where the average annual precipitation is less than 20 inches, the computation of runoff in cubic feet per second per square mile and in depth in inches is not ordinarily made.

Most canal and diversion records are given in a single table. There are some records for large canals, however, that are published in the same detail as those for streams. Records of reservoirs also are given in a single table which shows the contents at the end of each month.

Figures of discharge that have been revised as the result of the review made in connection with this compilation are so noted; however, revisions that have been previously published are not indicated as revisions in this report. Revised daily discharges made in connection with this compilation will be published in a latter annual water-supply paper. If only annual maximum discharges are revised and no revision of daily discharge is made for a station, revised annual maximums are given only in this report and will not be republished in a later annual report. Revisions of figures of runoff in inches resulting solely from a revision of the drainage area are not noted as such. Figures that represent corrections of typographical or computational errors where no figures of daily discharge have been revised or changed are indicated as "corrected" in this report. Estimates of discharge made to complete months or years for this report are noted as estimates and as "not previously published."

For a few stations, after reviewing the past records, it was found that part of the previously published records was grossly in error, yet the base data were such that the record could not be improved or revised. For such stations a note listing the periods of record which have been discredited and not republished is given with the records published herein. Stations for which the entire period of record previously published has been discredited are omitted from this report. The following table lists the stations so omitted.

Stations omitted from this report for which the entire record should not be used

Station	Period of record
Toppenish Creek near Toppenish, Wash.....	1908-9.
Clear Creek near Darrington, Wash.....	1910-11.

In addition to the above, records for some other stations in the area, previously published by the Geological Survey in the annual series of reports, are omitted from this compilation. In general, the records of such stations either are too fragmentary to allow computation of monthly mean discharge or are records that did not measure streamflow, total diversion, or return flow and were considered not important enough to warrant publication in this report. These stations are listed in the following table:

Previously published records which are not compiled in this report

Station	Period of record
City of Aberdeen Wynoochee River intake near Montesano, Wash.....	1942.
Yaak River near Troy, Mont.....	1910-16.

Note. -- Many stations on canals and ditches in the Yakima River basin for the years 1904-5, 1908-11, are not compiled, but are not listed in this table.

PUBLICATIONS

To facilitate publication of streamflow records, the area of the United States is divided into 14 parts whose boundaries coincide with certain natural drainage lines. Formerly, the annual series of water-supply papers on the surface-water supply of the United States was published in 14 volumes, one for each of the 14 parts. Beginning with the report for 1951, the records are published in 18 volumes, including 2 volumes each for parts 1, 2, 3, and 6.

This system is used in publishing the present series of compilation reports with the exception of part 11 which is published in two volumes for the compilation report series only. The boundaries of the various parts are indicated in the following list and on figure 1.

- Part 1. North Atlantic slope basins, in two volumes:
 A, North Atlantic slope basins, Maine to Connecticut.
 B, North Atlantic slope basins, New York to York River.
2. South Atlantic slope and eastern Gulf of Mexico basins in two volumes:
 A, South Atlantic slope basins, James River to Savannah River.
 B, South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River.
3. Ohio River basin, in two volumes:
 A, Ohio River basin except Cumberland and Tennessee River basins.
 B, Cumberland and Tennessee River basins.
4. St. Lawrence River basin.
5. Hudson Bay and upper Mississippi River basins.
6. Missouri River basin, in two volumes:
 A, Missouri River basin above Sioux City, Iowa.
 B, Missouri River basin below Sioux City, Iowa.
7. Lower Mississippi River basin.
8. Western Gulf of Mexico basins.
9. Colorado River basin.
10. The Great Basin.
11. Pacific slope basins in California.
 A, Coastal basins (excluding Central Valley).
 B, Central Valley.
12. Pacific slope basins in Washington and upper Columbia River basin.
13. Snake River basin.
14. Pacific slope basins in Oregon and lower Columbia River basin.

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

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

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

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

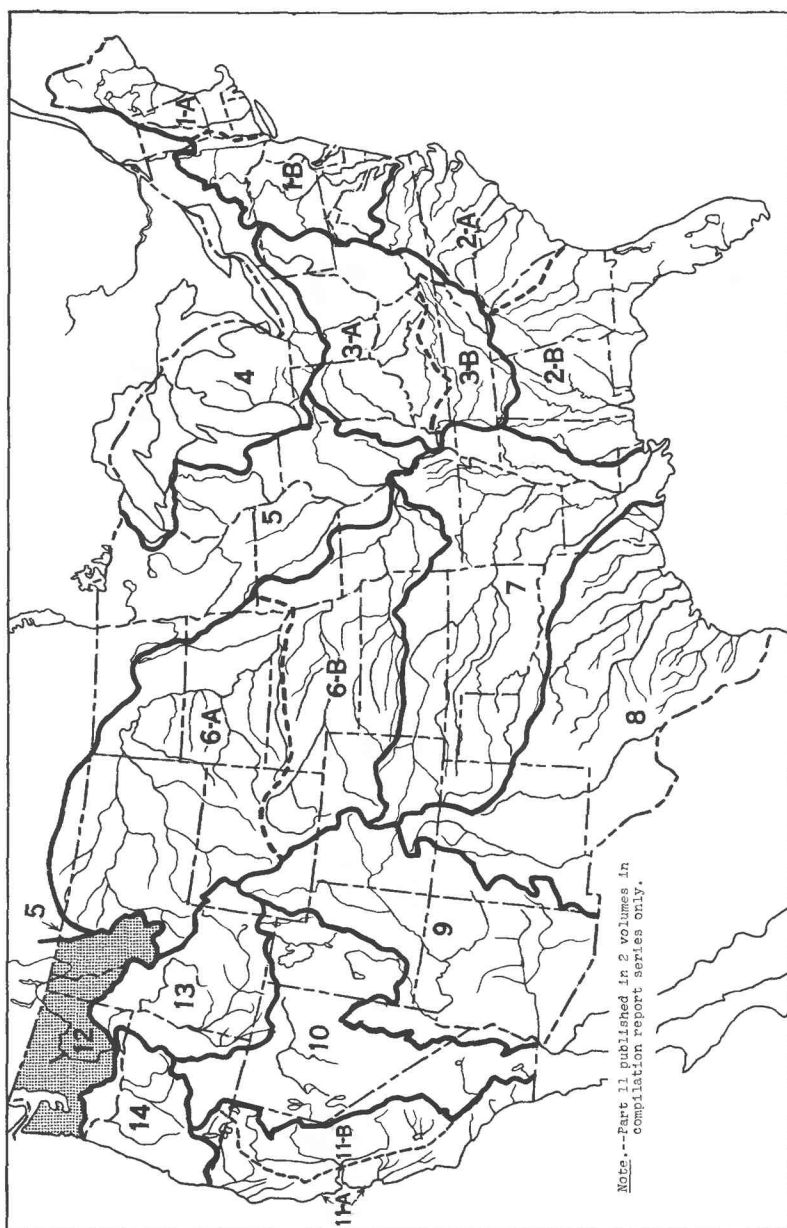


Figure 1.--Map of the United States showing areas covered by the annual reports on surface-water supply and also by the present series of compilation reports. The area covered by this report is shaded.

Reports on surface-water supply containing records from 1899 to 1950 for drainage basins in this report are listed in the following table. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained.

Numbers of water-supply papers containing streamflow records in Pacific slope basins in Washington and upper Columbia River basin, 1899-1950

Year	W. S. P. no.	Year	W. S. P. no.	Year	W. S. P. no.	Year	W. S. P. no.	Year	W. S. P. no.
1899	38	1910	292	1921	532	1931	722	1941	932
1900	51, 52	1911	312	1922	552	1932	737	1942	962
1901	66, 75	1912	332-A	1923	572	1933	752	1943	982
1902	85	1913	362-A	1924	592	1934	767	1944	1012
1903	100	1914	392	1925	612	1935	792	1945	1042
1904	135	1915	412	1926	632	1936	812	1946	1062
1905	178	1916	442	1927	652	1937	832	1947	1092
1906	214	1917	462	1928	672	1938	862	1948	1122
1907-8	252	1918	482	1929	692	1939	882	1949	1152
1909	272	1919-20	512	1930	707	1940	902	1950	1182

The records at most of the stations discussed in these reports extend over many 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.

Reports also have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which may have been revised), as well as some records not contained in the present series of reports. Such reports for the area covered by this report are as follows:

Water-Supply Paper	Title
492.....	Summary of hydrometric data in Washington, 1878-1919.
870.....	Summary of records of surface water in Washington, 1919-35.
916.....	Summary of records of surface-waters of upper Columbia River basin in Montana and Idaho, 1898-1938.

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

State reports containing compilations of records of discharge in Pacific slope basins in Washington and upper Columbia River basin

State	Period	Report	Issued by
Montana...	1889-1911	5th biennial report.....	Office of the State Engineer.
Do.....	1881-1938	Special report 10, vols. 1-4, Water resources of Montana..	Montana Agricultural Experiment Station.
Washington	1878-1933	Bull. 5, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.

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

Detailed information on the stage and discharge of many streams during major floods has been included in special reports on these floods published by the Geological Survey. The only recent reports pertaining to floods in the area covered by the present report are the following:

Water-Supply Paper 968-B: Floods of the Puyallup and Chehalis River basins, Washington.
 Water-Supply Paper 1080: Floods of May-June 1948 in Columbia River basin.
 Circular 191: Floods in western Washington, frequency and magnitude in relation to drainage basin characteristics.

HYDROLOGIC CONDITIONS

The mean annual discharge for three streams of long-term record are shown in figure 2. These streams have runoff characteristics that are generally representative of others in their particular locale. Hydrologic conditions vary greatly in the area covered by this report, owing largely to the wide

dissimilarity of climatic factors in the region. These factors range from extreme wetness in the coastal mountains to semi-aridity in the upper Columbia River basin and are illustrated by the comparative figures of runoff. The average annual runoff in cubic feet per second per square mile for the three streams is as follows: Quinault River, 10.2 cfs/mi; Cedar River, 5.5 cfs/mi; Spokane River, 1.6 cfs/mi.

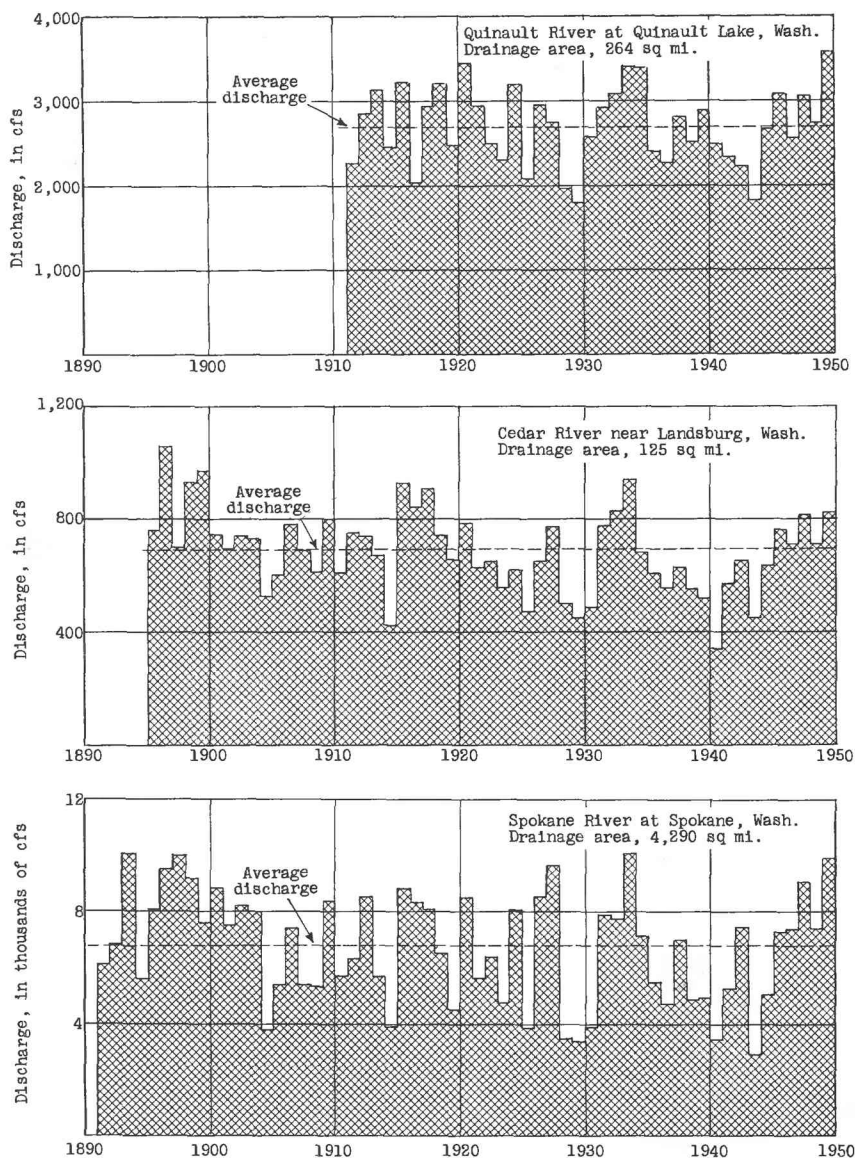


Figure 2. --Yearly discharge at three representative long-term gaging stations in the area covered by this report.

BAR CHART

The following bar chart shows the period of record of discharge of streams and contents of reservoirs for all stations compiled in this report through September 30, 1950. The stations are listed in downstream order (see p. 2) and are numbered consecutively. The number is used to identify the station on the map (pl. 1) showing location of gaging stations.

Bar chart of gaging-station records

Legend:  Streamflow Reservoir contents

Period of record						Gaging station	Map no.	Page no.
1900	1910	1920	1930	1940	1950			
						Pacific slope basins north of Columbia River:		
						Naselle River basin:		
						Naselle River near Naselle, Wash.....	1	21
						Nemah River basin:		
						North Nemah River (head of Nemah River) near South Bend, Wash.....	2	22
						Willapa River basin:		
						Willapa River at Lebam, Wash.....	3	23
						Willapa River near Willapa, Wash.....	4	23
						North River basin:		
						North River:		
						..Little North River near Cosmopolis, Wash.....	5	24
						North River near Raymond, Wash.....	6	24
						Johns River basin:		
						Johns River near Markham, Wash.....	7	26
						Newskah Creek basin:		
						Newskah Creek near Aberdeen, Wash.....	8	26
						Charles Creek basin:		
						Charles Creek near Aberdeen, Wash.....	9	27
						Chehalis River basin:		
						Chehalis River near Pe Ell, Wash.....	10	27
						..Rock Creek near Pe Ell, Wash.....	11	28
						Chehalis River near Doty, Wash.....	12	28
						..Elk Creek near Doty, Wash.....	13	29
						..South Fork Chehalis River at Boistfort, Wash.....	14	30
						..Halfway Creek near Boistfort, Wash.....	15	30
						..Bunker Creek near Adna, Wash.....	16	31
						..Stearns Creek near Napavine, Wash.....	17	31
						..Stearns Creek near Adna, Wash.....	18	31
						Chehalis River near Chehalis, Wash.....	19	32
						..Newaukum River near Onalaska, Wash.....	20	32
						..North Fork Newaukum River near Forest, Wash.....	21	33
						..Newaukum River near Chehalis, Wash.....	22	33
						..Skookumchuck River near Centralia, Wash.....	23	34
						..Hanaford Creek near Centralia, Wash.....	24	36
						..Lincoln Creek near Rochester, Wash.....	25	36
						Chehalis River near Grand Mound, Wash.....	26	37
						..Scatter Creek near Grand Mound, Wash.....	27	38
						Black River:		
						..Wadell Creek near Little Rock, Wash.....	28	38
						..Black River at Little Rock, Wash.....	29	39
						..Garrod Creek near Oakville, Wash.....	30	39
						..Rock Creek at Cedarville, Wash.....	31	40
						..Cedar Creek near Oakville, Wash.....	32	41
						..Porter Creek at Porter, Wash.....	33	41
						Cloquallum River:		
						..Wildcat Creek near Elma, Wash.....	34	42
						..Cloquallum River at Elma, Wash.....	35	42
						Chehalis River at South Elma, Wash.....	36	43
						..East Fork Satsop River (head of Satsop River) near Matlock, Wash.....	37	43
						..Bingham Creek near Matlock, Wash.....	38	44
						..Middle Fork Satsop River near Satsop, Wash.....	39	44
						..Satsop River near Satsop, Wash.....	40	45
						..Wynoochee River at Oxbow, near Aberdeen, Wash.....	41	46
						..Wynoochee River near Montesano, Wash.....	42	48
						..Wynoochee River below Black Creek, near Montesano, Wash.....	43	48
						..Wishkah River near Wishkah, Wash.....	44	49
						Hoquiam River basin:		
						Hoquiam River:		
						..West Fork Hoquiam River near Hoquiam, Wash.....	45	50
						Humtuplits River basin:		
						Humtuplits River near Humtuplits, Wash.....	46	50
						Quinalt River basin:		
						Quinalt River at Quinalt Lake, Wash.....	47	51

Bar chart of gaging-station records--Continued

Period of record						Gaging station	Map no.	Page no.
1900	1910	1920	1930	1940	1950			
						Pacific slope basins north of Columbia River--Continued		
						Queets River basin:		
						Queets River:		
						..Clearwater River near Clearwater, Wash.....	48	53
						Queets River near Clearwater, Wash.....	49	54
						Hoh River basin:		
						Hoh River near Spruce, Wash.....	50	55
						Quillayute River basin:		
						Soleduck River (head of Quillayute River) near Fairholm, Wash.....	51	57
						Soleduck River at Snider ranger station, near Beaver, Wash.....	52	58
						Soleduck River near Quillayute, Wash.....	53	59
						Bogachiel River:		
						..Galawa River near Forks, Wash.....	54	60
						Lyre River basin:		
						Lyre River at Piedmont, Wash.....	55	60
						Elwha River basin:		
						Lake Mills at Clines Canyon near Port Angeles, Wash.....	56	61
						Elwha River at McDonald Bridge, near Port Angeles, Wash..	57	62
						Elwha River near Port Angeles, Wash.....	58	64
						Dungeness River basin:		
						Dungeness River near Sequim, Wash.....	59	64
						Dungeness River below Canyon Creek, near Sequim, Wash....	60	65
						Dungeness River at Dungeness, Wash.....	61	66
						Little Quilcene River basin:		
						Little Quilcene River near Quilcene, Wash.....	62	66
						Big Quilcene River basin:		
						Big Quilcene River near Quilcene, Wash.....	63	67
						Dosewallips River basin:		
						Dosewallips River near Brinnon, Wash.....	64	67
						Dosewallips River at Brinnon, Wash.....	65	69
						Duckabush River basin:		
						Duckabush River near Brinnon, Wash.....	66	69
						Hamma Hamma River basin:		
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PACIFIC SLOPE BASINS NORTH OF COLUMBIA RIVER

NASELLE RIVER BASIN

1. Naselle River near Naselle, Wash.

Location.--Lat 46°22'25", long. 123°44'45", in SW¹/₄ sec. 1, T. 10 N., R. 9W., on left bank 150 ft downstream from county bridge, 1½ miles upstream from Salmon Creek, and 3½ miles east of Naselle.

Drainage area.--55.3 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 24 ft (by barometer).

Average discharge.--21 years (1929-50), 423 cfs.

Extremes.--1929-50: Maximum discharge, 11,100 cfs (revised) Jan. 22, 1935 (gage height, 15.9 ft, from floodmarks), from rating curve extended above 4,000 cfs; minimum observed, 19 cfs Sept. 12, 13, 14, 1949; minimum gage height observed, 1.72 ft Aug. 29, 1935.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	#171	209	82.2	40.7	30.0	-
1930	33.0	37.6	476	360	1,040	458	315	220	143	62.9	32.9	40.4	264
1931	111	342	344	901	486	822	626	99.9	235	115	41.5	127	353
1932	563	863	1,040	1,030	1,020	1,070	689	131	67.6	72.9	76.2	50.8	556
1933	135	1,340	1,220	1,050	871	1,080	331	354	211	67.1	42.3	198	573
1934	508	516	2,530	1,350	294	539	241	213	78.5	73.2	51.3	57.9	543
1935	584	1,033	999	1,608	544	766	243	114	73.1	63.1	44.4	87.5	515
1936	89.6	294	476	1,338	616	644	188	258	278	156	55.4	52.0	371
1937	43.0	37.3	668	340	1,105	489	858	286	251	95.4	71.6	74.7	355
1938	322	1,489	1,002	618	510	661	548	184	64.0	38.4	31.1	28.9	457
1939	156	663	653	1,022	1,020	508	120	89.9	160	94.3	43.6	35.5	377
1940	129	307	1,226	555	1,154	693	361	331	63.2	43.7	40.4	42.6	410
1941	454	502	605	649	318	194	139	276	111	54.1	47.1	313	305
1942	335	535	1,119	315	661	335	188	218	289	135	58.6	35.3	350
1943	164	940	974	419	940	354	574	181	118	68.5	56.8	39.3	398
1944	289	334	694	570	455	397	455	139	81.4	43.5	32.9	72.6	297
1945	118	694	439	955	739	953	338	306	91.4	42.1	28.1	106	399
1946	100	972	1,052	1,045	1,200	719	559	120	125	149	50.4	49.5	507
1947	328	884	1,075	727	896	264	303	118	146	113	56.1	80.5	413
1948	796	810	737	813	748	489	448	102	448	55.7	50.1	176	472
1949	326	929	1,244	246	1,408	448	197	217	65.9	42.2	34.4	34.4	426
1950	177	876	958	914	1,532	1,217	527	193	77.9	46.8	62.4	52.2	547

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	#10,500	12,400	5,050	2,500	1,790	-
1930	2,030	2,240	29,300	22,100	57,800	28,200	18,700	13,500	8,510	3,870	2,020	2,400	191,000
1931	6,820	20,400	21,200	55,400	27,000	50,500	37,200	6,140	14,000	7,070	2,550	7,560	256,000
1932	34,600	51,400	64,000	63,300	58,700	65,800	41,000	8,060	4,020	4,480	4,690	3,020	403,000
1933	9,300	79,700	75,000	64,600	49,400	66,400	19,700	21,800	12,600	4,130	2,600	11,800	415,000
1934	31,240	30,700	155,600	83,020	16,360	33,120	14,330	13,090	4,670	4,500	3,150	3,450	393,200
1935	35,880	61,490	61,450	98,890	30,230	47,080	14,440	6,980	4,350	3,880	2,730	5,200	372,600
1936	5,510	17,480	29,300	82,250	35,440	39,600	11,180	15,730	16,540	9,590	3,400	3,100	269,100
1937	2,640	2,220	41,080	20,900	61,390	30,060	51,070	17,740	14,910	5,860	4,400	4,440	256,700
1938	19,820	88,570	61,610	38,010	28,330	40,610	32,590	11,310	3,810	2,360	1,910	1,720	330,600
1939	9,870	39,470	40,130	62,850	56,650	31,220	7,170	5,530	9,510	5,800	2,680	2,110	272,700
1940	7,910	18,260	75,400	34,140	66,390	42,590	21,460	20,330	3,760	2,690	2,490	2,530	298,000
1941	27,910	29,880	37,220	39,920	17,660	11,920	8,270	16,950	6,580	3,330	2,900	18,620	221,200
1942	20,570	31,820	68,820	19,360	36,690	20,600	11,200	13,380	17,170	8,330	3,600	2,100	253,600
1943	10,100	55,940	59,920	25,790	52,210	21,740	34,160	11,130	7,000	4,210	3,480	2,340	289,000
1944	17,780	19,870	42,700	35,030	26,170	24,380	27,050	8,570	4,850	2,670	2,020	4,320	215,400
1945	7,260	41,280	27,000	58,730	41,030	58,610	20,130	18,830	5,440	2,590	1,730	6,280	289,900
1946	6,160	57,870	64,710	64,280	66,620	44,180	33,270	7,350	7,420	9,170	3,100	2,950	367,100
1947	20,180	52,590	66,070	44,670	49,790	16,210	18,050	7,270	8,720	6,930	3,450	4,790	298,700
1948	48,950	46,190	45,310	50,020	43,020	30,100	26,680	27,530	6,060	3,430	3,080	10,450	342,800
1949	20,030	55,280	76,520	15,140	78,220	27,550	11,730	13,360	3,920	2,590	2,110	2,050	308,500
1950	10,900	52,140	58,900	56,190	85,100	74,830	31,380	11,880	4,640	2,880	3,830	3,110	395,800

* Not previously published; partly estimated on the basis of records for nearby streams.

NASELLE RIVER BASIN

Yearly discharge, in cubic feet per second, of Naselle River near Naselle, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692	-	-	#27	-	-	-	-	-	-	-
1930	707	*2,460	Dec. 23, 1929	22	264	4.77	64.75	191,000	284	69.77	206,000
1931	722	2,860	Jan. 23, 1931	26	353	6.38	86.60	256,000	494	121.22	357,000
1932	737	*5,030	Feb. 26, 1932	36	556	10.1	137.57	403,000	574	142.05	416,000
1933	752	*6,090	Nov. 13, 1932	29	573	10.4	141.46	415,000	†648	158.82	470,000
1934	767	*7,540	Dec. 9, 1933	41	543	9.82	133.30	393,200	462	113.35	334,500
1935	792	*11,100	Jan. 22, 1935	36	515	9.31	126.38	372,600	368	90.27	266,100
1936	812	*6,210	Feb. 27, 1936*	36	371	6.71	91.33	269,100	362	89.16	262,800
1937	832	*3,560	Feb. 22, 1937	34	355	6.42	87.15	256,700	526	129.09	360,800
1938	862	*5,760	Nov. 25, 1937	24	457	8.26	112.12	330,600	345	84.70	249,800
1939	882	*5,230	Feb. 12, 1939*	27	377	6.82	92.58	272,700	394	96.65	285,100
1940	902	*5,850	Dec. 16, 1939	29	410	7.41	100.86	298,000	401	98.68	291,400
1941	932	4,360	Jan. 17, 1941	31	305	5.52	74.95	221,200	342	83.89	247,400
1942	962	4,520	Dec. 18, 1941	30	350	6.35	85.95	253,600	357	87.69	258,400
1943	982	5,800	Oct. 31, 1942	30	398	7.20	97.74	288,000	335	82.26	242,400
1944	1012	7,030	Dec. 3, 1943	26	297	5.37	73.09	215,400	290	71.32	210,600
1945	1042	*6,500	Mar. 19, 1945	24	399	7.22	98.01	288,900	473	116.06	342,100
1946	1062	*5,060	Dec. 28, 1945	32	507	9.17	124.48	367,100	521	127.87	377,200
1947	1092	5,800	Dec. 11, 1946	38	413	7.47	101.40	298,700	418	102.62	302,300
1948	1122	4,620	Jan. 1, 1948	38	478	8.54	116.24	342,800	485	119.37	352,200
1949	1152	10,300	Feb. 22, 1949	19	426	7.70	104.52	308,500	385	94.48	278,600
1950	1182	5,710	Feb. 24, 1950	24	547	9.89	134.25	395,800	-	-	-

* Revised.

† Corrected.

‡ Not previously published.

NEMAH RIVER BASIN

2. North Nemah River near South Bend, Wash.

Location (revised).--Lat 46°29'25", long. 123°49'55" in SE $\frac{1}{4}$ sec. 30, T. 12 N., R. 9 W., on right bank 500 ft downstream from Finn Creek, 5 miles upstream from mouth, and 12 miles south of South Bend.

Drainage area.--18.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 60 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 1,550 cfs Dec. 11, 1946, Feb. 10, 1949; maximum gage height, 8.21 ft Dec. 11, 1946; minimum discharge, 6.6 cfs Sept. 27, 1949.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	295	204	130	58.3	45.9	48.2	19.0	19.2	-
1947	75.7	211	282	183	208	75.6	72.7	30.9	40.5	28.3	17.4	17.4	103
1948	180	218	182	216	199	137	126	124	30.7	16.5	13.9	30.9	123
1949	71.6	224	384	77.5	332	119	51.9	51.4	20.1	14.8	11.9	9.37	113
1950	43.5	194	250	280	403	298	140	57.4	25.7	18.3	20.4	16.7	144

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	16,380	12,530	7,740	2,350	2,730	2,970	1,170	1,140	-
1947	4,660	12,530	17,340	11,280	11,540	4,850	4,330	1,900	2,410	1,800	1,070	1,030	74,520
1948	11,050	12,970	11,170	13,270	11,470	8,430	7,470	7,640	1,830	1,020	857	1,840	89,020
1949	4,400	13,350	23,620	4,770	18,460	7,330	3,090	3,160	1,200	912	731	558	81,580
1950	2,670	11,870	15,340	17,220	22,370	18,300	8,340	3,530	1,530	1,130	1,260	995	104,300

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1092	-	-	-	-	-	-	-	-	-	-
1947	1092	1,550	Dec. 11, 1946	12	102	5.72	77.83	74,520	104	78.31	75,180
1948	1122	1,180	Jan. 1, 1948	10.5	123	6.83	92.70	89,020	131	89.15	95,200
1949	1152	1,550	Feb. 10, 1949	6.6	113	6.28	84.96	81,580	96.4	72.68	69,790
1950	1182	1,330	Feb. 24, 1950	7.2	144	8.00	108.61	104,300	-	-	-

3. Willapa River at Lebam, Wash.

Location.--Lat 46°33'50", long. 123°33'50", in SW $\frac{1}{4}$ sec. 33, T. 13 N., R. 7 W., on left bank half a mile west of Lebam and 1 mile upstream from Walker Creek.

Drainage area.--41.4 sq mi.

Gage.--Water-stage recorder. Datum of gage is 154.0 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Extremes.--1948-50: Maximum discharge, 4,930 cfs Feb. 22, 1949 (gage height, 17.53 ft, from high-water mark in gage house), from rating curve extended above 2,200 cfs; minimum, 3.6 cfs Sept. 12, 28, 1949.

Remarks.--Some diversion for domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	36.7	16.3	11.0	22.0	-
1949	59.8	382	533	125	746	183	76.4	98.0	20.3	9.59	7.63	6.09	183
1950	23.1	337	441	497	641	555	233	77.1	25.6	11.5	133	10.8	236

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	2,180	1,000	677	1,310	-
1949	3,680	22,740	32,750	7,710	41,410	11,250	4,540	6,030	1,210	590	469	362	132,700
1950	1,420	20,030	27,100	30,580	35,600	34,100	13,840	4,740	1,530	707	821	640	171,100

Yearly discharge, in cubic feet per second

nearly discharge, in cubic feet per second															
Year	W.S.P. no.	Water year ending Sept. 30							Calendar year						
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet				
1948	1122	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1949	1152	4,930	Feb. 22, 1949	3.6	183	4.42	60.11	132,700	169	55.29	122,100	-	-	-	-
1950	1182	3,040	Nov. 27, 1949	5.4	236	5.70	77.48	171,100	-	-	-	-	-	-	-

4. Willapa River near Willapa, Wash.

Location.--Lat 46°38'55" (revised), long. 123°38'40" in NW $\frac{1}{4}$ sec. 2, T. 13 N., R. 8 W., on right bank 150 ft downstream from Mill Creek and $2\frac{1}{2}$ miles southeast of Willapa.

Drainage area.--130 sq mi.

Gage.--Water-stage recorder. Datum of gage is 5.69 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Aug. 26 to Oct. 16, 1947, water-stage recorder 60 ft upstream at different datum.

Extremes.--1947-50: Maximum discharge, 11,400 cfs Feb. 22, 1949 (gage height, 24.22 ft), from rating curve extended above 7,300 cfs; minimum, 24 cfs Sept. 12-14, 1949 (gage height, 3.00 ft).

Remarks.--Some diversion for domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	-	-	55.0	-
1948	-	-	-	-	-	-	-	-	-	-	50.4	113	-
1949	251	1,225	1,890	395	2,260	668	284	324	79.8	44.2	32.3	32.2	613
1950	115	1,193	1,690	1,914	2,082	1,847	853	284	97.7	59.6	67.6	49.3	848

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	-	-	3,270	-
1948	-	-	-	-	-	-	-	-	-	-	3,100	6,710	-
1949	15,430	72,870	115,200	24,300	125,500	41,100	16,890	19,910	4,750	2,720	1,980	1,920	443,600
1950	7,040	70,990	103,900	117,700	115,600	113,600	50,770	17,470	5,810	3,660	4,160	2,930	613,600

Yearly discharge, in cubic feet per second

Yearly discharge, in cubic feet per second														
Year	W.S.P. no.	Water year ending Sept. 30							Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-foot		Inches	Acres-foot		Inches	Acres-foot
1947	1122	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	1122	-	-	-	438	-	-	-	-	-	-	-	-	-
1949	1152	11,400	Feb. 22, 1949	24	613	4.72	63.99	443,600	582	60.74	421,000	-	-	-
1950	1182	8,450	Dec. 28, 1949	28	848	6.52	88.51	613,600	-	-	-	-	-	-

* Not previously published.

5. Little North River near Cosmopolis, Wash.

Location (revised).--Lat 46°54'20", long. 123°42'50", in NW $\frac{1}{4}$ sec. 5, T. 16 N., R. 8 W., on right bank $1\frac{1}{2}$ miles upstream from mouth and $4\frac{1}{2}$ miles southeast of Cosmopolis.

Drainage area.--18.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 70 ft (from topographic map).

Extremes.--1945-49: Maximum discharge, 1,250 cfs Feb. 22, 1949 (gage height, 12.82 ft); minimum, 1.4 cfs Aug. 22, 23, 24, 1949 (gage height, 1.80 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	*18.2	148	201	190	196	141	93.7	21.6	17.2	14.3	4.09	4.37	*86.8
1947	32.5	134	204	157	183	44.5	51.8	16.7	16.1	9.65	5.35	4.41	70.9
1948	118	131	155	140	156	104	76.2	101	15.7	6.45	3.96	18.6	83.7
1949	44.7	179	247	52.7	270	84.1	33.2	36.8	9.53	4.45	2.71	5.30	79.5

* Not previously published; estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	*1,120	8,790	12,380	11,690	10,860	8,680	5,580	1,330	1,020	882	251	260	*62,840
1947	2,000	7,970	12,570	9,630	10,160	2,740	3,080	1,030	958	593	329	262	51,320
1948	7,280	7,820	8,320	8,590	8,980	6,360	4,530	6,180	935	397	244	1,110	60,740
1949	2,750	10,660	15,180	3,240	14,970	5,170	1,980	2,260	567	274	167	315	57,530

* Not previously published; estimated on the basis of records for nearby stream.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1946	1092	872	Dec. 29, 1945	*1.9	*86.8	*4.67	*63.35	*62,840	87.1	63.58	63,090
1947	1092	1,010	Jan. 26, 1947	2.8	70.9	3.81	51.72	51,320	72.1	52.62	52,200
1948	1122	808	Mar. 22, 1948	2.9	83.7	4.50	61.24	60,740	90.8	66.45	65,910
1949	1152	1,250	Feb. 22, 1949	1.5	79.5	4.27	58.00	57,530	-	-	-

* Not previously published.

6. North River near Raymond, Wash.

Location.--Lat 46°48'30" (revised), long. 123°51'00", in sec. 6, T. 15 N., R. 9 W., on left bank $1\frac{1}{4}$ miles upstream from Salmon Creek and 10 miles northwest of Raymond.

Drainage area.--219 sq mi.

Gage.--Water-stage recorder. Datum of gage is 7.39 ft above mean sea level (Western Washington Electric Light and Power Co. benchmark).

Average discharge.--23 years (1927-50), 924 cfs.

Extremes.--1927-50: Maximum discharge, 35,000 cfs Dec. 10, 1933 (gage height, 15.8 ft, from floodmarks) which included storage water released by failure of splash dam 800 ft upstream, from rating curve extended above 7,500 cfs; minimum, 24 cfs Sept. 17, 1938 (gage height, 1.18 ft).

Remarks.--No diversions. Considerable regulation prior to December 1933 due to splash dam operation above station in connection with logging operations.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1927	-	-	-	-	-	-	-	-	-	-	74.0	243	-
1928	98	2,740	1,610	1,970	965	1,850	1,670	671	191	113	59.9	62.2	1,070
1929	455	774	1,060	906	749	1,330	1,430	482	316	135	84.6	61.5	648
1930	74.9	74.1	955	868	2,500	1,040	829	436	251	107	85.0	83.8	594
1931	216	574	640	1,840	1,260	1,680	2,110	273	393	214	84.8	227	789
1932	1,470	1,880	2,220	2,400	2,780	2,630	1,560	376	175	115	112	98.4	1,310
1933	238	2,610	2,920	3,000	1,710	2,090	724	591	381	135	77.5	334	1,230
1934	1,046	1,356	9,450	3,542	833	1,351	611	445	163	125	77.4	114	1,610
1935	1,070	2,321	2,412	4,088	1,256	1,942	597	265	151	104	58.0	118	1,202
1936	114	346	766	2,948	1,441	1,689	480	421	511	222	86.9	91.6	760
1937	73.5	65.3	1,315	700	2,723	870	2,033	584	499	193	115	118	759
1938	400	3,201	3,306	1,734	1,401	1,501	1,138	346	121	66.2	47.2	33.5	1,105
1939	209	1,110	1,405	2,517	2,504	1,190	309	256	299	140	63.3	63.2	811
1940	155	361	2,157	1,286	2,575	1,642	1,021	944	144	72.8	58.9	73.0	870
1941	629	994	1,297	1,434	665	496	282	519	209	84.1	83.4	375	589
1942	530	1,035	2,468	940	1,257	839	435	450	427	224	98.5	57.8	720
1943	162	1,917	2,025	1,061	1,864	836	1,372	344	209	110	83.1	66.5	828
1944	325	438	1,524	1,408	989	773	906	349	169	83.1	50.9	92.3	592
1945	133	1,053	818	1,459	1,739	1,726	743	616	202	82.5	43.3	136	723

Monthly and yearly mean discharge, in cubic feet per second, of North River near Raymond, Wash.--
Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	168	1,540	2,128	2,269	2,328	1,574	1,180	304	217	175	73.9	84.7	995
1947	330	1,384	2,326	1,764	2,129	628	674	229	210	124	72.1	73.5	821
1948	1,220	1,761	1,559	1,849	1,834	1,376	1,010	1,127	245	112	89.1	228	1,032
1949	495	1,743	3,015	580	3,002	1,023	456	451	135	79.9	57.2	63.2	920
1950	275	1,702	2,710	2,800	3,040	2,754	1,222	416	173	98.7	104	92.3	1,273

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1927	-	-	-	-	-	-	-	-	-	-	4,550	14,500	-
1928	60,700	163,000	99,000	121,000	55,500	114,000	99,400	41,300	11,400	6,950	3,680	3,700	780,000
1929	28,000	46,100	55,200	55,700	41,600	81,800	85,100	29,600	18,800	8,300	5,200	3,660	469,000
1930	4,610	4,410	57,500	53,400	39,000	64,000	49,300	26,800	14,900	6,580	4,000	4,990	429,000
1931	13,300	34,200	39,400	113,000	70,000	103,000	126,000	16,800	23,400	13,200	5,210	13,500	571,000
1932	90,400	112,000	136,000	148,000	160,000	162,000	92,800	23,100	10,400	7,070	6,890	5,860	955,000
1933	14,600	155,000	80,000	184,000	95,000	129,000	43,100	36,300	22,700	8,300	4,770	19,900	893,000
1934	64,330	80,690	81,100	217,800	46,270	83,040	36,370	27,370	9,720	7,660	4,760	6,790	1,166,000
1935	65,800	138,100	148,300	251,400	69,740	119,400	35,500	16,280	8,970	6,360	3,560	7,040	870,400
1936	7,030	20,600	47,110	181,200	82,910	103,900	28,570	25,890	30,380	13,640	5,350	5,450	552,000
1937	4,520	3,890	80,880	43,020	51,200	53,470	121,000	35,890	29,690	11,860	7,050	7,000	549,500
1938	24,600	190,500	203,300	106,600	77,800	92,280	67,700	21,280	7,210	4,070	2,900	2,000	800,200
1939	12,860	66,080	86,410	142,500	139,000	73,180	18,410	14,520	17,790	8,640	3,890	3,660	587,000
1940	9,530	21,470	132,600	79,050	148,100	100,900	60,750	57,820	8,590	4,470	3,620	4,340	631,200
1941	38,690	59,130	79,730	88,190	36,920	29,880	16,760	31,910	12,420	5,170	5,130	22,290	426,200
1942	32,810	61,570	151,800	51,620	69,810	51,600	25,760	27,670	25,420	13,770	6,060	3,440	521,100
1943	9,960	114,000	250,800	65,240	103,500	51,410	81,620	21,770	12,450	6,760	5,110	3,960	599,700
1944	19,960	26,080	93,700	86,590	56,870	47,530	53,880	21,430	10,070	5,110	3,130	5,490	429,800
1945	8,160	62,650	50,280	89,710	96,600	106,100	44,200	37,850	12,020	5,070	2,660	8,080	523,400
1946	10,320	91,610	130,800	139,500	129,300	96,810	70,210	18,680	12,910	10,750	4,540	5,040	720,500
1947	20,270	82,360	43,000	108,400	18,200	38,630	40,100	14,070	12,480	7,620	4,430	4,370	593,900
1948	75,000	104,800	95,870	113,700	105,500	84,600	60,080	69,330	14,590	6,870	5,480	13,570	749,400
1949	30,410	104,100	85,400	41,840	58,700	62,920	27,140	27,700	8,060	4,300	3,520	3,760	666,400
1950	16,930	101,300	166,600	172,200	168,900	169,300	72,740	25,560	10,280	6,070	6,360	5,490	921,700

Yearly discharge, in cubic feet per second

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary		maximum	Minimum	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date					Inches	Acre-feet		Inches	Acre-feet
1927	652	-	-		\$65	-	-	-	-	-	-	-
1928	672	8,610	Nov. 24, 1927	28	1,070	44.89	66.74	780,000	821	51.06	596,000	-
1929	692	5,660	Mar. 27, 1929	46	648	42.96	40.20	469,000	1548	33.96	396,000	-
1930	707	4,900	Dec. 23, 1929	28	594	42.71	36.79	429,000	1622	38.53	450,000	-
1931	722	7,320	Apr. 13, 1931	51	789	53.60	48.91	571,000	1,140	70.51	823,000	-
1932	737	11,000	Feb. 27, 1932	42	1,310	55.98	81.69	955,000	1,330	82.55	966,000	-
1933	752	7,240	Jan. 9, 1933	54	1,230	55.62	76.40	893,000	1,750	108.68	1,270,000	-
1934	792	35,000	Dec. 10, 1933	54	1,610	57.35	99.82	1,166,000	1,094	67.80	792,000	-
1935	832	24,000	(a)	41	1,202	55.49	74.51	870,400	819	50.75	593,000	-
1936	832	7,890	Feb. 28, 1936	58	760	53.47	47.27	552,000	780	48.52	566,600	-
1937	832	6,600	Apr. 15, 1937	58	759	53.47	47.04	549,500	1,214	75.22	878,600	-
1938	862	-	-	25	1,105	55.05	68.52	800,200	756	46.86	547,200	-
1939	882	7,100	Feb. 13, 1939	32	811	53.70	50.26	587,000	809	50.12	585,300	-
1940	902	7,560	Dec. 16, 1940	44	870	53.97	54.06	631,200	889	55.24	645,200	-
1941	932	5,440	Jan. 18, 1941	42	589	2.69	36.49	426,200	683	42.34	494,600	-
1942	962	7,890	Dec. 20, 1941	49	720	3.29	44.62	521,100	723	44.84	523,600	-
1943	982	5,410	Apr. 2, 1943	53	828	3.78	51.35	599,700	678	42.04	491,000	-
1944	1012	7,230	Dec. 4, 1943	32	592	2.70	36.79	429,800	566	35.19	411,200	-
1945	1042	6,600	Feb. 8, 1945	35	723	3.30	44.80	523,400	877	54.36	635,000	-
1946	1062	7,230	Dec. 30, 1945	59	995	4.54	61.69	720,500	1,013	62.80	733,400	-
1947	1092	7,660	Jan. 27, 1947	48	821	3.75	50.84	593,900	862	53.41	624,000	-
1948	1122	5,800	Mar. 23, 1948	58	1,032	4.71	64.15	749,400	1,093	67.93	793,600	-
1949	1152	8,660	Feb. 23, 1949	35	920	4.20	57.04	666,400	872	54.05	631,400	-
1950	1182	10,700	Dec. 29, 1949	48	1,273	5.81	78.92	921,700	-	-	-	-

† Corrected.

* Not previously published.

a Sometime between Jan. 21-24, 1935.

7. Johns River near Markham, Wash.

Location (revised).--Lat 46°51'30", long. 123°55'40", in NW¼ sec. 21, T. 16 N., R. 10 W., on left bank at logging company railroad bridge three-quarters of a mile upstream from Atwood Creek, 4½ miles southeast of Markham, and 6 miles upstream from mouth.

Drainage area.--18.9 sq mi.

Gage.--Staff gage. Altitude of gage is 20 ft (from topographic map).

Extremes.--1942-43: Maximum gage height over 6.0 ft (estimated) Oct. 31, 1942 (discharge not determined); minimum discharge observed, 16 cfs Sept. 17-24, 1942 (gage height, 0.94 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.			
1942						32.6	22.5	18.3	#33.8			
1943						25.2	26.9	20.4	79.9			

* Not previously published; partly estimated on the basis of gage heights and records for nearby streams.

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.			
1942						2,000	1,380	1,080	#2,080			
1943						1,550	1,650	1,210	4,910			

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1942	962	-	-	#16	-	-	-	-	-
1943	982	89	Aug. 29, 1943	#17	-	-	-	-	-

* Not previously published.

NEWSKAH CREEK BASIN

8. Newskah Creek near Aberdeen, Wash.

Location.--Lat 46°54'45" (revised), long. 123°49'20", in SE¼SE¼ sec. 32, T. 17 N., R. 9 W., on right bank 3½ miles upstream from mouth and 4 miles south of Aberdeen.

Drainage area.--8.0 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

Extremes.--1945-49: Maximum discharge recorded, 570 cfs Feb. 17, 1949, but may have been greater Oct. 19, 1947 when water-stage recorder was not operating; minimum discharge, 1.6 cfs Sept. 9-12, 28, 1946 (gage height, 2.15 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	12.6	81.4	80.7	83.0	88.5	58.2	45.4	11.3	11.1	9.93	2.87	2.50	40.3
1947	22.1	68.2	86.5	75.9	87.4	22.5	26.7	9.75	12.7	9.24	4.91	5.08	35.6
1948	80.4	70.2	87.8	74.1	77.4	51.4	46.4	54.8	9.43	5.50	4.46	21.9	48.6
1949	30.5	87.2	114	27.8	116	46.2	21.5	21.6	5.96	3.17	3.06	3.87	39.6

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	776	4,840	4,960	5,100	4,920	3,580	2,700	694	662	611	176	149	29,170
1947	1,360	4,060	5,320	4,670	4,860	1,380	1,590	600	756	568	302	302	25,770
1948	14,940	4,180	5,400	4,500	4,450	3,160	2,760	3,370	561	336	275	1,300	55,290
1949	1,880	5,190	7,040	1,710	6,440	2,640	1,280	1,330	355	195	188	230	28,680

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1092	387	Dec. 28, 1945	1.6	40.3	5.04	69.37	29,170	40.5	68.74	29,330
1947	1092			2.0	35.6	4.45	60.38	25,770	40.8	69.25	29,550
1948	1122	554	Mar. 21, 1946	3.5	48.6	6.08	82.74	35,290	48.0	81.75	34,880
1949	1152	570	Feb. 17, 1949	2.4	39.6	4.95	67.19	28,680	-	-	-

9. Charlies Creek near Aberdeen, Wash.

Location.--Lat 46°56'25", long. 123°48'10", in SE $\frac{1}{4}$ (Revised) sec. 21, T. 17 N., R. 9 W., on left bank 2 miles upstream from mouth and 2 miles south of Aberdeen.

Drainage area.--5.70 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (by barometer).

Extremes.--1945-49: Maximum discharge, 436 cfs Feb. 2, 1947; maximum gage height, 11.57 ft Oct. 19, 1947; minimum discharge, 0.3 cfs Sept. 11, 1946.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	#9.09	50.2	51.5	48.8	51.9	36.9	29.8	9.91	9.70	6.83	2.99	1.78	#25.6
1947	9.38	33.5	44.4	37.1	47.9	17.2	17.0	7.27	8.07	6.44	3.22	3.59	19.4
1948	29.1	30.0	54.5	54.5	53.2	36.4	31.5	37.8	8.27	4.25	2.20	6.52	29.0
1949	15.3	56.6	77.1	19.2	81.0	30.8	16.1	14.5	5.29	3.67	3.11	4.27	26.9

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	#559	2,990	3,160	3,000	2,880	2,270	1,770	610	577	420	184	106	#18,530
1947	577	1,980	2,730	2,280	2,680	1,060	1,010	447	480	396	198	214	14,030
1948	1,790	1,790	3,550	3,550	2,060	2,240	1,860	2,320	492	260	135	398	21,040
1949	943	3,370	4,740	1,180	4,500	1,890	958	893	315	226	191	254	19,460

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1946	1092	241	Dec. 28, 1945	0.5	#25.6	#4.49	#60.97	#18,530	23.6	56.28	17,100	
1947	1092	436	Feb. 2, 1947	1.6	19.4	3.40	46.17	14,030	21.7	51.57	15,680	
1948	1122	390	Mar. 21, 1948	.9	29.0	5.09	69.25	21,040	31.9	76.22	23,160	
1949	1152	388	Feb. 17, 21, 1949	2.4	26.9	4.72	64.06	19,460	-	-	-	

* Not previously published.

CHEHALIS RIVER BASIN

10. Chehalis River near Pe Ell, Wash.

Location (revised).--Lat 46°32'15", long. 123°17'25", in SW $\frac{1}{4}$ sec. 10, T. 12 N., R. 5 W., on left bank two-thirds of a mile upstream from Crim Creek and 2 $\frac{1}{2}$ miles south of Pe Ell.

Drainage area.--54.7 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 440 ft (from topographic map).

Extremes.--July to November 1944: Maximum discharge, 312 cfs Nov. 1 (gage height, 4.18 ft, from recorded range in stage), from rating curve extended above 120 cfs; minimum, 17 cfs Sept. 9-13 (gage height, 1.14 ft).

Remarks.--No known diversion or regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							-	22.5	28.0	42.7	-	

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							-	1,380	1,670	2,630	-	

CHEHALIS RIVER BASIN

11. Rock Creek near Pe Ell, Wash.

Location.--Lat 46°33'00", long. 123°20'25" (revised), in SW $\frac{1}{4}$ sec. 5, T. 12 N., R. 5 W., on right bank 1 mile upstream from McCormick Creek and 2 $\frac{1}{2}$ miles southwest of Pe Ell.

Drainage area.--13.4 sq mi.

Gage.--Staff gage. Altitude of gage is 520 ft (from topographic map).

Extremes.--July to November 1944: Maximum discharge, 71 cfs Nov. 1 (gage height, 1.74 ft, from graph based on gage readings); minimum observed, 1.7 cfs Aug. 28, 30, Sept. 5-7, 9 (gage height, 0.64 ft).

Remarks.--Small diversions for irrigation and power above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							-	2.57	2.30	5.61	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							-	158	137	345	-		

12. Chehalis River near Doty, Wash.

Location.--Lat 46°37'00", long. 123°16'40", in NW $\frac{1}{4}$ sec. 14, T. 13 N., R. 5 W., on right bank 1 $\frac{1}{2}$ miles upstream from Elk Creek, 1 $\frac{1}{2}$ miles south of Doty, and 3 $\frac{1}{2}$ miles north of Pe Ell.

Drainage area.--113 sq mi.

Gage.--Staff gage. Datum of gage is 302.1 ft above mean sea level (river-profile survey).

Average discharge.--11 years (1939-50), 530 cfs.

Extremes.--1939-50: Maximum discharge, 18,100 cfs Feb. 7, 1945 (gage height, 17.80 ft, estimated by observer, water over gage); minimum observed, 22 cfs Aug. 18-21, 26, 1940, but may have been less Oct. 1-3, 1939, before gage was installed.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	73.1	144	1,667	878	1,771	1,065	549	542	78.1	40.1	29.7	33.9	570
1941	262	500	750	1,025	387	308	207	396	127	55.7	45.5	229	358
1942	244	741	1,728	488	853	441	248	258	285	128	56.1	32.4	455
1943	131	1,263	1,310	533	1,320	669	846	218	129	59.5	43.8	29.8	540
1944	156	220	653	849	846	433	508	165	108	47.5	32.5	36.1	321
1945	49.5	502	350	1,039	1,293	1,528	536	324	104	46.6	33.1	105	486
1946	71.8	1,179	1,430	1,563	1,567	875	690	161	128	110	44.3	51.8	650
1947	271	1,191	1,471	1,948	1,326	424	389	131	140	73.0	36.5	83.3	535
1948	891	891	842	1,229	1,129	773	698	700	122	56.6	43.8	124	624
1949	241	1,189	1,480	318	2,054	819	312	304	77.5	48.1	34.5	36.6	566
1950	181	1,114	1,343	1,125	1,911	1,724	753	275	93.5	53.7	86.7	56.5	719

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	4,500	8,550	102,500	54,000	101,800	65,500	32,660	33,320	4,650	2,470	1,830	2,020	413,800
1941	16,110	29,760	46,120	63,000	21,500	18,950	12,330	24,350	7,530	3,300	2,800	13,630	259,400
1942	14,990	44,090	106,300	29,980	47,370	27,130	14,740	14,630	16,950	7,870	3,450	1,930	329,400
1943	8,080	75,160	80,550	32,750	73,330	41,140	50,320	13,420	7,700	3,660	2,700	1,770	390,600
1944	9,580	13,120	40,170	52,230	37,150	26,640	30,210	10,210	6,410	2,920	2,000	2,150	232,800
1945	2,980	29,890	21,550	63,910	71,820	93,940	31,870	19,930	6,170	2,870	2,040	6,260	353,200
1946	4,420	70,130	87,930	96,100	87,050	53,790	41,090	9,920	7,620	6,770	2,730	3,080	470,600
1947	16,670	70,850	90,430	58,280	75,670	26,040	23,130	8,060	8,360	4,490	2,240	4,960	387,200
1948	54,770	53,030	51,790	75,540	64,940	47,560	41,560	43,050	7,260	3,480	2,700	7,360	453,000
1949	14,840	70,760	91,030	19,570	114,100	50,360	18,590	18,700	4,610	2,960	2,180	2,180	409,800
1950	11,140	66,280	82,570	69,180	106,100	106,000	44,800	16,890	5,560	3,300	5,330	3,360	520,500

Yearly discharge, in cubic feet per second, of Chehalis River near Doty, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1940	902	15,100	Dec. 15, 1939	22	570	\$5.04	\$68.66	413,800	538	64.75	390,200
1941	932	9,140	Jan. 17 or 18, 1941	29	358	3.17	43.03	259,400	460	55.21	332,800
1942	962	8,780	Dec. 19, 1941	28	455	4.03	54.66	329,400	453	54.40	327,800
1943	982	*6,260	Feb. 6, 1943*	25	540	4.78	64.82	390,600	400	48.08	289,700
1944	1012	5,670	Dec. 3, 1943	25	321	2.84	38.62	232,800	309	37.20	224,300
1945	1042	a18,100	Feb. 7, 1945	24	488	4.32	58.61	353,200	637	76.55	461,300
1946	1062	7,910	Nov. 26, 1945	37	850	5.75	78.10	470,600	671	80.68	486,100
1947	1092	9,980	Feb. 2, 1947	30	535	4.73	64.25	387,200	509	61.19	369,800
1948	1122	8,720	Jan. 2, 1948	31	624	5.52	75.17	453,000	648	77.99	470,100
1949	1152	12,800	Feb. 22, 1949	23	566	5.01	68.00	409,800	543	65.25	393,200
1950	1182	11,400	Nov. 27, 1949	29	719	6.36	86.37	520,500	-	-	-

* Revised.

‡ Not previously published.

a Estimated.

13. Elk Creek near Doty, Wash.

Location.--Lat 46°37'40", long. 123°19'50", in NE¹ sec. 8, T. 13 N., R. 5 W., on left bank half a mile upstream from Nine Creek, 1 mile upstream from Deer Creek, and 2½ miles west of Doty.

Drainage area.--46.7 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 360 ft (from topographic map). Prior to Aug. 15, 1944, staff gage at datum 0.75 ft higher.

Average discharge.--6 years (1944-50), 164 cfs.

Extremes.--1942-50: Maximum discharge, 2,380 cfs Feb. 22, 1949 (gage height, 8.21 ft, from rating curve extended above 1,600 cfs); minimum, 8.6 cfs Sept. 9-11, 1944.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	43.1	20.5	12.9	-
1943	\$55.2	-	-	-	-	-	-	-	-	27.6	18.5	16.8	-
1944	42.7	-	-	-	-	-	-	-	-	20.1	13.8	16.9	-
1945	26.5	144	117	275	305	278	162	105	42.1	19.5	15.0	27.9	125
1946	28.4	245	349	386	412	248	171	59.2	46.8	33.7	16.3	23.5	167
1947	79.4	285	460	279	378	134	108	44.0	40.2	21.7	15.5	17.3	154
1948	127	278	245	347	326	236	181	187	59.0	28.9	22.2	28.7	172
1949	60.4	243	509	121	553	198	95.8	86.8	32.6	20.2	16.9	15.5	160
1950	42.3	229	390	351	652	470	198	89.9	40.1	25.8	21.8	19.2	209

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	2,650	1,260	766	-
1943	\$3,390	-	-	-	-	-	-	-	-	1,700	1,140	1,000	-
1944	2,620	-	-	-	-	-	-	-	-	1,240	847	1,010	-
1945	1,630	8,600	7,210	16,890	16,930	17,120	9,620	6,440	2,500	1,200	922	1,660	90,720
1946	1,740	14,580	21,430	23,710	22,860	15,220	10,200	3,640	2,780	2,070	1,000	1,400	120,600
1947	4,880	16,950	28,250	17,150	20,980	8,210	6,800	2,710	2,390	1,340	951	1,030	111,300
1948	7,820	16,540	15,080	21,330	18,720	14,480	10,790	11,520	3,510	780	1,370	1,710	124,600
1949	3,710	14,490	31,290	7,420	30,720	12,180	5,700	5,340	1,940	1,240	1,040	922	116,000
1950	2,600	13,610	24,000	22,220	36,210	28,880	11,770	5,530	2,390	1,580	1,340	1,140	151,300

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1942	962	-	-	*12	-	-	-	-	-	-	-
1943	982	-	-	*13	-	-	-	-	-	-	-
1944	1012	-	-	*8.6	-	-	-	-	-	-	-
1945	1042	1,370	Feb. 7, 1945	13	125	2.68	36.43	90,720	153	44.58	111,000
1946	1062	1,720	Dec. 28, 1945	14	167	3.58	48.42	120,600	184	53.39	135,060
1947	1092	1,820	Dec. 11, 1946	13	154	3.30	44.67	111,300	139	40.38	100,600
1948	1122	1,320	Mar. 21, 1948	14	172	3.68	50.04	124,600	186	54.08	134,700
1949	1152	2,380	Feb. 22, 1949	12.5	160	3.45	46.57	116,000	147	42.84	106,700
1950	1182	1,770	Dec. 28, 1949	13	209	4.48	60.74	151,300	-	-	-

* Not previously published.

Note.--Station discontinued Oct. 31, 1950. October 1950: 94.9 cfs; 5,830 acre-ft.

14. South Fork Chehalis River at Boistfort, Wash.

Location.--Lat 46°32'45", long. 123°07'55", in NW¼ sec. 12, T. 12 N., R. 4 W., on left bank a quarter of a mile south of Boistfort and 6 miles upstream from mouth.

Drainage area.--49.2 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 255 ft (from topographic map). Prior to Aug. 15, 1944, staff gage 500 ft downstream at datum 1.45 ft lower.

Average discharge.--6 years (1944-50), 209 cfs.

Extremes.--1942-50: Maximum discharge, 7,250 cfs (revised) Feb. 7, 1945 (gage height, 11.57 ft), from rating curve extended above 1,400 cfs; minimum, 2.5 cfs Sept. 14, 1944 (gage height, 1.67 ft).

Remarks.--Small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	33.8	15.8	10.5	-
1943	#26.0	-	-	-	-	-	-	-	-	20.2	13.5	9.13	-
1944	43.3	-	-	-	-	-	-	-	-	12.7	7.85	8.88	-
1945	15.8	144	120	368	487	558	217	98.4	38.3	15.5	8.79	22.7	172
1946	17.2	395	526	572	545	311	232	58.2	32.0	26.0	10.6	12.8	226
1947	49.9	371	547	321	470	173	127	44.0	35.0	17.1	10.2	14.0	180
1948	226	276	282	493	441	263	185	230	47.9	18.4	11.6	15.9	208
1949	38.3	380	680	146	*929	245	81.4	100	29.2	13.7	8.83	8.81	*208
1950	32.7	412	545	515	737	541	213	73.3	34.6	16.7	12.5	8.87	259

* Revised.

† Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	2,080	972	624	-
1943	#1,600	-	-	-	-	-	-	-	-	1,240	828	543	-
1944	2,660	-	-	-	-	-	-	-	-	778	483	528	-
1945	973	8,540	7,370	22,650	27,030	34,320	12,930	5,930	2,280	952	541	1,350	124,900
1946	1,080	23,510	32,320	35,170	30,290	19,130	13,830	3,580	1,900	1,600	655	764	163,800
1947	3,070	22,050	33,520	19,740	26,120	10,640	7,560	2,710	2,080	1,050	627	835	150,100
1948	15,910	16,410	17,340	29,700	25,340	17,400	11,030	14,120	2,850	1,130	714	948	150,900
1949	2,360	22,600	40,600	8,980	*46,040	15,040	5,440	6,160	1,740	841	543	524	*150,900
1950	2,010	24,510	33,520	31,680	40,920	33,260	12,650	4,510	2,060	1,030	770	528	187,400

* Revised.

† Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1942	962	-	-	#8.4	-	-	-	-	-	-	-	-
1943	982	-	-	#7.6	-	-	-	-	-	-	-	-
1944	1012	-	-	#2.8	-	-	-	-	-	-	-	-
1945	1042	*7,250	Feb. 7, 1945	5.1	172	3.50	47.59	124,900	228	62.83	164,900	-
1946	1062	*3,200	Dec. 29, 1945	7.5	226	4.59	62.43	163,800	229	63.13	165,700	-
1947	1092	*3,500	Feb. 2, 1947	7.5	180	3.66	49.57	130,100	164	45.35	119,000	-
1948	1122	*3,300	Jan. 2, 1948	3.7	208	4.23	57.50	150,900	232	64.32	168,600	-
1949	1346, 1152	*6,250	Feb. 17, 1949	4.9	*209	*4.23	*57.49	*150,900	*201	*55.40	*145,300	-
1950	1182	5,000	Nov. 27, 1949	5.6	259	5.26	71.43	187,400	-	-	-	-

* Revised.

† Not previously published.

15. Halfway Creek near Boistfort, Wash.

Location (revised).--Lat 46°31'35", long. 123°08'55", in NW¼ sec. 14, T. 12 N., R. 4 W., on right bank 350 ft upstream from mouth and 1½ miles southwest of Boistfort.

Drainage area.--13.4 sq mi.

Gage.--Staff gage. Altitude of gage is 310 ft (from topographic map).

Extremes.--July to November 1944: Maximum discharge, 28 cfs (revised) Nov. 1 (gage height, 1.41 ft, revised, from graph based on gage readings); minimum observed, 1.4 cfs Sept. 7-11.

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second										
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
1944							3.14	2.05	1.59	2.50

Monthly runoff, in acre-feet, of Halfway Creek near Boistfort, Wash.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							193	126	95	154	-		

16. Bunker Creek near Adna, Wash.

Location.--Lat 46°39'05" (revised), long. 123°07'30", in SE $\frac{1}{4}$ sec. 36, T. 14 N., R. 4 W., on left bank 0.4 mile upstream from Deep Creek and $3\frac{1}{2}$ miles northwest of Adna.

Drainage area.--20.1 sq mi.

Gage.--Staff gage. Altitude of gage is 210 ft (from topographic map).

Extremes.--July to November 1944: Maximum discharge observed, 15 cfs Nov. 2, 3, 4; maximum gage height observed, 1.69 ft Nov. 4; minimum discharge observed, 0.1 cfs Sept. 3, 9, 11, 12.

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							0.81	0.27	0.33	0.63	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							50	17	20	39	-		

17. Stearns Creek near Napavine, Wash.

Location.--Lat 46°34'40", long. 122°59'00", in SW $\frac{1}{4}$ sec. 30, T. 13 N., R. 2 W., on left bank 4 miles west of Napavine and $4\frac{1}{2}$ miles upstream from mouth.

Drainage area.--14.1 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 200 ft (from topographic map). Prior to Aug. 9, 1945, staff gage at same site and datum.

Extremes.--July to October 1945: Maximum discharge, 11 cfs Sept. 4 (gage height, 1.78 ft); minimum, 1.2 cfs Aug. 22 (gage height, 1.23 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1945							-	1.75	2.88	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1945							-	107	171	-			

18. Stearns Creek near Adna, Wash.

Location.--Lat 46°35'50", long. 123°00'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 24, T. 13 N., R. 3 W., on right bank 300 ft upstream from county road bridge, 3 miles upstream from mouth, and $3\frac{1}{2}$ miles southeast of Adna.

Drainage area.--27.1 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 190 ft (from topographic map). Prior to July 22, 1944, staff gage a quarter of a mile downstream at different datum.

Extremes.--July to November 1944: Maximum discharge, 18 cfs Nov. 3 (gage height, 2.62 ft), from rating curve extended above 3.3 cfs; minimum, 0.1 cfs July 26 (gage height, 1.48 ft).

Remarks.--A few small diversions for irrigation above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							-	2.53	2.72	3.49	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							-	155	162	215	-		

19. Chehalis River near Chehalis, Wash.

Location (revised).--Lat 46°38'30", long. 123°00'55", in NE¼ sec. 2, T. 13 N., R. 3 W., at highway bridge 2 miles upstream from Newaukum River and 2 miles southwest of Chehalis.

Drainage area.--434 sq mi (revised).

Gage.--Chain gage. Altitude of gage is 170 ft (from topographic map). Prior to Aug. 15, 1929, staff gage at same site and datum.

Extremes.--1929-31: Maximum discharge, 11,400 cfs (revised) Apr. 1, 1931 (gage height, 29.20 ft, from graph based on gage readings); minimum, 54 cfs Oct. 1, 1929 (gage height, 1.37 ft).

Remarks.--Minor diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	The year
1929	-	-	-	-	-	2,040	2,580	662	561	208	-
1930	103	99.2	1,750	1,200	3,830	1,610	829	649	324	140	874
1931	174	674	667	3,230	2,250	2,620	3,110	375	458	237	1,160

Monthly and yearly runoff, in acre-feet											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	The year
1929	-	-	-	-	-	125,000	154,000	40,700	33,400	12,800	-
1930	6,330	5,900	108,000	73,800	213,000	99,000	49,300	39,900	19,300	8,610	634,000
1931	10,700	40,100	41,000	199,000	125,000	161,000	185,000	23,100	27,300	14,600	842,000

Yearly discharge, in cubic feet per second										Calendar year	
Year	W.S.P. no.	Water year ending Sept. 30				Runoff				Mean	Runoff
		Momentary discharge	Maximum Date	Minimum day	Mean	Per square mile	Inches	Acre-feet			
1929	692	*7,880	Apr. 15, 1929	*60	-	-	-	-	-	-	-
1930	707	7,580	Dec. 23, 1929	54	874	2.01	27.33	634,000	836	26.12	605,000
1931	722	*11,400	Apr. 1, 1931	79	1,160	2.67	36.39	842,000	-	-	-

* Revised.

‡ Not previously published.

20. Newaukum River near Onalaska, Wash. 1/

Location.--Lat 46°34'35", long. 122°41'00", on line between secs. 28 and 33, T. 13 N., R. 1 E., on left bank 0.9 mile upstream from Lost Creek and 1¼ miles east of Onalaska.

Drainage area.--40.8 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 540 ft (from topographic map). Prior to Sept. 28, 1944, staff gage at datum 0.93 ft higher.

Extremes.--1942-48: Maximum discharge, 3,810 cfs Dec. 11, 1946 (gage height, 8.40 ft); minimum observed, 21 cfs Sept. 6, 8-12, 1944.

Remarks.--A few small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	The year
1942	-	-	-	-	-	-	-	-	-	91.5	29.5
1943	*58.0	-	-	-	-	-	-	-	-	47.4	26.9
1944	60.7	-	-	-	-	-	-	-	-	34.6	39.9
1945	45.3	152	143	398	388	414	304	230	75.4	40.7	50.2
1946	53.4	448	383	486	525	336	161	95.4	107	87.6	37.8
1947	165	298	612	332	334	195	249	75.0	73.1	43.5	51.4
1948	231	481	309	420	378	244	241	218	94.0	50.1	72.9
1949	108	-	-	-	-	-	-	-	-	-	-

‡ Not previously published; partly estimated from graph based on gage readings.

1/ Published as South Fork Newaukum River near Onalaska prior to October 1943.

Monthly and yearly runoff, in acre-feet, of Newaukum River near Onalaska, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	5,630	2,660	1,760	-
1943	*3,570	-	-	-	-	-	-	-	-	2,910	2,040	1,600	-
1944	3,730	-	-	-	-	-	-	-	-	2,130	1,680	2,370	-
1945	2,790	9,020	8,800	24,450	21,520	25,470	18,090	14,140	4,480	2,500	2,050	2,990	136,300
1946	3,280	26,640	23,580	29,890	29,170	20,660	9,570	5,860	6,360	5,390	2,360	2,250	165,000
1947	10,120	17,720	37,650	20,430	18,530	12,000	14,790	4,610	4,350	2,670	1,940	3,060	147,900
1948	14,220	28,620	18,980	25,800	21,720	14,990	14,340	13,380	5,800	3,080	3,180	4,340	168,200
1949	6,640	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated from graph based on gage readings.

Yearly discharge, in cubic feet per second

nearly discharge, in cubic feet per second											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1942	962	-	-	#26	-	-	-	-	-	-	-
1943	982	-	-	#24	-	-	-	-	-	-	-
1944	1012	-	-	#21	-	-	-	-	-	-	-
1945	1042	2,680	Feb. 7, 1945	28	188	4.61	62.63	136,300	234	77.74	169,200
1946	1062	1,910	(a)	30	228	5.59	75.84	165,000	245	81.36	177,000
1947	1092	3,810	Dec. 11, 1946	28	204	5.00	67.97	147,900	199	66.27	144,200
1948	1122	2,030	Nov. 7, 1947	36	232	5.69	77.31	168,200	-	-	-
1949	1122	-	-	-	-	-	-	-	-	-	-

* Not previously published.

a Dec. 28, 1945, Jan. 4, 1946.

21. North Fork Newaukum River near Forest, Wash.

Location.--Lat 46°39'20", long. 122°46'40", in SW $\frac{1}{4}$ sec. 35, T. 14 N., R. 1 W., on right bank $1\frac{1}{4}$ miles upstream from Lucas Creek and $5\frac{1}{2}$ miles northeast of Forest.

Drainage area.--32.5 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 380 ft (from topographic map).

Extremes.--July to November 1944: Maximum discharge, 130 cfs Nov. 1 (gage height, 3.57 ft); minimum, 2.4 cfs Sept. 9-11 (gage height, 1.66 ft).

Remarks.--Cities of Chehalis and Centralia divert about 15 cfs above station for municipal use. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							-	5.16	11.8	17.6	-	

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							-	317	704	1,080	-	

22. Newaukum River near Chehalis, Wash.

Location (revised).--Lat 46°37'10", long. 122°56'40", on line between secs. 9 and 16, T. 13 N., R. 2 W., on left bank at highway bridge $2\frac{1}{2}$ miles southeast of Chehalis and $3\frac{1}{2}$ miles upstream from mouth.

Drainage area.--159 sq mi.

Gage.--Staff gage. Altitude of gage is 190 ft (from topographic map). Prior to Oct. 1, 1929, at datum 1.0 ft higher.

Average discharge.--10 years (1929-31, 1942-50), 467 cfs (unadjusted).

Extremes.--1929-31, 1942-50: Maximum discharge, 6,440 cfs Feb. 17, 1949 (gage height, 13.06 ft, from graph based on gage readings), from rating curve extended above 3,800 cfs by logarithmic plotting; minimum observed, 12 cfs Sept. 13, 14, 1949; minimum gage height, 0.74 ft (present datum) Sept. 12, 13, 15, 1929.

Remarks.--Cities of Chehalis and Centralia divert about 15 cfs above station for municipal use. No regulation.

CHEHALIS RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Newaukum River near Chehalis, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	781	696	246	160	59.1	39.0	35.8	-
1930	41.3	47.6	513	437	1,130	604	302	273	145	57.4	35.0	37.2	297
1931	69.1	262	298	914	624	771	849	151	169	73.0	39.0	54.7	354
1942	-	-	-	-	-	-	-	-	-	153	71.5	45.2	-
1943	69.1	1,114	1,118	635	1,232	587	603	227	145	79.7	53.6	40.0	†486
1944	135	216	690	705	629	414	410	181	111	51.4	43.8	68.1	304
1945	79.0	336	368	844	1,038	1,040	635	440	144	55.4	46.8	87.9	423
1946	80.0	797	965	1,290	1,333	1,001	380	158	232	147	56.6	57.0	537
1947	297	966	1,318	937	934	516	565	130	115	68.2	42.0	71.3	494
1948	461	1,088	796	1,216	1,109	673	627	618	178	80.8	79.3	137	587
1949	233	1,109	1,678	399	1,582	815	328	300	97.4	42.3	33.2	47.4	549
1950	187	698	1,188	1,334	1,624	1,283	683	259	135	71.0	46.6	40.3	636

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	48,000	41,400	15,100	9,520	3,630	2,400	2,130	-
1930	2,540	2,830	31,500	26,900	62,800	37,100	18,000	16,800	8,650	3,530	2,150	2,210	215,000
1931	4,250	15,600	18,300	56,200	34,700	47,400	50,500	9,280	10,100	4,490	2,400	3,250	256,000
1942	-	-	-	-	-	-	-	-	-	9,420	4,400	2,690	-
1943	4,250	66,200	69,750	39,060	68,410	36,120	35,870	13,940	8,640	4,900	3,290	2,380	351,900
1944	8,300	12,880	42,430	43,320	36,210	25,440	24,430	11,130	6,850	3,180	2,680	4,050	220,600
1945	4,860	19,970	22,640	51,890	57,630	63,950	37,810	27,050	8,590	3,400	2,680	5,230	306,900
1946	4,920	47,440	59,370	79,330	74,050	61,580	22,600	9,720	13,820	9,070	3,480	3,390	388,600
1947	16,270	57,510	81,040	57,610	51,850	31,750	33,510	6,000	6,840	4,190	2,580	4,240	357,400
1948	28,340	64,710	48,950	74,760	63,780	41,390	37,310	37,970	10,620	4,970	4,870	6,180	425,800
1949	14,310	65,980	103,200	24,560	87,840	50,090	19,490	18,480	5,790	2,600	2,040	2,820	397,200
1950	11,480	40,940	73,030	62,040	101,300	78,900	40,660	15,910	8,020	4,360	2,860	2,400	461,900

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1929	692	*3,090	Mar. 27, 1929	-	-	-	-	-	-
1930	707	*3,090	Mar. 24, 1930	27	297	215,000	299	216,000	-
1931	722	*6,120	Apr. 1, 1931	31	354	256,000	-	-	-
1942	962	-	-	-	-	-	-	-	-
1943	1012	4,990	Nov. 23, 1942	34	†486	351,900	380	276,200	-
1944	1012	4,500	Dec. 3, 1943	33	304	220,600	282	204,500	-
1945	1042	*4,760	Feb. 8, 1945*	33	423	305,900	511	370,200	-
1946	1062	*4,700	Feb. 6, 1946	39	537	388,800	599	433,900	-
1947	1092	5,400	Dec. 11, 1946	34	494	357,400	473	342,600	-
1948	1122	4,680	Mar. 22, 1948	49	587	425,800	644	457,300	-
1949	1152	6,440	Feb. 17, 1949	14	549	397,200	468	339,100	-
1950	1182	*5,720	Feb. 24, 1950	25	636	461,900	-	-	-

* Revised.

† Corrected.

23. Skookumchuck River near Centralia, Wash.

Location.--Lat 46°47'15", long. 122°42'45", in SW¼ sec. 17, T. 15 N., R. 1 E., on left bank half a mile upstream from Bloody Run Creek, 4½ miles upstream from Thompson Creek, and 12 miles northeast of Centralia.

Drainage area.--60.8 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 300.00 ft above mean sea level (river-profile survey). Apr. 1, 1929, to Dec. 6, 1933, staff gage a quarter of a mile downstream at different datum. Oct. 9 to Nov. 29, 1939, staff gage at present site and datum.

Average discharge.--15 years (1929-33, 1939-50), 235 cfs.

Extremes.--1929-33, 1939-50: Maximum discharge, 5,770 cfs Feb. 17, 1949 (gage height, 48.39 ft); minimum, 18 cfs Oct. 27-30, 1944.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Skookumchuck River near Centralia, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	333	152	104	45.9	30.1	24.8	-
1930	26.8	25.7	273	*178	551	309	151	134	77.4	38.0	26.5	23.7	*149
1931	36.1	107	115	441	296	392	411	91.6	98.1	56.1	33.2	42.1	176
1932	*174	*475	*627	*681	*671	*620	*411	*142	*69.0	*72.0	*40.3	*31.7	*333
1933	*65.8	*659	*729	*565	*257	*570	*238	*243	*185	*65.9	*49.2	*102	*311
1934	*216	*282	-	-	-	-	-	-	-	-	-	-	-
1940	44.7	72.7	545	202	621	429	246	223	51.5	35.9	26.1	25.2	209
1941	75.0	181	257	296	149	129	110	155	84.7	41.1	32.1	79.3	132
1942	141	297	632	211	296	197	114	139	212	89.9	44.5	28.8	200
1943	46.2	528	531	268	516	294	335	97.5	94.5	55.3	35.0	26.0	233
1944	61.0	104	346	404	261	195	220	101	61.5	30.1	24.2	30.6	155
1945	35.4	195	154	442	465	503	343	249	74.8	*46.4	26.0	41.8	*215
1946	44.9	521	525	642	630	454	213	109	130	102	41.3	36.2	285
1947	134	464	778	450	489	227	253	71.0	64.6	42.6	29.2	38.0	252
1948	282	409	401	525	504	339	331	285	96.0	49.4	47.8	70.9	278
1949	129	459	691	166	802	452	206	195	60.0	36.5	28.8	28.4	268
1950	66.1	346	592	595	938	712	451	182	98.7	47.3	36.1	31.9	338

* Revised.

* Not previously published; discharge obtained from unpublished gage heights or estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	19,800	9,350	6,190	2,820	1,850	1,480	-
1930	1,650	1,530	16,800	*10,900	30,600	19,000	8,980	8,240	4,610	2,340	1,630	1,410	*108,000
1931	2,220	6,370	7,070	27,100	16,400	24,100	24,500	5,630	5,840	3,450	2,040	2,510	127,000
1932	*10,700	*28,500	*38,600	*41,900	*39,800	38,100	*24,500	*6,730	*4,110	*4,450	*2,450	*1,890	*242,000
1933	*4,050	*3,200	*44,800	*34,700	*14,300	35,000	*14,200	*14,900	*11,000	*4,050	*3,030	*6,070	*225,000
1934	*13,280	*16,780	-	-	-	-	-	-	-	-	-	-	-
1940	2,750	4,330	33,480	12,410	35,740	26,400	14,630	13,710	3,070	2,080	1,600	1,500	151,700
1941	4,610	10,750	15,810	18,200	8,260	7,900	6,530	9,510	5,040	2,530	1,970	4,720	95,830
1942	8,700	17,680	38,880	12,980	16,450	12,110	6,780	8,520	12,630	5,530	2,740	1,710	144,700
1943	2,840	31,400	32,650	16,490	28,580	18,080	19,940	5,990	5,630	3,400	2,150	1,550	169,800
1944	3,750	6,190	21,270	24,810	15,000	11,980	13,080	6,190	3,660	1,850	1,490	1,820	111,100
1945	2,180	11,800	9,470	27,170	25,830	30,950	20,430	15,330	4,450	*2,850	1,600	2,490	*154,400
1946	2,760	30,980	32,290	39,480	34,990	27,910	12,690	6,700	7,750	6,300	2,540	2,190	206,600
1947	8,250	27,630	47,860	27,680	27,170	13,930	15,060	4,360	3,840	2,620	1,790	2,260	182,400
1948	17,340	24,330	24,660	32,290	29,000	20,840	19,710	17,510	5,710	3,040	2,940	4,220	201,600
1949	7,910	27,320	42,510	10,230	44,560	27,810	12,280	11,990	3,570	2,250	1,770	1,690	193,900
1950	4,060	20,560	36,410	36,570	52,120	43,790	26,650	11,220	5,870	2,910	2,220	1,900	244,500

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30										Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		Inches	Acre-feet
1929	722	-	-	*22	-	-	-	-	-	-	-	-	-	-
1930	1286,722	*2,020	Mar. 22, 1930	21	*149	2.45	33.22	*108,000	*143	*31.88	*103,000	-	-	-
1931	722	3,240	Mar. 31, 1931	22	176	2.89	39.23	127,000	*261	*58.29	*189,000	-	-	-
1932	-	*4,180	Feb. 26, 1932	*28	*333	*5.48	*74.61	*242,000	*348	*77.85	*253,000	-	-	-
1933	-	*4,070	Nov. 13, 1932	26	*311	*5.12	*69.44	*225,000	-	-	-	-	-	-
1940	902	2,740	Dec. 15, 1939	21	209	3.44	46.78	151,700	196	43.89	142,300	-	-	-
1941	932	1,880	Jan. 18, 1941	22	132	2.17	29.56	95,830	179	40.06	129,900	-	-	-
1942	962	3,800	Dec. 19, 1941	26	200	3.29	44.61	144,700	202	45.12	146,300	-	-	-
1943	982	2,950	Nov. 23, 1942	23	233	3.63	52.06	168,800	184	41.06	133,100	-	-	-
1944	1012	2,780	Dec. 3, 1943	20	153	2.52	34.26	111,100	142	31.80	103,100	-	-	-
1945	1286,1042	3,080	Feb. 7, 1945	18	*213	*3.50	*47.60	*154,400	*272	*60.80	*197,100	-	-	-
1946	1062	3,080	Dec. 28, 1945	23	285	4.69	63.70	206,600	310	69.15	224,300	-	-	-
1947	1092	3,880	Dec. 11, 1946	25	252	4.14	56.27	182,400	228	50.90	165,000	-	-	-
1948	1122	3,880	Mar. 22, 1948	26	278	4.57	62.17	201,600	293	65.70	213,000	-	-	-
1949	1152	5,770	Feb. 17, 1949	23	268	4.41	59.80	193,900	245	54.64	177,200	-	-	-
1950	1182	5,550	Dec. 28, 1949	24	338	5.56	75.37	244,500	-	-	-	-	-	-

* Revised.

* Not previously published.

CHEHALIS RIVER BASIN

24. Hanaford Creek near Centralia, Wash.

Location.--Lat 46°44'50", long. 122°46'40", in NW $\frac{1}{4}$ sec. 35, T. 15 N., R. 1 W., on right bank $\frac{1}{2}$ mile downstream from Coal Creek and 8 miles east of Centralia.

Drainage area.--13.3 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 240 ft (from topographic map).

Extremes.--July to September 1944: Maximum discharge not determined, occurred during period of no gage-height record; minimum daily (estimated), 2.4 cfs Sept. 8-12.

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1944										3.86	3.15	3.86

Monthly runoff, in acre-feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1944										237	194	230

25. Lincoln Creek near Rochester, Wash.

Location.--Lat 46°44'10", long. 123°10'40", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 34, T. 15 N., R. 4 W., on left bank $\frac{1}{2}$ miles downstream from confluence of North and South Forks and 7 miles southwest of Rochester.

Drainage area.--20.9 sq mi.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 190 ft (from topographic map). Prior to Apr. 1, 1947, staff gage at same site and datum.

Average discharge.--6 years (1944-50), 72.4 cfs.

Extremes.--1942-50: Maximum discharge, 990 cfs Dec. 28, 1949 (gage height, 15.65 ft); minimum observed, 0.4 cfs Aug. 23, 1945.

Remarks.--Small diversion for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	12.0	5.05	2.50	-
1943	\$9.41	-	-	-	-	-	-	-	-	7.32	3.91	2.41	-
1944	8.78	-	-	-	-	-	-	-	-	4.38	2.18	3.41	-
1945	5.21	58.6	55.0	139	152	145	68.9	32.5	12.1	3.47	1.22	4.92	56.0
1946	5.87	112	160	190	172	108	70.5	17.8	10.2	7.37	2.53	3.12	71.0
1947	16.9	128	200	127	157	53.9	49.8	17.4	11.2	6.48	1.63	2.75	63.6
1948	52.4	114	101	154	150	105	77.7	80.7	16.9	4.44	2.71	7.78	72.0
1949	23.7	142	269	51.6	251	95.6	40.0	30.7	8.21	2.70	1.70	1.56	75.4
1950	21.8	116	213	171	299	218	85.1	28.2	9.73	4.94	3.39	2.03	96.5

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	738	311	149	-
1943	\$578	-	-	-	-	-	-	-	-	450	240	143	-
1944	540	-	-	-	-	-	-	-	-	270	134	205	-
1945	320	3,500	3,380	8,570	8,450	8,910	4,100	2,000	718	215	75	295	40,530
1946	361	6,670	9,840	11,700	9,580	6,540	4,200	1,090	607	453	156	186	51,580
1947	1,040	7,480	12,300	7,820	8,730	3,310	2,970	1,070	668	399	100	163	46,050
1948	3,220	6,810	6,210	9,490	8,610	6,440	4,620	4,960	1,000	273	167	462	52,260
1949	1,460	8,420	16,540	3,170	13,930	5,940	2,380	1,890	488	166	105	93	54,580
1950	1,340	6,910	13,090	10,510	16,620	13,390	5,060	1,740	579	304	208	121	69,870

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1942	962	-	-	1.8	-	-	-	-	-	-	-	-
1943	982	-	-	1.6	-	-	-	-	-	-	-	-
1944	1012	-	-	1.2	-	-	-	-	-	-	-	-
1945	1042	830	Feb. 7, 1945	.4	56.0	2.68	36.35	40,530	69.3	45.03	50,200	-
1946	1062	890	Dec. 28, 1945	.6	71.0	3.40	46.10	51,380	76.4	49.63	55,330	-
1947	1092	*934	Jan. 25, 1947	.9	63.6	3.04	41.30	48,050	57.3	37.20	41,470	-
1948	1122	699	Mar. 25, 1948	1	72.0	3.44	46.90	52,260	86.0	56.04	62,440	-
1949	1152	930	Feb. 17, 1949	1.3	75.4	3.61	46.98	54,580	68.4	44.41	49,500	-
1950	1182	990	Dec. 28, 1949	.9	96.5	4.62	62.69	69,870	-	-	-	-

* Revised.

* Not previously published.

Note.--Station discontinued Oct. 31, 1950. October 1950: 33.2 cfs; 2,040 acre-ft.

26. Chehalis River near Grand Mound, Wash.

Location.--Lat 46°46'35", long. 123°02'05", in NE¼ sec. 22, T. 15 N., R. 3 W., on left bank at county bridge at Meadows, 1½ miles southwest of Grand Mound, and 6 miles downstream from Skookumchuck River.

Drainage area.--895 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 123.27 ft above mean sea level, datum of 1929. Prior to Oct. 3, 1934, staff gage at datum 3.00 ft higher.

Average discharge.--22 years (1928-50), 2,645 cfs (revised).

Extremes.--1928-50: Maximum discharge, 48,400 cfs Dec. 29, 1937 (gage height, 18.39 ft); minimum, 108 cfs Sept. 24, 1938.

Remarks.--Many small diversions for irrigation and domestic use above station, including municipal water supply for Centralia and Chehalis. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	549	1,100	2,740	2,800	2,300	3,940	4,390	1,240	900	405	193	197	1,730
1930	272	326	2,790	2,070	6,830	3,100	1,570	1,200	710	287	155	189	1,600
1931	350	1,200	1,230	5,650	3,860	*4,460	5,180	709	885	409	235	314	*2,030
1932	1,470	4,120	5,610	6,030	6,650	7,340	4,320	1,110	588	399	252	242	3,170
1933	532	7,540	9,150	8,260	4,370	6,930	2,380	1,760	1,120	436	295	650	3,620
1934	1,790	2,792	19,280	9,445	2,020	3,453	1,565	891	353	243	189	229	3,558
1935	2,457	9,192	7,475	9,647	3,946	5,127	2,038	745	414	262	171	283	3,482
1936	294	837	1,921	10,320	5,141	5,522	1,577	1,567	2,482	550	264	268	2,561
1937	224	221	3,777	2,160	7,859	4,251	6,787	1,570	1,902	604	312	357	2,460
1938	664	8,107	8,822	5,817	4,193	5,290	3,366	983	381	223	159	171	3,172
1939	374	2,098	3,581	6,401	8,174	3,664	1,086	549	650	330	189	172	2,238
1940	291	497	5,812	3,803	9,067	5,422	3,205	2,870	489	259	160	214	2,656
1941	735	2,139	3,785	4,627	1,884	1,462	1,098	1,451	640	299	212	786	1,586
1942	1,051	3,278	8,181	2,812	4,209	2,226	1,134	1,233	1,589	625	282	180	2,225
1943	249	5,551	5,936	4,107	6,935	2,687	4,161	1,123	762	369	254	208	2,661
1944	615	1,018	3,115	4,153	3,232	2,281	2,406	887	571	240	154	193	1,569
1945	284	1,866	1,850	4,813	6,226	6,151	2,577	1,951	572	256	173	368	2,235
1946	298	3,675	5,455	7,870	7,731	4,583	2,600	840	710	609	237	257	2,878
1947	1,043	5,368	8,042	5,109	6,497	2,569	2,403	710	556	300	172	286	2,725
1948	2,429	4,856	4,531	6,863	6,400	4,272	3,589	3,496	821	348	273	469	2,152
1949	995	5,268	10,260	2,131	11,060	3,956	1,568	1,414	426	243	173	172	3,088
1950	502	4,175	7,414	8,138	10,680	8,497	3,852	1,238	536	265	274	209	3,774

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	33,800	65,500	168,000	172,000	128,000	242,000	261,000	76,200	53,600	24,900	11,900	11,700	1,250,000
1930	16,700	19,400	78,000	127,000	37,000	191,000	93,400	73,800	42,200	17,600	9,530	11,200	1,160,000
1931	21,500	71,400	75,600	47,000	274,000	274,000	308,000	43,600	52,700	25,100	14,400	18,700	*1,470,000
1932	90,400	245,400	305,450	303,710	383,000	451,000	257,000	68,200	35,000	24,500	15,500	14,400	2,300,000
1933	32,700	449,000	663,000	508,000	302,450	408,000	142,000	108,000	66,800	26,800	18,100	38,700	2,620,000
1934	110,000	166,100	186,000	580,000	112,200	12,300	93,140	54,770	21,000	14,970	11,600	13,620	2,576,000
1935	151,100	547,000	459,600	593,200	219,100	1,035,500	121,300	45,800	24,650	16,130	10,500	16,810	2,520,000
1936	18,080	49,800	118,100	634,400	295,700	703,590	93,820	96,330	147,700	33,810	16,220	15,920	1,859,000
1937	15,780	13,170	32,300	152,800	346,400	261,400	405,900	96,540	113,200	37,160	19,190	21,250	1,781,000
1938	40,820	4,856	40,357	7,002	90,325	502,000	200,300	60,430	22,700	13,750	9,760	7,770	2,296,000
1939	22,980	124,800	20,395	60,453	90,225	300	64,610	33,740	38,680	20,290	11,650	10,250	1,620,000
1940	17,910	29,560	557,400	42,330	80,521	600,330	400,190	700,176	500	29,120	15,930	9,820	1,270,000
1941	45,180	127,300	232,700	284,500	104,600	89,910	65,330	89,200	38,080	18,400	13,040	46,780	1,155,000
1942	64,620	195,000	503,000	172,900	323,000	170,360	90,410	75,810	94,560	38,440	17,560	10,730	1,610,000
1943	15,340	330,300	300,685	200,152	500,585	200,185	200,247	600	89,040	45,340	22,690	15,610	1,928,000
1944	37,810	50,600	91,500	255,400	185,900	140,500	145,200	54,550	33,970	14,770	9,480	11,500	1,139,000
1945	17,480	111,000	115,900	296,000	345,800	378,200	155,400	120,000	34,060	15,720	10,560	21,870	1,618,000
1946	18,330	128,700	335,300	483,900	429,000	281,800	154,700	51,630	42,260	37,470	14,560	15,310	2,083,000
1947	64,110	103,190	200,494	500,314	100,360	800,158	000,143,000	43,660	31,880	18,420	10,570	17,040	1,975,000
1948	149,400	275,900	78,600	422,000	368,100	262,700	201,700	215,000	48,830	21,370	16,800	27,900	2,288,000
1949	61,210	131,031	100,311	100,311	000,614	000,243,300	93,320	86,930	25,320	14,930	10,640	10,230	2,235,000
1950	30,880	248,400	455,900	500,400	593,000	522,400	228,000	78,120	31,910	16,320	16,840	12,410	2,732,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30										Calendar year		
		Momentary			Per			Runoff				Runoff		
		Discharge	Maximum	Minimum	Mean	Per square mile	Inches	Acres	Feet	Mean	Inches	Acres	Feet	Mean
1929	692	*13,700	Mar. 27, 1929	170	1,730	1.93	26.20	1,250,000	1,650	24.99	1,200,000			
1930	707	*12,200	Feb. 8, 1930	147	1,600	1.79	24.30	1,160,000	1,540	23.28	1,100,000			
1931	1286,722	19,400	Apr. 1, 1931	212	*2,030	*2.47	*50.81	*1,470,000	*2,730	*41.40	*1,980,000			
1932	737	*23,500	Feb. 27, 1932	209	3,170	3.54	48.18	2,300,000	3,670	55.81	2,650,000			
1933	752	*24,900	Dec. 3, 1932	212	3,620	4.04	54.79	2,620,000	4,200	63.66	3,040,000			
1934	767	*45,700	Dec. 21, 1933	131	3,558	3.98	54.03	2,576,000	3,139	47.65	2,702,000			
1935	792	38,000	Jan. 23, 1935	131	3,482	3.89	52.80	2,520,000	2,139	32.44	1,549,000			

* Revised.

Yearly discharge, in cubic feet per second, of Chehalis River near Grand Mound, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches Acres-feet	Mean	Runoff		
		Discharge	Date						Inches	Acres-feet	
1936	812	36,300	Jan. 13, 1936	178	2,561	2.86	38.87	1,859,000	2,662	40.40	1,933,000
1937	832	24,700	Apr. 15, 1937	193	2,460	2.75	37.33	1,781,000	3,574	54.16	2,587,000
1938	862	48,400	Dec. 29, 1937	111	3,172	3.54	47.99	2,296,000	2,208	33.53	1,599,000
1939	882	24,800	Feb. 16, 1939	135	2,238	2.50	33.94	1,620,000	2,289	34.53	1,657,000
1940	902	22,700	Dec. 17, 1939	124	2,656	2.97	40.43	1,928,000	2,657	40.43	1,929,000
1941	932	18,800	Jan. 19, 1941	152	1,596	1.78	24.14	1,155,000	2,089	31.62	1,512,000
1942	962	26,900	Dec. 20, 1941	160	2,225	2.49	33.80	1,810,000	2,153	32.71	1,559,000
1943	982	20,200	Feb. 7, 1943	165	2,661	2.97	40.26	1,926,000	2,079	31.47	1,505,000
1944	1012	16,400	Feb. 4, 1943	116	1,569	1.75	23.81	1,139,000	1,503	22.82	1,091,000
1945	1042	27,000	Feb. 9, 1945	140	2,235	2.50	33.94	1,618,000	2,690	40.86	1,948,000
1946	1062	23,100	Dec. 30, 1945	172	2,878	3.22	43.71	2,083,000	3,300	50.09	2,389,000
1947	1092	24,200	Jan. 26, 1947	140	2,728	3.05	41.40	1,975,000	2,488	37.74	1,801,000
1948	1122	20,000	Jan. 3, 1948	186	3,152	3.52	47.91	2,288,000	3,568	54.31	2,590,000
1949	1152	36,500	Feb. 18, 1949	131	3,088	3.45	46.83	2,235,000	2,714	41.06	1,965,000
1950	1182	26,300	Feb. 26, 1950	141	3,774	4.22	57.28	2,732,000	-	-	-

27. Scatter Creek near Grand Mound, Wash.

Location--Lat 46°49'30", long. 122°57'20", in SE $\frac{1}{4}$ sec. 32, T. 16 N., R. 2 W., on left bank 300 ft downstream from highway crossing and $3\frac{1}{4}$ miles (revised) northeast of Grand Mound.

Drainage area--21.0 sq mi (revised).

Gage--Water-stage recorder. Altitude of gage is 200 ft (from topographic map).

Extremes--July to September 1944: Maximum discharge, 2.3 cfs July 17, 18 (gage height, 35.19 ft); no flow Sept. 7-15, 19-30.

Remarks--Several small diversions for irrigation above station. No regulation.

Monthly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1944										-	1.05	0.07	

Monthly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1944										-	65	4.0	

28. Wadell Creek near Little Rock, Wash.

Location--Lat 46°54'50", long. 123°03'00", in SW $\frac{1}{4}$ sec. 34, T. 17 N., R. 3 W., on right bank $1\frac{1}{2}$ miles northwest of Little Rock and $1\frac{1}{4}$ miles upstream from mouth.

Drainage area--15.9 sq mi.

Gage--Water-stage recorder. Altitude of gage is 190 ft (from topographic map).

Extremes--July to November 1944: Maximum discharge, 185 cfs Nov. 3 (gage height, 2.88 ft); minimum, 1.8 cfs Sept. 9 (gage height, 1.50 ft).

Remarks--Some regulation by small reservoir on tributaries above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							6.45	4.53	6.80	11.3	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1944							396	279	404	694	-		

29. Black River at Little Rock, Wash.

Location.--Lat 46°54'10", long. 123°01'20", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 2, T. 16 N., R. 3 W., on right bank at bridge crossing in Little Rock, 600 ft downstream from Wadell Creek, and 0.4 mile upstream from Beaver Creek.

Drainage area.--60 sq mi (revised), approximately; does not include area drained by artificial channel from Black Lake to Percival Creek.

Gage.--Water-stage recorder. Altitude of gage is 125 ft (from topographic map). Prior to Sept. 29, 1944, staff gage at same site and datum.

Average discharge.--6 years (1944-50), 162 cfs.

Extremes.--1942-50: Maximum discharge, 1,700 cfs Dec. 28, 1949 (gage height, 7.40 ft), From rating curve extended above 510 cfs; minimum observed, 5.3 cfs Sept. 9, 1944 (gage height, 1.30 ft).

Remarks.--Black Lake at headwaters of Black River is tapped also by an artificial channel through an interbasin divide to Percival Creek which flows into Puget Sound. Records herein do not include inter-basin flow from Black Lake or area drained by this channel. Regulation of Black Lake, by artificial channel to Percival Creek, varies with stage of lake. No other regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	25.5	11.1	8.83	-
1943	#17.8	-	-	-	-	-	-	-	-	22.2	12.2	9.84	-
1944	32.5	-	-	-	-	-	-	-	-	10.8	8.57	10.6	-
1945	15.9	89.4	105	291	318	278	149	83.4	37.9	13.4	8.15	14.4	116
1946	50.1	169	289	413	364	271	193	84.0	46.5	31.2	12.3	11.4	156
1947	35.5	143	346	313	376	154	120	51.6	34.2	16.4	11.5	13.7	133
1948	116	175	202	347	307	267	180	193	88.5	29.7	22.8	36.4	162
1949	72.6	252	652	151	516	249	111	77.7	32.2	17.4	12.8	11.6	178
1950	30.2	235	485	490	583	553	220	98.5	45.9	22.8	23.1	13.9	227

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	1,570	683	525	-
1943	#1,090	-	-	-	-	-	-	-	-	1,370	750	574	-
1944	2,000	-	-	-	-	-	-	-	-	665	527	632	-
1945	977	5,320	6,480	17,910	17,660	17,120	8,880	5,130	2,260	825	501	858	83,920
1946	1,530	10,080	17,770	25,380	20,220	16,640	11,510	3,940	2,760	1,920	774	875	112,900
1947	2,180	8,530	21,270	19,270	20,910	9,490	7,160	3,180	2,040	1,010	710	818	96,570
1948	7,160	10,400	12,430	21,350	17,680	16,590	10,740	11,860	4,080	1,830	1,400	2,160	117,500
1949	4,480	15,020	40,100	9,310	28,640	15,290	6,560	4,780	1,920	1,070	786	693	128,600
1950	1,860	13,830	28,620	30,110	32,360	32,130	13,100	5,060	2,750	1,400	1,420	829	164,400

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1942	962	-	-	#8.2	-	-	-	-
1943	952	-	-	#8.0	-	-	-	-
1944	1012	-	-	#5.6	-	-	-	-
1945	1042	840	Feb. 8, 1945	6.0	116	83,920	138	100,200
1946	1062	840	Jan. 4, 1946	8.6	156	112,900	160	115,800
1947	1092	1,220	Jan. 25, 1947	9.1	133	96,570	131	94,580
1948	1122	695	Jan. 4, 1948	12	162	117,500	203	147,100
1949	1152	1,350	Feb. 23, 1949	10	178	128,600	157	113,400
1950	1182	1,700	Dec. 28, 1949	11	227	164,400	-	-

* Not previously published.

30. Garrod Creek near Oakville, Wash.

Location (revised).--Lat 46°48'45", long. 123°15'05", in SE $\frac{1}{4}$ sec. 1, T. 15 N., R. 5 W., on left bank at road crossing three-quarters of a mile upstream from mouth and $2\frac{1}{4}$ miles southwest of Oakville.

Drainage area.--27.7 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 50 ft (from topographic map).

Extremes.--July to November 1944: Maximum discharge, 90 cfs Nov. 4 (gage height, 3.93 ft); minimum, 2.1 cfs Sept. 12 (gage height, 0.56 ft).

Remarks.--No known diversion or regulation above station.

CHEHALIS RIVER BASIN

Monthly mean discharge, in cubic feet per second, of Garrod Creek near Oakville, Wash.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							7.10	4.21	6.16	10.9	-	

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							437	259	367	669	-	

31. Rock Creek at Cedarville, Wash.

Location.--Lat 46°52'05", long. 123°18'25", in SW1SW1 sec. 15, T. 16 N., R. 5 W., on left bank 0.2 mile downstream from Williams Creek, 1 mile west of Cedarville, and 1 1/4 miles upstream from mouth.

Drainage area.--24.8 sq mi. At site prior to September 1944, 26.5 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 70 ft (from topographic map). Prior to Aug. 17, 1944, staff gage at railroad bridge three-quarters of a mile downstream at different datum.

Average discharge.--6 years (1944-50), 83.4 cfs.

Extremes.--1942-50: Maximum discharge recorded, 1,440 cfs Feb. 7, 1945 (gage height, 12.55 ft, from rating curve extended above 800 cfs); minimum discharge, 0.3 cfs Sept. 25, 1946.

Remarks.--Minor diversions for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	10.5	4.25	1.99	-
1943	*11.1	-	-	-	-	-	-	-	-	5.08	2.71	2.70	-
1944	22.6	-	-	-	-	-	-	-	-	4.15	1.62	2.92	-
1945	5.33	90.1	72.6	202	186	147	62.2	30.2	5.61	3.33	1.47	4.38	66.8
1946	5.80	131	198	207	192	125	101	22.3	11.6	6.40	1.51	1.22	82.9
1947	13.8	110	209	167	191	65.6	68.1	14.7	12.1	5.36	2.80	3.30	71.2
1948	81.9	127	141	188	198	121	85.7	100	17.2	6.63	4.20	7.69	89.6
1949	29.4	190	287	57.3	283	82.1	39.2	37.4	9.06	3.60	2.02	2.11	83.8
1950	12.2	148	249	214	295	222	97.9	31.1	11.3	5.53	3.14	2.96	106

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	647	261	118	-
1943	*685	-	-	-	-	-	-	-	-	312	167	161	-
1944	1,390	-	-	-	-	-	-	-	-	255	99	174	-
1945	328	5,360	4,460	12,390	10,310	9,040	3,700	1,860	334	205	91	261	48,340
1946	357	7,780	12,180	12,720	10,690	7,700	6,010	1,370	693	394	93	73	60,060
1947	851	6,530	12,880	10,260	10,630	4,030	4,050	901	719	329	172	196	51,550
1948	5,030	7,540	8,670	11,580	11,370	7,470	5,100	6,150	1,030	408	258	458	65,060
1949	1,810	11,290	17,660	3,520	15,700	5,050	2,330	2,300	539	221	124	125	60,670
1950	750	8,800	15,290	13,130	16,370	13,620	5,830	1,910	674	217	193	176	76,960

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1942	982	-	-	*1.6	-	-	-	-	-	-	-
1943	982	-	-	*1.7	-	-	-	-	-	-	-
1944	1012	-	-	.7	-	-	-	-	-	-	-
1945	1042, 1092	1,440	Feb. 7, 1945	.9	66.8	2.69	36.55	48,340	80.8	44.23	58,510
1946	1062, 1092	1,000	Dec. 28, 1945	.4	82.9	3.34	45.41	60,060	82.9	45.37	60,000
1947	1092	1,310	Feb. 2, 1947	1.6	71.2	2.87	38.97	51,550	72.6	39.72	52,530
1948	1122	1,140	Mar. 22, 1948	1.9	89.6	3.61	49.21	65,060	103	56.40	74,580
1949	1152	1,370	Feb. 17, 1949	1.1	83.8	3.38	45.87	60,670	75.6	41.39	54,750
1950	1182	1,390	Dec. 28, 1949	1.1	106	4.27	58.19	76,960	-	-	-

* Not previously published.

32. Cedar Creek near Oakville, Wash.

Location.--Lat 46°52'50", long. 123°16'20", in NW¼NE¼ sec. 14, T. 16 N., R. 5 W., on left bank 300 ft downstream from highway bridge, 1 mile upstream from mouth, and 3½ miles northwest of Oakville.

Drainage area.--38.2 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 70 ft (from topographic map).

Extremes.--July to November 1944: Maximum discharge, 205 cfs Nov. 3 (gage height, 3.04 ft); minimum, 9.3 cfs Sept. 6, 10, 11 (gage height, 1.65 ft).

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							-	12.5	18.5	25.0	-	

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							-	771	1,100	1,540	-	

33. Porter Creek at Porter, Wash.

Location.--Lat 46°57'00", long. 123°17'30", in NE¼ sec. 22, T. 17 N., R. 5 W., on left bank 1 mile northeast of Porter and 1½ miles upstream from mouth.

Drainage area.--36.0 sq mi (revised). At site prior to August 1944, 37.2 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 60 ft (from topographic map). Prior to Aug. 16, 1944, staff gage 0.3 mile downstream at different datum.

Extremes.--1942-48: Maximum discharge recorded, 1,360 cfs Feb. 7, 1945 (gage height, 7.03 ft), but may have been greater in 1947 during period of no gage-height record; minimum recorded, 4.2 cfs Sept. 11, 1944.

Remarks.--Small diversions for irrigation and domestic use above station during summer months. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	37.3	18.8	14.1	-
1943	350.1	-	-	-	-	-	-	-	-	25.8	-	-	-
1944	-	-	-	-	-	-	-	-	-	14.5	9.72	24.3	-
1945	33.1	164	120	259	268	270	138	91.7	36.1	16.7	14.3	19.4	118
1946	28.9	224	263	315	322	223	162	49.8	40.5	32.7	15.1	15.2	140
1947	56.8	203	352	297	362	132	98.5	36.3	29.0	15.7	11.5	14.1	133
1948	152	187	196	224	211	157	153	165	51.4	26.7	24.2	47.0	133
1949	79.2	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	2,290	1,160	841	-
1943	1,850	-	-	-	-	-	-	-	-	1,580	-	-	-
1944	-	-	-	-	-	-	-	-	-	891	597	1,450	-
1945	2,040	9,770	7,370	15,930	14,890	16,570	8,220	5,640	2,150	1,030	879	1,150	85,640
1946	1,780	13,330	16,180	19,380	17,880	13,740	9,620	3,060	2,410	2,010	930	903	101,200
1947	3,480	12,070	21,670	18,290	20,090	8,090	5,860	2,230	1,730	964	709	838	96,030
1948	9,320	11,130	12,020	13,790	12,130	9,630	9,130	10,130	3,060	1,640	1,490	2,800	96,270
1949	4,870	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30								Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1942	962	-	-	#12	-	-	-	-	-	-	-		
1943	982	-	-	-	-	-	-	-	-	-	-		
1944	1012	-	-	#4.6	-	-	-	-	-	-	-		
1945	1042	1,360	Feb. 7, 1945	11	118	3.28	44.61	85,640	135	50.93	97,750		
1946	1062	1,140	Jan. 4, 1946	11.5	140	3.89	52.74	101,200	148	55.82	107,200		
1947	1092	-	-	8.6	133	3.69	50.01	96,030	126	47.53	91,270		
1948	1122	1,150	Oct. 18, 1947	12	133	3.69	50.14	96,270	-	-	-		

* Not previously published.

34. Wildcat Creek near Elma, Wash.

Location.--Lat 47°01'30", long. 123°21'10", in SE $\frac{1}{4}$ sec. 19, T. 18 N., R. 5 W., on right bank 500 ft upstream from highway bridge, three-quarters of a mile upstream from mouth, and $2\frac{1}{2}$ miles northeast of Elma.

Drainage area.--19.8 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 80 ft (from topographic map).

Extremes.--July to November 1944: Maximum discharge, 144 cfs Nov. 3 (gage height, 2.86 ft), from rating curve extended above 33 cfs; minimum, 2.9 cfs Sept. 6-15 (gage height, 1.11 ft).

Remarks.--No known diversion. Slight regulation by mill pond above station.

Monthly mean discharge, in cubic feet per second												
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							5.74	3.62	9.46	14.3	-	

Monthly runoff, in acre-feet												
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1944							353	222	563	661	-	

35. Cloquallum River at Elma, Wash.^{1/}

Location.--Lat 47°00'20", long. 123°23'10", in S $\frac{1}{2}$ NW $\frac{1}{4}$ sec. 36, T. 18 N., R. 6 W., on right bank 200 ft upstream from highway bridge, half a mile east of Elma, and 1.8 miles downstream from Wildcat Creek.

Drainage area.--65.8 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map). Prior to Aug. 7, 1944, staff gage 550 ft downstream at datum 0.42 ft lower.

Average discharge.--6 years (1944-50), 248 cfs.

Extremes.--1942-50: Maximum discharge, 3,750 cfs Dec. 28, 1949 (gage height, 10.07 ft); minimum, 6.8 cfs Sept. 15, 1945 (gage height, 1.43 ft).

Remarks.--Several small diversions above station. Some regulation by log pond on Wildcat Creek.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	50.6	29.3	21.7	-
1943	448.0	-	-	-	-	-	-	-	-	42.2	31.8	26.4	-
1944	50.7	-	-	-	-	-	-	-	-	27.6	20.0	37.0	-
1945	50.0	292	193	568	481	372	221	178	77.0	32.6	26.3	26.3	208
1946	46.5	383	569	570	627	462	372	107	86.1	64.0	31.5	30.3	277
1947	29.2	255	477	553	617	225	203	78.4	57.8	34.9	24.6	26.0	216
1948	214	284	366	440	415	331	225	302	94.4	53.1	41.7	57.8	235
1949	111	405	780	208	834	307	157	142	53.6	34.7	29.1	30.7	254
1950	60.3	326	602	498	768	732	301	125	65.3	38.3	35.6	31.9	296

* Not previously published; partly estimated on the basis of gage heights and records for nearby streams.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	3,110	1,800	1,290	-
1943	42,850	-	-	-	-	-	-	-	-	2,590	1,960	1,570	-
1944	3,120	-	-	-	-	-	-	-	-	1,700	1,230	2,200	-
1945	3,070	17,350	11,840	34,940	26,700	22,900	13,120	10,930	4,580	2,000	1,610	1,560	150,600
1946	2,860	22,610	34,970	35,020	34,840	28,390	22,110	6,560	5,120	3,940	1,940	1,600	200,400
1947	4,250	15,170	29,350	34,020	34,250	13,850	12,100	4,820	3,440	2,150	1,510	1,550	156,500
1948	13,130	16,890	22,480	27,060	23,890	20,320	13,370	18,590	5,620	3,260	2,560	3,440	170,600
1949	6,820	24,110	47,950	12,780	46,330	16,850	9,330	8,730	3,190	2,150	1,790	1,830	165,800
1950	3,710	19,400	35,990	50,620	42,670	44,990	17,920	7,670	3,890	2,360	2,190	1,900	214,300

* Not previously published; see footnote to preceding table.

^{1/} Published as Cloquallum Creek at Elma, 1944.

Yearly discharge, in cubic feet per second, of Cloquallum River at Elma, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1942	962	-	-	#20	-	-	-	-	-	-	-
1943	982	-	-	#22	-	-	-	-	-	-	-
1944	1012	-	-	#14	-	-	-	-	-	-	-
1945	1042	3,050	Feb. 7, 1945	12	208	3.16	42.93	150,600	247	51.01	179,000
1946	1062	2,440	Dec. 28, 1945	23	277	4.21	57.08	200,400	280	53.71	188,500
1947	1092	3,290	Jan. 25, 1947	20	216	3.28	44.58	156,500	221	45.65	180,200
1948	1122	1,810	Mar. 22, 1948	23	235	3.57	48.62	170,600	271	56.13	197,000
1949	1152	3,110	Feb. 22, 1949	22	254	3.86	52.38	183,800	228	47.04	†165,100
1950	1182	3,750	Dec. 28, 1949	22	296	4.50	61.08	214,300	-	-	-

† Corrected.

* Not previously published.

36. Chehalis River at South Elma, Wash.

Location.--Lat 46°49'00", long. 123°24'40", in NE¼NE¼ sec. 10, T. 17 N., R. 6 W., on logging company railroad bridge, 200 ft (revised) upstream from county bridge at South Elma, and 1.1 miles downstream from Cloquallum River.

Drainage area.--1,420 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 15 ft (from topographic map). Prior to Apr. 9, 1947, wire-weight gage 200 ft downstream at same datum.

Extremes.--1942-44, 1946-50: Maximum discharge, 35,600 cfs Feb. 24, 1949 (gage height, 76.23 ft); minimum observed, 202 cfs Sept. 12, 1944 (gage height, 55.43 ft).

Remarks.--Many minor diversions for irrigation and domestic use above station, including municipal water supply for Centralia and Chehalis. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	978	514	348	-
1943	483	8,057	9,340	-	-	-	-	-	-	686	-	-	-
1944	915	-	-	-	-	-	-	-	-	450	293	363	-
1945	478	2,931	2,980	-	-	-	-	-	-	-	-	-	-
1947	1,389	6,764	11,660	7,955	10,940	3,947	3,412	1,262	944	588	341	429	4,095
1948	3,351	6,141	6,856	10,590	9,352	6,852	4,934	5,493	1,540	736	576	845	4,763
1949	1,703	7,395	16,190	3,599	15,440	6,476	2,783	2,329	806	491	357	341	4,760
1950	771	5,499	11,370	12,670	15,520	14,170	5,925	2,346	1,069	561	501	399	5,851

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	60,160	31,600	20,700	-
1943	29,670	479,400	574,300	-	-	-	-	-	-	42,160	-	-	-
1944	56,260	-	-	-	-	-	-	-	-	27,650	18,040	21,620	-
1945	29,400	174,400	183,200	-	-	-	-	-	-	-	-	-	-
1947	85,430	402,500	717,000	489,800	607,800	242,700	203,000	77,630	56,140	36,150	20,960	25,500	2,965,000
1948	206,000	65,400	21,600	651,300	538,000	421,300	293,600	37,700	91,670	45,230	35,430	50,280	3,458,000
1949	104,700	440,000	995,300	221,500	857,400	398,200	165,600	143,200	47,960	30,220	21,950	20,290	3,446,000
1950	47,430	327,200	699,200	779,200	862,000	871,200	552,600	144,300	63,590	34,500	30,850	23,770	4,236,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1942	962	-	-	#298	-	-	-	-	-	-	-
1943	982	-	-	#298	-	-	-	-	-	-	-
1944	1012	-	-	#202	-	-	-	-	-	-	-
1945	1012	-	-	-	-	-	-	-	-	-	-
1947	1092	28,000	Jan. 26, 1947	262	4,095	2.88	39.15	2,965,000	3,802	36.36	2,753,000
1948	1122	24,400	Jan. 5, 1948	317	4,763	3.35	45.66	3,458,000	5,516	52.87	4,005,000
1949	1152	35,600	Feb. 24, 1949	276	4,760	3.35	45.50	3,446,000	4,116	39.35	2,980,000
1950	1182	34,500	Feb. 27, 1950	294	5,851	4.12	55.94	4,236,000	-	-	-

* Not previously published.

37. East Fork Satsop River near Matlock, Wash.

Location.--Lat 47°09'45" (revised), long. 123°22'00", in NE¼SE¼ sec. 1, T. 19 N., R. 6 W., on left bank 2½ miles upstream from Bingham Creek and 5½ miles southeast of Matlock.

Drainage area.--23.7 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 260 ft (from topographic map).

Extremes.--1945-47: Maximum discharge, 1,470 cfs Jan. 25, 1947 (gage height, 8.13 ft); minimum, 40 cfs Sept. 1-3, 1947.

Remarks.--No diversion or regulation above station.

CHEHALIS RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of East Fork Satsop River near Matlock, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	277	304	306	252	228	113	82.4	68.9	55.0	49.5	-
1947	55.6	135	247	274	313	146	124	82.0	66.4	55.0	45.2	42.8	131

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	17,010	18,660	17,000	15,480	13,580	6,920	4,910	4,230	3,390	2,950	-
1947	3,420	8,030	15,190	16,870	17,410	9,010	7,410	5,040	3,950	3,380	2,780	2,540	95,030

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1092	-	-	-	-	-	-	-	157	90.01	113,800
1947	1092	1,470	Jan. 25, 1947	40	131	5.53	75.20	95,030	-	-	-

38. Bingham Creek near Matlock, Wash.

Location.--Lat 47°09'40", long. 123°23'45" (revised), in SE $\frac{1}{4}$ sec. 2, T. 19 N., R. 6 W., on right bank $\frac{1}{2}$ miles upstream from mouth and $\frac{5}{2}$ miles south of Matlock.

Drainage area.--30 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 260 ft (from topographic map).

Extremes.--1946-48: Maximum discharge, 2,250 cfs Jan. 25, 1947 (gage height, 6.40 ft); minimum, 19 cfs Oct. 15, 1947 (gage height, 2.04 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	115	65.8	46.6	31.7	24.7	-
1947	27.4	125	309	362	447	154	127	86.4	56.1	38.8	28.1	25.4	147
1948	144	155	244	306	232	195	149	196	84.9	50.8	37.2	36.4	153

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	19,020	22,280	24,830	9,500	7,540	7,060	3,920	2,870	1,950	1,470	-
1947	1,680	7,420	15,020	18,800	13,350	12,010	8,860	5,310	3,340	2,380	1,730	1,510	106,500
1948	8,880	9,240	15,010	18,800	13,350	12,010	8,860	12,060	5,050	3,130	2,290	2,280	111,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet		Mean	Runoff in acre-feet
		Discharge	Date								
1946	1062	-	-	-	-	-	-	-	-	-	-
1947	1092	2,250	Jan. 25, 1947	20	147	106,500	154	-	-	-	111,600
1948	1122	1,100	Jan. 2, 1948	24	153	111,000	-	-	-	-	-

39. Middle Fork Satsop River near Satsop, Wash. 1/

Location.--Lat 47°05'10", long. 123°29'20", in SE $\frac{1}{4}$ sec. 36, T. 19 N., R. 7 W., on left bank 0.4 mile upstream from confluence with East Fork and 6 miles north of Satsop.

Drainage area.--63 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 100 ft (from river-profile map).

Extremes.--1942-43: Maximum discharge not determined; minimum observed, 30 cfs Sept. 27, 1942.

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.			
1942						142	61.4	36.8	*131			
1943						63.7	45.1	37.3	167			

* Not previously published; partly estimated on the basis of gage heights and records for nearby streams.

1/ Published as East Fork Satsop River near Satsop, 1942.

Monthly runoff, in acre-feet, of Middle Fork Satsop River near Satsop, Wash.

Year					July	Aug.	Sept.	Oct.		
1942					8,760	3,780	2,190	#8,040		
1943					3,920	2,770	2,220	10,250		

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1942	962	-	-	#30	-	-	-
1943	982	790	Oct. 25, 1943	#33	-	-	-

* Not previously published.

40. Satsop River near Satsop, Wash.

Location (revised).--Lat 47°00'05", long. 123°29'40", in sec. 36, T. 18 N., R. 7 W., in west pier of bridge on U. S. Highway 410, three-quarters of a mile west of Satsop, and 2 miles upstream from mouth.

Drainage area.--290 sq mi (revised), approximately.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to Mar. 19, 1938, staff gage 60 ft downstream at datum 20.9 ft higher.

Average discharge.--21 years (1929-50), 1,903 cfs (corrected).

Extremes.--1929-50: Maximum discharge, 46,600 cfs (revised) Jan. 22, 1935 (elevation, 38.9 ft, from floodmarks), from rating curve extended above 17,000 cfs; minimum, 166 cfs Sept. 21, 1938.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	2,490	992	794	413	284	227	-
1930	314	280	2,030	1,540	4,850	1,890	2,050	894	556	342	250	296	1,250
1931	678	1,340	1,410	4,740	2,820	3,650	3,170	674	1,390	587	321	590	1,770
1932	1,990	3,750	4,970	4,690	4,750	4,960	3,190	888	488	422	372	273	2,560
1933	523	3,700	4,030	4,510	2,800	4,130	1,820	1,640	870	445	293	809	2,130
1934	2,062	2,481	9,296	6,413	2,269	2,787	1,187	976	420	462	314	327	2,432
1935	1,808	4,200	3,913	9,002	2,986	3,166	1,508	830	501	329	242	451	2,415
1936	491	1,006	2,298	5,807	2,677	2,980	1,112	1,178	1,328	645	317	374	1,687
1937	515	268	3,518	1,276	3,558	2,977	4,038	1,671	1,362	579	355	268	1,653
1938	1,703	6,372	5,060	3,567	2,821	3,324	2,702	1,031	510	351	258	208	2,320
1939	654	1,913	2,768	5,035	3,341	2,199	928	711	600	367	253	281	1,580
1940	691	1,637	5,069	2,973	4,728	3,097	1,770	1,435	438	313	272	261	1,884
1941	1,739	2,065	3,097	3,451	1,990	1,478	910	1,330	563	330	278	892	1,511
1942	1,258	2,149	4,483	1,654	2,546	1,513	898	870	968	654	345	246	1,461
1943	409	3,235	3,756	2,047	3,766	2,023	2,888	944	657	422	303	243	1,707
1944	642	841	2,789	3,032	1,996	1,674	1,726	852	474	289	225	356	1,238
1945	421	2,653	1,916	4,046	4,210	3,929	1,784	1,649	596	346	265	373	1,827
1946	702	3,449	4,333	4,206	4,048	3,661	3,029	958	614	619	309	269	2,171
1947	681	2,344	4,090	4,073	4,983	1,601	1,769	855	555	462	282	356	1,818
1948	2,825	1,967	3,370	3,341	3,037	2,287	2,071	2,696	669	397	352	299	1,996
1949	1,153	3,743	4,619	1,127	4,794	3,291	1,545	1,355	468	351	284	338	1,905
1950	837	4,246	5,228	3,722	6,122	5,985	2,948	1,246	644	385	390	320	2,643

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	148,000	61,000	47,200	25,400	17,500	13,500	-
1930	19,300	16,700	125,000	94,700	269,000	116,000	122,000	55,000	33,100	21,000	15,400	17,600	905,000
1931	41,700	79,700	86,700	291,000	157,000	224,000	189,000	41,400	82,700	36,100	19,700	35,100	1,280,000
1932	122,000	223,000	300,000	288,000	273,000	305,000	189,000	54,600	29,000	25,900	22,900	16,200	1,850,000
1933	32,600	220,000	248,000	277,000	156,000	254,000	108,000	101,000	51,800	27,400	18,000	48,100	1,540,000
1934	126,900	147,600	671,600	394,300	126,000	171,400	70,630	60,030	24,980	28,400	19,330	19,440	1,751,000
1935	111,200	49,900	40,800	55,500	165,900	194,700	89,750	51,040	29,790	20,200	14,900	26,820	1,748,000
1936	30,210	59,840	41,300	357,100	154,000	183,200	66,140	72,400	79,050	39,650	19,500	22,230	1,225,000
1937	19,370	15,930	204,000	78,450	197,600	183,000	240,300	102,800	82,260	35,520	21,840	15,840	1,197,000
1938	104,700	73,200	311,100	219,300	156,700	204,400	160,800	63,420	30,330	21,570	15,880	12,360	1,680,000
1939	40,240	113,800	70,200	309,600	185,500	135,200	55,230	43,690	35,720	22,580	15,580	16,690	1,144,000
1940	42,510	97,420	111,700	182,800	192,000	190,400	105,300	88,200	26,050	19,230	16,690	15,520	1,368,000
1941	106,900	122,900	90,500	12,200	110,500	90,880	54,180	81,760	33,480	20,300	17,110	53,060	1,094,000
1942	77,330	127,800	275,600	101,700	141,400	93,020	53,430	53,500	57,610	40,240	21,230	14,660	1,058,000
1943	25,160	192,500	231,000	125,900	209,200	124,400	171,800	58,060	39,090	25,930	18,640	14,440	1,236,000
1944	39,480	50,070	71,500	186,400	114,800	102,900	102,700	51,160	29,220	17,780	13,810	19,980	898,800
1945	25,870	157,900	117,800	248,800	233,800	235,400	106,200	101,400	35,490	21,260	16,320	22,210	1,322,000

† Corrected.

Monthly and yearly runoff, in acre-feet, of Satsop River near Satsop, Wash.--Continued													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	45,140	205,200	266,400	258,600	224,800	225,100	180,200	58,930	36,510	38,080	18,990	16,000	1,572,000
1947	41,850	139,500	251,500	202,500	400,276	700,984	105,200	52,550	33,050	28,400	17,370	21,190	1,316,000
1948	173,700	117,000	207,200	205,400	74,700	140,600	123,300	65,800	39,790	24,400	21,610	55,300	1,449,000
1949	70,900	222,700	284,000	69,310	266,200	202,300	91,950	83,290	29,030	21,600	17,440	20,120	1,379,000
1950	51,450	262,600	321,500	228,900	340,000	400,567	169,400	76,620	38,310	23,520	23,980	19,070	1,913,000

Yearly discharge, in cubic feet per second											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	*11,300	Dec. 23, 1929	203	1,250	4.31	58.51	905,000	1,310	61.36	952,000
1931	722	*19,200	Jan. 23, 1931	255	1,770	6.10	82.80	1,280,000	2,930	111.85	1,730,000
1932	737	*30,900	Feb. 26, 1932	242	2,560	8.83	120.19	1,850,000	2,350	110.25	1,700,000
1933	752	*15,300	Jan. 8, 1933	242	2,130	7.34	99.64	1,540,000	2,610	122.17	1,890,000
1934	767	*24,500	Dec. 21, 1933	248	2,432	8.39	113.89	1,761,000	2,094	98.01	1,516,000
1935	792	*46,600	Jan. 22, 1935	205	2,415	8.33	113.07	1,748,000	1,903	89.05	1,378,000
1936	812	16,600	Jan. 4, 1936	255	1,687	5.82	79.22	1,225,000	1,698	79.76	1,233,000
1937	832	*15,200	Apr. 14, 1937	206	1,853	5.70	77.37	1,197,000	2,421	113.55	1,753,000
1938	862	30,100	Dec. 28, 1937	184	2,320	8.00	108.59	1,680,000	1,670	78.19	1,209,000
1939	882	25,600	Jan. 1, 1939	182	1,580	5.45	73.98	1,144,000	1,756	82.26	1,271,000
1940	902	18,700	Dec. 15, 1939	224	1,884	6.50	88.48	1,368,000	1,841	86.43	1,336,000
1941	932	25,200	Jan. 18, 1941	229	1,511	5.21	70.72	1,094,000	1,594	74.66	1,154,000
1942	962	15,200	Dec. 19, 1941	226	1,461	5.04	68.41	1,058,000	1,416	66.24	1,025,000
1943	982	15,100	Apr. 1, 1943	209	1,707	5.89	79.95	1,236,000	1,448	67.74	1,049,000
1944	1012	19,900	Dec. 3, 1943	192	1,258	4.27	58.12	898,800	1,294	60.71	939,300
1945	1042	28,000	Feb. 7, 1945	242	1,827	6.30	85.52	1,322,000	2,121	99.23	1,536,000
1946	1062	17,200	Apr. 11, 1946	220	2,171	7.49	101.67	1,572,000	2,058	96.38	1,490,000
1947	1092	24,000	Jan. 25, 1947	217	1,818	6.27	85.11	1,316,000	1,908	89.32	1,381,000
1948	1122	17,300	Oct. 19, 1947	295	1,996	6.88	93.65	1,449,000	2,106	98.82	1,528,000
1949	1152	27,000	Feb. 22, 1949	191	1,905	6.57	89.18	1,379,000	1,971	92.31	1,427,000
1950	1182	27,600	Dec. 28, 1949	212	2,643	9.11	123.66	1,913,000	-	-	-

* Revised.

† Corrected.

41. Wynoochee River at Oxbow, near Aberdeen, Wash.

Location.--Lat 47°20'00", long. 123°39'00", in SW¹/₄SW¹/₄ sec. 1, T. 21 N., R. 8 W., on left bank at lower end of Oxbow, 600 ft upstream from head of canyon, and 25 miles northeast of Aberdeen.

Drainage area.--68 sq mi (revised), approximately.

Gage.--Water-stage recorder. Altitude of gage is 492 ft (by barometer). Prior to Nov. 7, 1925, staff gage 1,200 ft downstream at different datum. Nov. 7, 1925, to Sept. 3, 1947, water-stage recorder $\frac{1}{2}$ miles downstream at datum 444.0 ft above mean sea level (levels by city of Aberdeen).

Average discharge.--25 years (1925-50), 767 cfs.

Extremes.--1925-50: Maximum discharge, 18,000 cfs Jan. 22, 1935 (gage height, 30.3 ft, from floodmarks, site and datum then in use), from rating curve extended above 5,300 cfs; minimum, 64 cfs Jan. 27, 1949 (gage height, 1.05 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1925	-	-	-	-	-	-	-	-	425	191	119	105	-
1926	103	747	2,040	1,140	1,390	560	384	551	254	136	130	145	628
1927	1,160	1,260	1,270	1,530	1,330	822	572	894	536	258	150	394	846
1928	791	1,620	771	1,910	688	1,270	954	710	334	187	132	151	794
1929	747	955	880	514	247	708	796	590	590	228	133	96.7	542
1930	187	137	1,010	469	1,720	667	969	408	271	153	97.1	155	512
1931	392	590	608	2,090	983	1,320	1,210	386	550	256	127	299	732
1932	719	1,320	1,670	1,260	1,550	1,520	1,240	612	475	372	235	140	923
1933	343	1,684	1,321	1,465	722	1,274	836	979	764	485	212	551	887
1934	946	960	3,472	2,529	878	1,132	537	529	183	263	188	146	987
1935	910	2,049	1,388	3,473	1,303	1,214	614	511	404	226	150	369	1,051
1936	308	475	1,102	1,769	740	938	522	772	758	411	171	176	680
1937	140	112	1,395	339	644	1,140	1,494	1,055	919	303	174	141	655
1938	809	2,219	1,841	1,082	763	1,021	972	527	292	149	102	95.0	822
1939	549	923	1,259	1,890	926	682	548	494	327	229	131	146	675
1940	356	999	2,452	1,265	1,663	1,225	580	623	187	127	115	122	809

Monthly and yearly mean discharge, in cubic feet per second, of Wynoochee River at Oxbow, near Aberdeen, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	1,185	859	1,390	1,274	960	714	466	681	279	161	146	533	721
1942	812	1,091	1,837	654	869	519	486	444	588	375	176	120	664
1943	209	1,364	1,632	832	1,730	1,032	1,348	447	342	198	138	119	775
1944	412	428	1,016	1,333	732	615	621	419	257	134	104	197	523
1945	309	1,374	811	1,477	1,867	1,306	600	1,019	344	188	104	210	794
1946	409	1,423	1,612	1,394	1,187	1,220	1,130	636	506	406	166	161	852
1947	280	894	1,463	1,271	1,885	565	661	404	329	345	165	201	696
1948	1,548	882	1,583	1,152	965	712	896	1,272	587	249	186	574	885
1949	594	1,320	1,058	246	1,216	1,250	844	848	420	266	191	232	703
1950	473	1,943	2,071	1,230	1,736	1,692	1,055	680	662	344	281	153	1,021

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1925	-	-	-	-	-	-	-	-	25,300	11,700	7,320	6,250	-
1926	6,330	44,400	25,000	70,100	77,200	34,400	22,800	33,900	15,100	8,360	7,990	8,630	454,000
1927	71,300	75,000	78,100	94,100	73,900	50,500	34,000	55,000	31,900	15,900	9,220	23,400	612,000
1928	48,600	96,400	47,400	117,000	39,600	78,100	56,800	43,700	19,900	11,500	8,120	8,980	576,000
1929	45,900	56,800	54,100	31,600	31,700	43,500	47,400	36,300	35,100	14,000	8,130	5,750	392,000
1930	11,600	6,150	62,100	28,800	85,500	41,000	57,700	25,100	16,100	9,410	5,970	9,220	371,000
1931	24,100	35,100	37,400	128,000	54,600	81,200	72,000	23,700	32,700	15,700	7,810	17,800	530,000
1932	44,200	78,600	103,000	77,500	89,200	93,500	73,800	37,600	28,300	22,900	14,400	8,330	671,000
1933	21,120	100,200	81,250	99,090	40,070	78,340	49,780	60,180	45,450	29,800	13,040	32,760	642,100
1934	58,150	57,100	123,500	159,500	48,740	69,620	31,950	32,530	10,910	16,190	11,550	8,710	714,400
1935	55,940	121,900	85,320	113,500	72,390	74,660	36,550	31,450	24,050	13,870	9,240	21,930	760,800
1936	18,920	28,250	67,760	109,700	42,560	57,670	31,060	47,460	45,080	25,260	10,520	10,440	483,700
1937	8,600	6,690	85,770	20,820	35,770	70,120	68,900	64,680	54,680	18,610	10,710	8,400	474,000
1938	49,750	132,100	113,200	66,510	42,380	62,760	57,810	32,420	17,390	9,180	6,250	5,650	595,400
1939	33,730	54,900	77,430	116,200	51,450	41,950	32,580	30,350	19,470	14,050	8,080	8,690	488,900
1940	21,880	59,420	50,800	77,790	95,650	75,350	34,480	36,290	11,130	7,830	7,080	7,270	587,000
1941	72,690	51,120	85,440	78,320	53,310	43,900	27,710	41,900	16,600	9,920	9,000	31,740	521,800
1942	49,940	64,940	112,900	40,190	48,250	31,880	28,940	27,310	35,000	23,090	10,800	7,130	480,400
1943	12,840	81,190	100,400	51,180	96,080	63,480	80,210	27,500	20,360	12,180	6,500	7,090	561,000
1944	25,350	25,470	62,490	81,980	42,090	37,820	36,930	25,760	15,280	8,260	6,140	11,750	379,600
1945	19,020	61,770	49,850	90,820	103,700	80,300	35,710	62,650	20,600	11,560	6,420	12,490	574,800
1946	25,130	84,680	99,130	85,700	65,900	75,020	67,250	39,130	30,120	24,990	10,190	9,550	616,800
1947	17,190	53,220	90,270	78,130	104,700	34,760	39,330	24,860	19,590	21,220	10,170	11,950	505,400
1948	95,180	52,510	97,330	70,680	56,530	43,790	53,300	78,180	34,910	15,320	11,440	34,150	682,500
1949	36,550	78,570	85,060	15,150	67,510	76,860	50,220	52,160	25,000	16,380	11,760	13,810	509,000
1950	29,080	115,600	27,300	75,600	96,400	104,000	62,800	41,790	39,370	21,140	17,280	9,100	739,500

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1925	632	-	-	495	-	-	-	-
1926	632	8,350	Dec. 11, 1925	85	628	454,000	695	503,000
1927	652	7,790	Oct. 16, 1926	132	846	612,000	802	580,000
1928	672	9,910	Jan. 12, 1928	114	794	576,000	745	540,000
1929	692	5,560	Mar. 28, 1929	87	542	392,000	438	317,000
1930	707	7,670	Dec. 23, 1929	78	512	371,000	532	385,000
1931	722	11,000	Jan. 22, 1931	104	732	530,000	911	659,000
1932	737	12,900	Feb. 26, 1932	123	923	671,000	892	648,000
1933	752	9,230	Nov. 12, 1932	113	887	642,100	1,061	768,300
1934	767	14,000	Dec. 21, 1933	107	987	714,400	896	648,900
1935	792	18,000	Jan. 22, 1935	97	1,051	760,800	846	612,600
1936	812	6,830	Jan. 1, 1936	119	680	493,700	661	479,800
1937	832	8,830	Dec. 22, 1936	96	855	474,000	923	667,900
1938	862	11,100	Oct. 28, 1937	88	822	595,400	644	466,400
1939	882	13,300	Jan. 1, 1939	88	675	488,900	767	554,900
1940	902	11,400	Dec. 15, 1939	94	809	587,000	777	564,300
1941	932	10,600	Jan. 17, 1941	98	721	521,800	746	540,200
1942	952	9,270	Dec. 2, 1941	105	664	480,400	617	447,000
1943	982	-	-	104	775	561,000	663	479,900
1944	1012	9,510	Dec. 3, 1943	87	523	379,800	574	416,900
1945	1042	12,800	Feb. 7, 1945	90	794	574,800	874	633,100
1946	1062	6,820	Feb. 24, 1946	103	852	616,800	785	568,500
1947	1092	9,750	Feb. 13, 1947	112	698	505,400	815	589,700
1948	1122	10,700	Oct. 18, 1947	140	885	642,500	796	577,700
1949	1152	8,630	Feb. 22, 1949	107	703	509,000	830	600,800
1950	1182	16,400	Nov. 26, 1949	97	1,021	739,500	-	-

* Not previously published.

CHEHALIS RIVER BASIN

42. Wynoochee River near Montesano, Wash.

Location (revised).--Lat 47°10'45" N., long. 123°37'30" W., in sec. 36, T. 20 N., R. 8 W., on left bank at Waters Ranch, 1½ miles downstream from Schafer Creek, and 14 miles north of Montesano.

Drainage area.--110 sq mi (revised), approximately, at measuring section 2½ miles downstream.

Gage.--Staff gage. Altitude of gage is 210 ft (from topographic map).

Average discharge.--7 years (1923-30), 997 cfs.

Extremes.--1923-30: Maximum discharge, 25,600 cfs (revised) Feb. 11, 1924 (gage height, 17.2 ft, revised, from graph based on gage readings), from rating curve extended above 12,000 cfs; minimum, 96 cfs Oct. 1-3, 1929.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	-	-	-	-	417	1,000	1,060	806	549	330	208	177	-
1924	427	777	3,200	2,720	4,100	730	540	337	200	159	150	639	1,160
1925	2,350	2,390	1,790	2,680	2,970	872	656	617	517	244	155	139	1,270
1926	135	1,020	2,930	1,520	1,930	728	464	729	332	187	171	177	855
1927	1,420	1,660	1,800	2,270	1,930	1,170	717	1,220	624	303	186	525	1,150
1928	1,080	2,280	1,190	2,660	980	1,810	1,400	914	388	221	143	171	1,100
1929	907	1,280	1,310	800	384	1,020	1,180	715	714	277	160	110	740
1930	208	154	1,310	702	2,500	974	1,320	545	356	210	135	206	707

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	-	-	-	-	23,200	61,500	63,100	49,600	32,700	20,300	12,800	10,500	-
1924	26,300	46,200	197,000	167,000	236,000	44,900	32,100	20,700	11,900	9,780	9,220	38,000	839,000
1925	144,000	42,000	110,000	165,000	165,000	53,600	39,000	37,900	30,800	15,000	9,530	8,270	920,000
1926	8,300	60,700	180,000	93,500	107,000	44,800	27,600	44,800	19,800	11,500	10,500	10,500	619,000
1927	87,300	98,800	111,000	140,000	107,000	71,900	42,700	75,000	37,100	19,600	11,400	31,200	832,000
1928	66,400	136,000	73,200	164,000	55,400	111,000	83,300	56,200	23,100	13,690	8,790	10,200	802,000
1929	55,800	76,200	80,600	49,200	21,300	62,700	70,200	44,000	42,500	17,000	9,840	6,550	536,000
1930	12,800	9,760	80,600	43,200	139,000	59,900	78,600	33,500	21,200	12,900	8,300	12,300	512,000

Yearly discharge, in cubic feet per second							
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1923	592	-	-	-	-	-	-
1924	592	*25,600	Feb. 11, 1924	106	1,160	839,000	1,330
1925	612	11,700	Feb. 2, 1925	123	1,270	920,000	1,070
1926	632	10,000	Dec. 11, 1925	109	855	619,000	921
1927	652	8,770	Dec. 30, 1926	166	1,150	832,000	1,120
1928	672	*13,000	Jan. 12, 1928	118	1,100	802,000	1,020
1929	692	6,400	Mar. 28, 1929	100	740	536,000	589
1930	707	7,040	Apr. 5, 1930	96	707	512,000	-

* Revised.

43. Wynoochee River below Black Creek, near Montesano, Wash.

Location (revised).--Lat 47°00'35" N., long. 123°39'00" W., in NW¼NW¼ sec. 35, T. 18 N., R. 8 W., on right bank 200 ft downstream from county bridge, 700 ft downstream from Black Creek, and 2½ miles northwest of Montesano.

Drainage area.--178 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map). Prior to July 9, 1947, wire-weight gage 200 ft upstream at same datum.

Average discharge.--7 years (1942-49), 1,276 cfs.

Extremes.--1942-49: Maximum discharge observed, 16,600 cfs Feb. 8, 1945 (gage height, 82.65 ft); minimum observed, 51 cfs Sept. 11, 1944.
Flood of November 1949 reached a stage of 84.90 ft (discharge, 27,600 cfs, from rating curve extended above 19,200 cfs).

Remarks.--City of Aberdeen diverts about 56 cfs for municipal supply 1½ miles above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second, of Wynoochee River below Black Creek, near Montesano, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	499	191	112	-
1943	257	2,363	2,505	1,412	2,408	1,285	2,194	669	468	247	151	105	1,161
1944	550	692	2,160	2,453	1,329	1,070	1,109	573	289	136	86.5	203	889
1945	*347	1,961	1,336	2,687	2,956	2,469	1,199	1,589	419	178	103	223	*1,288
1946	540	2,658	3,315	2,945	2,603	2,121	1,986	637	617	515	160	124	1,528
1947	537	1,872	3,292	2,641	3,423	918	1,095	592	429	330	139	210	1,277
1948	2,520	1,676	2,519	2,343	1,963	1,386	1,450	2,058	669	256	179	679	1,459
1949	901	2,488	2,823	729	3,160	2,599	1,205	1,266	467	264	179	247	1,332
1950	732	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	-	30,680	11,730	6,640	-
1943	15,830	140,600	154,100	86,820	133,700	79,020	130,600	41,160	27,830	15,160	9,310	6,230	840,400
1944	33,830	41,180	132,800	151,000	76,430	85,790	85,970	35,230	17,210	8,370	5,320	12,100	845,200
1945	*21,340	116,700	82,260	177,500	158,600	151,800	71,370	97,730	24,940	10,940	6,320	13,250	*932,800
1946	33,210	158,200	203,900	181,000	144,600	130,400	118,200	51,470	36,690	31,670	9,850	7,380	1,107,000
1947	33,030	111,400	202,400	162,400	180,100	56,450	65,150	36,390	25,520	20,290	8,530	12,510	924,200
1948	142,600	99,700	154,900	144,100	112,900	85,240	86,300	126,500	39,790	15,740	10,990	40,410	1,059,000
1949	55,410	148,100	173,600	44,840	175,500	147,500	71,710	77,820	27,790	16,250	11,000	14,700	964,200
1950	45,030	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1942	962	-	-	#93	-	-	-	-	-
1943	982	10,000	Apr. 2, 1943	85	1,161	840,400	1,019	737,600	-
1944	1012	*15,100	Dec. 3, 1943	53	889	845,200	*906	*657,700	-
1945	1346,1042	a16,600	Feb. 8, 1945	79	*1,288	*932,800	1,530	1,108,000	-
1946	1062	11,000	Apr. 11, 1946	76	1,528	1,107,000	1,461	1,058,000	-
1947	1092	15,800	Feb. 14, 1947	68	1,277	924,200	1,346	974,500	-
1948	1122	13,400	Oct. 19, 1947	130	1,459	1,059,000	1,431	1,039,000	-
1949	1152	16,200	Feb. 22, 1949	102	1,332	964,200	-	-	-

* Revised.

† Corrected.

Not previously published.

a Maximum observed.

44. Wishkah River near Wishkah, Wash.

Location (revised).--Lat 47°06'35", long. 123°47'20", in S $\frac{1}{2}$ sec. 22, T. 19 N., R. 9 W., at county road bridge 2.9 miles northwest of Wishkah and 3.8 miles upstream from East Fork.

Drainage area.--57.8 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 20 ft (by barometer).

Extremes.--1942-43: Maximum discharge observed, 7,400 cfs (revised) Oct. 31, 1942

(revised) (gage height, 72.6 ft, revised, from rating curve extended above 250 cfs by logarithmic plotting; minimum observed, 33 cfs Oct. 19, 20, 1942 (gage height, 67.05 ft).

Remarks.--Low flow affected by 2 small reservoirs operated by city of Aberdeen which divert up to 10 cfs for municipal supply.

Monthly mean discharge, in cubic feet per second

Year	July	Aug.	Sept.	Oct.			
1942							
1943	120	58.5	44.1	*114			
	67.0	63.0	45.4	78.2			

* Not previously published; partly estimated on the basis of gage heights and records for nearby streams.

Monthly runoff, in acre-feet

Year	July	Aug.	Sept.	Oct.			
1942							
1943	7,390	3,600	2,630	*7,000			
	4,120	3,870	2,700	4,810			

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1942	962	*7,400	Oct. 31, 1942*	#34	-	-	-
1943	982	243	Oct. 24, 1943	#41	-	-	-

* Revised.

Not previously published.

HOQUIAM RIVER BASIN

45. West Fork Hoquiam River near Hoquiam, Wash.

Location (revised).--Lat 47°03'25", long. 123°55'35", in SE $\frac{1}{4}$ sec. 9, T. 18 N., R. 10 W., on highway bridge near right bank 250 ft upstream from Polson Creek and 5 miles north-west of Hoquiam.

Drainage area.--16.0 sq mi.

Gage.--Staff gage. Altitude of gage is approximately mean sea level (by barometer).

Extremes.--1942-43: Maximum discharge not determined; maximum gage height, 6.3 ft (estimated) Oct. 31, 1942 (possible backwater from tide); minimum observed, 6.1 cfs Oct. 25, 1942.

Remarks.--City of Hoquiam diverts about 2 $\frac{1}{2}$ cfs above station for municipal supply. No regulation.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.			
1942							19.5	9.66	7.91	*27.3		
1943							13.5	11.1	9.17	55.9		

* Not previously published; partly estimated on the basis of gage heights and records for nearby streams.

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.			
1942						1,200	594	470	*1,680			
1943						833	684	546	2,270			

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1942	962	-	-	*6.5	-	-	-
1943	982	287	Oct. 24, 1943	*7.1	-	-	-

* Not previously published.

HUMPTULIPS RIVER BASIN

46. Humptulips River near Humptulips, Wash.

Location (revised).--Lat 47°13'40", long. 123°56'25", in NE $\frac{1}{4}$ sec. 17, T. 20 N., R. 10 W., on right bank at abandoned bridge site 1 mile southeast of Humptulips, 2.5 miles upstream from Stevens Creek, and 3 $\frac{1}{4}$ miles downstream from confluence of East and West Forks.

Drainage area.--130 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 117.4 ft above mean sea level (river-profile survey). May 17, 1933, to Jan. 13, 1935, water-stage recorder and July 1, 1942, to Feb. 28, 1950, staff gage at same site and datum.

Average discharge.--9 years (1933-34, 1942-50), 1,301 cfs.

Extremes.--1933-35, 1942-50: Maximum discharge, 33,000 cfs Jan. 22, 1935 (gage height, 12.7 ft, from floodmarks), from rating curve extended above 16,500 cfs; minimum observed, 82 cfs Sept. 11, 1944.

Remarks.--Slight regulation by fish hatchery on West Fork for short periods at low flow.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1933	-	-	-	-	-	-	-	1,340	769	367	204	766	-
1934	1,290	1,573	*5,646	3,903	1,436	1,904	-	745	232	405	301	264	*1,550
1935	*1,514	*3,082	2,172	3,968	-	-	779	-	-	-	-	-	-
1942	-	-	-	-	-	-	-	-	-	518	216	145	-
1943	395	2,148	2,239	1,090	1,983	1,245	*1,901	605	414	249	187	154	*1,042
1944	596	697	*2,074	2,189	1,179	1,128	1,049	577	320	154	109	342	*868
1945	416	2,028	1,230	*2,857	*2,671	*2,412	1,113	1,361	547	187	124	302	*1,246
1946	831	*2,562	2,751	2,446	*2,333	2,341	*1,964	686	552	512	211	218	*1,445
1947	605	1,855	2,887	2,631	3,001	830	1,073	532	414	420	204	282	1,200
1948	2,344	1,484	2,588	2,004	1,875	1,267	1,270	1,731	469	232	251	758	1,357
1949	999	2,707	2,620	614	2,724	2,065	1,074	1,058	317	295	227	356	1,242
1950	909	3,098	3,835	2,524	3,576	3,124	1,921	937	552	290	404	284	1,760

* Revised.

Monthly and yearly runoff, in acre-feet, of Humptulips River near Humptulips, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1933	-	-	-	-	-	-	-	82,400	45,800	22,600	12,500	45,600	-
1934	79,300	93,620	84,100	240,000	79,760	117,100	46,340	45,840	13,790	24,880	18,500	15,720	*1,122,000
1935	*93,080	183,400	133,500	244,000	-	-	-	-	-	-	-	-	-
1942	-	-	-	-	-	-	-	-	-	31,640	13,270	8,650	-
1943	24,290	127,800	137,700	67,040	110,100	76,520	113,100	37,210	24,630	15,290	11,510	9,190	*754,400
1944	36,030	41,470	127,500	134,600	67,620	69,350	62,430	35,470	19,020	9,460	6,720	20,360	*630,200
1945	25,580	120,700	75,620	175,700	148,300	148,300	66,250	83,680	20,660	11,500	7,650	17,980	*901,900
1946	51,080	152,400	169,200	150,400	129,800	144,000	116,900	42,180	32,850	31,500	13,000	12,940	*1,046,000
1947	37,170	98,460	77,500	121,800	166,800	51,050	63,850	32,690	24,610	25,830	12,550	18,780	868,900
1948	144,100	86,330	59,100	123,200	107,800	77,910	75,570	36,400	27,920	14,290	15,410	45,070	985,100
1949	61,450	161,100	181,100	37,750	151,300	127,000	63,930	63,800	18,840	18,160	13,950	21,170	899,600
1950	55,920	184,400	235,800	142,900	198,600	192,100	114,300	57,610	32,840	17,830	24,810	16,900	1,274,000

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-foot		Inches	Acre-foot
1933	752	-	-	-	-	-	-	-	-	-	-
1934	1216,767	*18,800	Dec. 9, 1933	150	*1,550	*11.9	*161.53	*1,122,000	*1,398	*146.50	*1,012,000
1935	1216,792	33,000	Jan. 22, 1935	-	-	-	-	-	-	-	-
1942	962	-	-	-	-	-	-	-	-	-	-
1943	1216,982	*11,800	Apr. 1, 1943	126	*1,042	*8.02	*108.87	*754,400	*925	*96.55	*669,600
1944	1216,1012	*18,400	Dec. 3, 1943	82	*868	*6.68	*90.93	*630,200	891	93.24	647,200
1945	1216,1042	*24,500	Feb. 7, 1945	101	*1,246	*9.58	*130.04	*901,900	*1,454	*152.03	*1,053,000
1946	1216,1062	*12,200	Apr. 11, 1946	139	*1,445	*11.1	*150.68	*1,046,000	*1,363	*142.53	*986,500
1947	1092	*17,200	Jan. 25, 1947	145	1,200	9.23	125.29	868,900	1,309	137.10	947,300
1948	1122	11,600	Dec. 23, 1947	165	1,357	10.4	141.56	985,100	1,346	141.56	977,200
1949	1152	*19,200	Feb. 22, 1949	162	1,242	9.55	129.64	899,600	1,370	145.53	992,000
1950	1182	22,200	Nov. 28, 1949	174	1,760	13.5	163.25	1,274,000	-	-	-

* Revised.

QUINNAULT RIVER BASIN

47. Quinault River at Quinault Lake, Wash.

Location.--Lat 47°27'30", long. 123°53'30", in sec. 25, T. 23 N., R. 10 W., on left bank at Outlet of Quinault Lake, 50 ft downstream from Olympic Highway Bridge, and 4 miles southwest of Quinault.

Drainage area.--264 sq mi.

Gage.--Water-stage recorder. Datum of gage is 184.60 ft above mean sea level (Washington State Highway bench mark). Prior to Sept. 30, 1916, several staff gages on lake within 4 miles of outlet at different datums. Oct. 1, 1916, to May 2, 1935, water-stage recorder 300 ft downstream at datum approximately 0.36 ft higher.

Average discharge.--39 years (1911-50), 2,696 cfs.

Extremes.--1911-50: Maximum discharge, 42,300 cfs Nov. 27, 1949 (gage height, 18.60 ft, from rating curve extended above 25,000 cfs); minimum, 276 cfs Sept. 12, 1944 (gage height, 1.96 ft).

Flood in November 1909 reached a stage of approximately 22 ft, present datum (discharge, 52,600 cfs).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	900	4,540	2,770	4,710	4,440	1,160	1,180	1,940	2,010	1,230	1,020	1,220	2,280
1913	1,870	5,660	3,600	2,990	2,580	1,810	2,060	3,040	3,790	3,210	1,430	2,050	2,840
1914	2,680	5,830	2,950	7,150	2,470	3,190	3,470	2,720	2,790	1,900	856	1,570	3,130
1915	4,050	5,170	1,850	2,820	2,280	2,900	4,140	2,630	1,770	1,020	610	490	2,460
1916	2,550	3,270	5,990	2,180	4,800	4,760	2,660	2,990	3,670	3,320	1,730	835	3,230
1917	624	2,780	2,220	2,130	2,290	1,570	1,760	2,940	3,790	2,210	1,440	693	2,030
1918	975	2,040	9,720	6,160	4,210	3,660	2,580	1,870	1,860	888	789	502	2,940
1919	2,480	3,620	6,280	5,270	3,610	2,770	3,680	3,360	3,000	2,620	1,170	648	3,210
1920	508	4,090	4,640	4,580	2,310	2,210	1,490	1,630	2,890	1,200	600	3,570	2,470
1921	5,640	3,470	4,340	4,960	4,410	2,640	1,950	2,880	4,420	2,780	1,530	2,410	3,450
1922	6,700	5,530	6,710	1,350	1,610	1,250	1,680	3,240	3,610	1,610	804	1,100	2,940
1923	2,190	1,770	5,100	7,200	2,000	1,800	2,300	2,400	2,300	1,500	*604	*565	*2,490
1924	1,100	1,500	4,700	4,200	8,300	1,900	1,100	1,700	1,100	640	452	1,300	2,310
1925	5,220	5,600	3,600	3,900	6,500	2,200	2,700	3,200	2,500	1,700	*745	610	*3,180
1926	376	2,120	6,460	3,100	4,130	1,900	1,680	2,210	1,250	585	502	467	2,080
1927	3,970	3,670	4,150	4,650	3,620	2,310	1,740	3,440	4,520	2,000	860	1,680	2,960
1928	3,150	5,410	2,760	5,800	2,120	3,650	2,800	3,260	2,010	1,050	475	465	2,760
1929	2,410	3,090	2,430	1,600	673	1,980	2,300	2,830	3,280	1,560	723	417	1,950
1930	656	484	2,960	1,530	5,420	2,140	3,410	1,760	1,570	855	428	519	1,760

* Revised; supersedes estimates published in Water-Supply Paper 870.

QUINAUT RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Quinault River at Quinault Lake,
Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	1,740	2,240	2,190	5,890	3,090	3,860	3,690	2,440	2,900	1,370	539	841	2,560
1932	1,960	3,560	4,010	3,640	4,250	4,350	3,720	2,610	3,020	2,250	1,180	657	2,930
1933	1,110	5,270	45,160	44,590	32,170	3,200	2,400	2,960	3,690	3,540	1,650	1,370	23,080
1934	3,205	4,056	10,260	7,246	3,072	3,670	2,432	2,413	1,116	1,561	876	689	33,400
1935	2,963	6,269	4,315	9,285	4,189	3,111	1,706	2,310	2,611	1,754	742	1,452	3,390
1936	1,257	1,516	3,205	4,866	1,844	2,912	2,119	3,880	3,939	1,824	691	700	2,403
1937	523	410	4,345	1,177	1,889	2,844	3,780	3,841	4,862	2,088	923	645	2,262
1938	2,557	6,868	5,832	3,486	1,938	2,840	3,002	2,651	2,325	1,251	528	411	2,811
1939	1,598	3,365	4,370	6,157	2,581	1,942	2,096	2,608	2,168	1,657	752	628	2,497
1940	1,307	3,545	8,173	4,457	4,847	3,998	2,267	3,053	1,261	649	500	504	2,880
1941	3,908	2,828	4,318	3,681	3,209	2,418	1,925	2,896	1,538	778	448	1,728	2,472
1942	3,056	3,477	6,219	1,901	2,485	1,532	1,818	2,045	2,814	1,679	687	403	2,344
1943	593	3,771	3,632	2,178	2,250	2,250	4,454	2,155	2,187	1,566	709	470	2,225
1944	1,456	1,676	3,364	4,013	2,250	1,874	1,779	1,861	1,591	758	422	780	1,818
1945	1,298	4,653	2,968	4,804	4,807	2,871	1,776	3,945	2,155	1,361	591	847	2,659
1946	1,710	4,655	4,745	4,225	2,941	3,377	3,294	3,615	3,557	2,801	1,193	746	3,073
1947	1,228	2,765	5,718	3,622	6,141	1,994	2,433	2,245	1,954	1,382	687	688	2,548
1948	4,569	3,050	4,754	3,360	2,860	2,016	2,597	4,575	3,959	1,806	1,008	2,006	3,049
1949	2,362	3,984	3,568	1,392	3,457	3,615	2,823	4,428	2,760	1,927	1,255	1,256	2,730
1950	1,841	6,678	6,199	3,495	4,491	4,417	3,221	2,794	4,115	3,072	1,771	870	3,571

* Revised.

a Revised; supersedes estimates published in Water-Supply Paper 870.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	55,300	276,000	170,000	290,000	255,000	71,300	70,200	119,000	120,000	75,600	62,700	72,600	1,640,000
1913	115,000	337,000	221,000	194,000	443,000	111,000	123,000	187,000	202,000	103,900	87,900	122,000	2,050,000
1914	165,000	347,000	1,024,000	1,004,000	1,004,000	1,004,000	1,004,000	1,004,000	1,004,000	1,004,000	1,004,000	1,004,000	2,270,000
1915	249,000	308,000	1,041,000	1,041,000	1,041,000	1,041,000	1,041,000	1,041,000	1,041,000	1,041,000	1,041,000	1,041,000	2,780,000
1916	157,000	195,000	303,669,000	304,000	276,000	293,000	158,000	184,000	184,000	106,000	106,000	49,700	2,340,000
1917	38,400	165,000	336,000	31,000	321,000	96,500	105,000	181,000	202,000	103,600	88,500	41,200	1,470,000
1918	60,000	121,000	308,998,000	309,000	234,000	225,000	154,000	115,000	111,000	54,600	49,900	29,900	2,130,000
1919	152,000	215,000	308,998,000	309,000	234,000	225,000	154,000	115,000	111,000	54,600	49,900	29,900	2,130,000
1920	31,100	243,000	308,998,000	309,000	234,000	225,000	154,000	115,000	111,000	54,600	49,900	29,900	2,130,000
1921	347,000	206,000	267,000	305,000	245,000	1,001,620	1,001,100	1,001,770	1,002,630	1,001,700	94,100	143,000	2,500,000
1922	412,000	329,000	400,413,000	83,000	89,400	76,900	100,000	100,990	102,000	65,000	99,400	65,500	2,130,000
1923	135,000	105,000	300,140,000	443,000	1,001,110	1,001,130	1,001,480	1,001,370	1,001,370	92,200	37,100	53,600	2,130,000
1924	67,600	89,300	289,000	258,000	477,000	117,000	65,500	105,000	65,500	39,400	27,800	77,400	1,680,000
1925	321,000	333,000	2,001,210,000	400,361,000	1,001,350,000	1,001,161,000	1,001,937,000	1,001,490,000	1,001,490,000	1,001,490,000	1,001,490,000	1,001,490,000	2,130,000
1926	23,100	126,000	308,997,000	309,000	229,000	117,000	100,000	100,350,000	74,400	36,000	30,900	27,800	1,490,000
1927	244,000	218,000	208,555,000	208,555,000	208,555,000	208,555,000	208,555,000	208,555,000	208,555,000	208,555,000	208,555,000	208,555,000	2,150,000
1928	194,000	322,000	700,707,000	357,000	507,000	222,000	104,000	107,000	200,000	200,000	64,600	29,200	2,000,000
1929	148,000	184,000	49,000	98,400	37,400	22,000	137,000	174,000	195,000	95,900	44,500	24,800	1,410,000
1930	40,300	28,800	182,000	94,100	100,810	132,000	203,000	100,108,000	93,400	52,600	26,300	30,900	1,290,000
1931	107,000	131,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	1,860,000
1932	121,000	200,408,000	700,359,000	600,214,000	400,074,000	174,600	178,600	180,339,000	76,910	32,450	24,460	2,035,000	2,230,000
1933	68,200	314,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	2,230,000
1934	197,100	41,300	300,335,000	700,445,000	500,700,000	600,225,000	700,144,000	700,148,000	700,148,000	700,148,000	700,148,000	700,148,000	2,462,000
1935	182,200	373,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	300,335,000	2,454,000
1936	77,270	90,210	197,000	299,200	106,000	179,000	126,000	102,380,000	234,400	12,100	42,510	41,660	1,744,000
1937	32,180	24,420	67,200	72,350	104,900	174,000	144,900	36,200	77,400	40,000	56,750	38,390	1,638,000
1938	157,200	408,700	359,600	214,400	107,700	600,174,000	600,178,000	600,180,000	600,180,000	600,180,000	600,180,000	600,180,000	2,035,000
1939	98,140	200,200	68,700	78,600	43,300	19,400	124,700	60,400	128,300	101,900	46,210	37,400	1,808,000
1940	80,340	210,900	502,502,000	1,001,278,000	800,245,000	134,900	187,700	75,010	39,880	30,740	30,000	30,000	2,091,000
1941	240,200	168,300	265,500	226,400	78,200	148,700	114,500	178,100	91,520	47,860	27,530	102,800	1,790,000
1942	187,900	206,900	382,400	116,900	39,000	94,200	109,200	125,800	167,400	103,200	42,250	23,960	1,697,000
1943	36,430	224,400	23,300	133,900	56,000	138,300	266,800	32,600	30,100	96,290	43,590	27,990	1,610,000
1944	69,510	99,720	68,700	80,460	80,129,000	115,200	105,900	14,400	94,650	45,000	25,970	46,430	1,320,000
1945	79,830	276,900	182,500	235,400	267,000	176,500	105,700	70,440	500,128,300	83,870	56,370	50,390	1,925,000
1946	105,100	277,000	291,800	259,800	63,400	207,600	196,000	22,200	1,601,720	72,700	44,410	2,224,000	2,224,000
1947	75,480	164,500	351,600	222,700	84,100	122,600	144,800	38,000	116,300	84,950	42,200	40,530	1,845,000
1948	281,000	181,500	92,300	206,600	164,500	124,000	154,600	182,800	300,335,000	1,601,720	72,700	44,410	2,224,000
1949	149,000	237,000	190,400	19,400	85,610	92,000	22,200	168,000	72,300	118,500	77,180	74,760	1,976,000
1950	113,200	597,400	581,200	214,900	49,400	71,600	191,600	71,800	244,900	188,900	109,900	51,750	2,586,000

* Revised.

a Revised; supersedes estimates published in Water-Supply Paper 870.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1912	332,492	\$20,300	Nov. 18, 1911	-	2,260	8.56	116.31	1,640,000	2,490	128.35	1,810,000
1913	362,492	\$18,200	Nov. 19, 1912	704	2,840	10.8	145.85	2,050,000	2,860	147.46	2,070,000
1914	392,492	32,500	Jan. 6, 1914	538	3,130	11.9	161.27	2,270,000	3,100	159.53	2,250,000
1915	412,492	\$16,200	Oct. 19, 1914	400	2,460	9.32	126.38	1,780,000	2,530	129.93	1,850,000
1916	442	\$20,800	Dec. 8, 1915	410	3,230	12.2	166.46	2,340,000	2,700	139.45	1,860,000
1917	462	6,670	Nov. 4, 1916	448	2,030	7.69	104.48	1,470,000	2,640	135.65	1,910,000
1918	482	32,000	Dec. 18, 1917	428	2,940	11.1	151.12	2,130,000	2,910	149.38	2,100,000
1919	512	23,800	Dec. 14, 1918	425	3,210	12.2	165.15	2,320,000	2,940	151.58	2,130,000
1920	512	21,300	Nov. 15, 1919	432	2,470	9.36	127.31	1,790,000	2,830	145.72	2,050,000

* Revised.

* Not previously published.

Yearly discharge, in cubic feet per second, of Quinault River at Quinault Lake, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Acre-feet	Mean	Inches	Runoff Acre-feet
		Discharge	Date								
1921	532	20,100	Feb. 11, 1921	779	3,450	13.1	177.22	2,500,000	3,910	200.90	2,830,000
1922	552	37,000	Dec. 12, 1921	565	2,940	11.1	151.34	2,130,000	2,120	108.76	1,530,000
1923	870,552	-	-	-	*2,490	*9.43	*128.02	*1,800,000	*2,340	*120.39	1,700,000
1924	870,592	-	-	-	2,310	8.75	119.14	1,680,000	2,900	149.63	2,110,000
1925	870,592	-	-	-	*3,180	12.0	*163.59	*2,510,000	*2,730	*140.28	*1,980,000
1926	632	14,800	Dec. 23, 1925	290	2,060	7.80	105.64	1,490,000	2,290	117.69	1,660,000
1927	652	14,800	Oct. 16, 1926	601	2,960	11.2	152.25	2,150,000	2,920	150.05	2,110,000
1928	672	17,100	Jan. 12 or 13, 1928	318	2,750	10.4	141.76	2,000,000	2,470	127.25	1,790,000
1929	692	10,300	Nov. 13, 1928	309	1,950	7.39	100.11	1,410,000	1,630	83.73	1,180,000
1930	707	11,800	Feb. 5, 1930	501	1,780	6.74	91.73	1,290,000	1,960	100.55	1,420,000
1931	722	21,000	Jan. 23, 1931	-	2,560	9.70	131.78	1,860,000	2,850	146.28	2,060,000
1932	737	*28,100	Feb. 27, 1932	541	2,930	11.1	151.02	2,130,000	*3,090	*159.52	*2,240,000
1933	870,752	-	-	414	*3,080	*11.7	*158.51	*2,230,000	*3,590	*184.81	*2,600,000
1934	1286,767	35,000	Dec. 21, 1933	504	*3,400	*12.9	*174.74	*2,462,000	3,057	156.95	2,213,000
1935	792	36,100	Jan. 24, 1935	456	3,390	12.8	174.25	2,454,000	2,760	141.95	1,998,000
1936	812	*11,200	Jan. 4, 1936	462	2,403	9.10	123.74	1,744,000	2,346	120.93	1,703,000
1937	832	*15,200	Dec. 22, 1936	370	2,262	8.57	116.38	1,638,000	3,092	159.01	2,239,000
1938	862	*21,500	Dec. 29, 1937	328	2,611	10.6	144.56	2,035,000	2,317	119.19	1,677,000
1939	882	*25,400	Jan. 1, 1939	388	2,497	9.46	128.40	1,808,000	2,810	144.49	2,035,000
1940	902	21,500	Dec. 15, 1939	374	2,880	10.9	148.48	2,091,000	2,715	139.97	1,971,000
1941	932	16,000	Oct. 19, 1940	374	2,472	9.36	127.12	1,790,000	2,615	134.45	1,893,000
1942	962	-	-	328	2,344	8.98	120.52	1,697,000	1,940	99.71	1,404,000
1943	982	13,100	Apr. 2, 1943	594	2,225	8.43	114.38	1,610,000	2,103	108.12	1,522,000
1944	1012	19,600	Dec. 3, 1943	285	1,818	6.89	93.76	1,320,000	2,016	103.92	1,463,000
1945	1042	27,500	Feb. 8, 1945	431	2,659	10.1	136.72	1,925,000	2,845	146.29	2,060,000
1946	1062	14,100	Nov. 15, 1945	482	3,073	11.6	157.98	2,224,000	2,959	152.13	2,142,000
1947	1092	27,100	Feb. 14, 1947	386	2,548	9.65	131.01	1,845,000	2,773	142.60	2,008,000
1948	1122	17,100	Oct. 19, 1947	497	3,049	11.5	157.22	2,214,000	2,838	146.35	2,081,000
1949	1152	15,200	Feb. 23, 1949	679	2,750	10.3	140.37	1,976,000	3,131	160.97	2,267,000
1950	1192	42,300	Nov. 27, 1949	630	3,571	13.5	183.62	2,586,000	-	-	-

* Revised.

† Corrected.

QUEETS RIVER BASIN

48. Clearwater River near Clearwater, Wash.

Location.--Lat 47°35'00" long. 124°17'40" (revised), in lot 4, NW $\frac{1}{4}$ sec. 18, T. 24 N., R. 12 W., on left bank $\frac{1}{2}$ miles north of Clearwater and 3 miles upstream from mouth.

Drainage area.--140 sq mi.

Gage.--Water-stage recorder. Datum of gage is 60.0 ft above mean sea level (river-profile survey). Oct. 1, 1931, to Sept. 30, 1932, staff gage 600 ft upstream at datum 5.2 ft higher.

Average discharge.--13 years (1931-32, 1937-49), 1,176 cfs.

Extremes.--1931-32, 1937-49: Maximum discharge, 23,700 cfs Feb. 16, 1949 (gage height, 17.38 ft), from rating curve extended above 6,800 cfs on basis of slope-area determination of peak flow; minimum, 58 cfs Aug. 28, 1947 (gage height, 5.27 ft), apparently result of flash-dam operation.

Maximum stage known, 20.1 ft in January 1935, from floodmarks (discharge, 30,400 cfs).

Flood in November 1949 reached a stage of 19.2 ft, from floodmarks (discharge, 28,200 cfs).

Remarks.--No diversion. Occasional slight regulation from flash dam.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1932	1,200	2,220	2,310	2,060	2,890	2,240	1,700	357	227	500	300	228	1,350
1937	-	-	-	-	-	-	-	-	-	129	186	184	-
1938	1,671	3,285	2,575	1,589	1,258	1,695	1,288	453	162	101	81.4	121	1,189
1939	983	1,756	2,854	3,319	1,995	1,142	528	587	474	426	148	302	1,206
1940	1,014	2,229	3,583	1,804	2,256	1,969	790	1,045	180	161	163	169	1,281
1941	1,715	1,289	2,305	1,824	1,741	1,042	599	1,025	296	151	164	848	1,081
1942	1,921	1,599	2,776	822	1,254	1,106	864	583	990	465	164	107	1,054
1943	562	1,977	2,146	1,077	2,003	1,287	1,811	555	334	202	154	157	1,012
1944	764	729	2,035	2,729	1,123	1,184	1,042	445	206	105	83.1	403	906
1945	659	2,397	1,420	2,988	2,230	2,363	1,096	1,110	207	165	90.2	307	1,247
1946	982	2,748	2,297	2,316	2,172	2,287	1,775	515	491	422	160	201	1,358
1947	553	1,626	2,529	1,817	2,771	*677	*980	595	496	547	201	240	*1,075
1948	2,296	1,350	2,324	1,933	2,190	1,333	1,440	1,758	307	157	264	838	1,349
1949	1,024	2,777	2,506	663	2,946	1,635	928	836	216	204	246	290	1,176
1950	1,036	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet, of Clearwater River near Clearwater, Wash.													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1932	73,800	132,000	142,000	17,000	168,000	138,000	101,000	22,000	13,500	30,700	18,400	13,600	978,000
1937	-	-	-	-	-	-	-	-	-	7,940	11,450	10,940	-
1938	102,700	95,500	158,300	97,730	69,840	104,200	76,660	27,860	9,820	6,210	5,000	7,190	860,800
1939	60,460	103,300	75,500	204,100	10,800	70,200	31,410	36,070	28,210	26,190	9,120	17,970	873,300
1940	62,370	32,600	220,300	110,900	129,800	121,100	47,000	64,260	10,720	9,890	11,260	10,060	950,300
1941	105,500	76,680	141,700	112,200	98,670	64,080	35,660	63,020	17,630	9,270	10,080	50,460	783,000
1942	118,100	95,120	170,700	50,530	69,860	68,000	51,430	35,830	58,930	28,590	10,110	6,380	763,400
1943	34,560	17,800	32,000	66,250	11,300	77,890	67,700	34,130	19,860	12,410	9,450	9,330	732,500
1944	46,990	43,380	25,100	67,800	64,610	72,800	62,030	27,380	12,240	6,470	5,110	23,980	657,900
1945	40,550	142,600	87,290	185,700	123,800	145,300	65,220	68,240	12,300	10,170	5,540	18,250	903,000
1946	80,380	163,500	141,300	142,400	120,600	140,800	105,600	31,650	29,190	25,920	9,860	11,960	983,000
1947	34,000	96,770	155,500	111,700	153,900	41,650	58,330	56,590	29,490	33,620	12,350	14,270	*778,200
1948	141,200	80,340	142,900	118,800	26,000	61,960	88,870	108,100	18,260	9,670	16,230	49,870	979,000
1949	62,950	165,200	154,100	40,780	163,600	100,600	55,250	51,420	12,880	12,530	15,150	17,240	851,700
1950	63,720	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second													
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Momentary		maximum Date	Minimum day	Mean	Per square mile	Runoff		Mean	Inches	Runoff	
		Discharge						Inches	Acre-feet			Inches	Acre-feet
1932	737	21,000		Feb. 26, 1932	130	1,350	9.64	130.95	978,000	-	-	-	-
1937	862,1152	-		-	-	-	-	-	-	-	-	-	-
1938	862,1152	17,500		Oct. 28, 1937	82	1,189	8.49	115.30	860,600	1,027	99.59	743,800	
1939	862,1152	16,300		Jan. 1, 1939	95	1,208	8.61	116.97	873,300	1,311	127.15	949,300	
1940	902,1152	15,100		Dec. 14, 1939	99	1,281	9.15	124.61	930,300	1,155	112.36	838,900	
1941	932,1152	16,500		Jan. 17, 1941	97	1,081	7.72	104.85	783,000	1,164	112.90	843,000	
1942	962,1152	13,000		Oct. 9, 1941	84	1,054	7.53	102.24	763,400	917	88.88	663,600	
1943	982,1152	11,200		Oct. 31, 1942	98	1,012	7.23	98.10	732,500	917	88.90	663,800	
1944	1012,1152	17,500		Dec. 2, 1943	62	906	6.47	88.11	657,900	988	95.47	712,900	
1945	1042,1152	*22,200		Feb. 7, 1945	77	1,247	8.91	120.94	903,000	1,378	133.63	997,700	
1946	1062,1152	15,700		Nov. 14, 1945	102	1,358	9.70	131.66	983,000	1,249	121.08	904,000	
1947	1092,1152	-		-	113	*1,075	*7.69	*104.20	*778,200	*1,183	*114.68	*856,300	
1948	1122,1152	16,300		Jan. 1, 1948	103	1,349	9.64	131.13	979,000	1,373	133.52	996,800	
1949	1152	23,700		Feb. 16, 1949	114	1,176	8.40	114.08	851,700	-	-	-	-
1950	1152	-		-	-	-	-	-	-	-	-	-	-

* Revised.

Note.--See also Water-Supply Paper 1346 for revised 1947 records.

49. Queets River near Clearwater, Wash.

Location (revised).--Lat 47°32'20", long. 124°18'50", in SW $\frac{1}{4}$ sec. 36, T. 24 N., R. 13 W., on right bank on Quinalt Indian Reservation, 2 miles downstream from Clearwater River, and $2\frac{1}{2}$ miles southwest of Clearwater.

Drainage area.--445 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 14.5 ft above mean sea level (river-profile survey). Sept. 15, 1930, to Jan. 22, 1935, water-stage recorder at datum 4.0 ft higher. Aug. 24 to Oct. 23, 1935, staff gage at described site and datum.

Average discharge.--19 years (1930-49), 4,115 cfs.

Extremes.--1930-49: Maximum discharge, 130,400 cfs (revised) Jan. 22, 1935 (gage height, 27.0 ft, described datum, from floodmarks); minimum, 368 cfs Sept. 9, 1944; minimum gage height, 4.42 ft (corrected), described datum, Oct. 11, 1932.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	3,460	3,720	3,800	9,800	4,930	6,560	6,340	1,770	3,030	1,280	571	1,500	3,890
1932	3,710	7,470	7,610	6,730	9,520	8,350	6,220	2,110	2,130	2,450	1,290	834	4,850
1933	2,310	9,400	8,270	8,410	4,970	6,710	2,960	3,660	2,910	2,090	1,230	3,570	4,710
1934	3,874	5,229	15,750	11,920	4,411	5,572	2,833	2,921	1,042	1,612	1,230	849	4,798
1935	4,255	10,460	7,726	23,500	8,700	5,300	2,600	3,200	3,400	2,100	816	2,544	6,196
1936	1,967	2,731	5,705	9,408	3,889	5,851	2,479	3,701	4,509	2,331	849	1,038	3,727
1937	940	754	7,881	1,787	6,004	4,638	7,093	4,833	4,078	1,119	939	740	3,407
1938	4,903	10,160	8,447	5,052	3,753	5,045	4,339	2,284	1,516	883	469	535	3,905
1939	3,095	5,569	8,122	10,270	5,669	3,535	2,268	2,543	2,134	1,895	798	988	3,905
1940	2,793	6,132	11,620	6,157	7,959	6,178	2,719	3,567	1,050	768	708	679	4,190
1941	5,833	4,292	7,002	5,744	5,210	3,395	2,343	3,765	1,604	874	676	2,811	3,625
1942	5,565	5,322	8,971	2,949	3,964	3,106	2,843	2,264	3,550	1,909	757	497	3,475
1943	3,618	6,027	8,468	3,452	5,896	3,949	6,104	2,286	1,763	1,277	790	666	3,334
1944	2,471	2,278	6,027	7,569	3,484	3,418	3,253	1,950	1,304	716	473	1,458	2,672
1945	2,090	7,319	4,460	8,736	7,238	6,887	3,255	4,472	1,486	1,147	605	1,198	4,057
1946	3,337	8,636	7,658	7,119	6,196	6,556	5,804	2,781	3,195	2,219	1,054	902	4,584
1947	1,896	5,080	9,170	7,404	8,948	2,313	3,563	2,373	2,563	2,085	842	1,032	3,908
1948	6,221	4,985	8,524	5,440	5,309	3,889	4,539	6,263	2,632	1,434	1,390	2,970	4,629
1949	3,211	8,389	7,378	1,851	8,574	5,636	3,740	4,083	1,873	1,493	1,251	1,351	4,077
1950	3,462	11,790	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet, of Queets River near Clearwater, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	213,000	221,000	234,000	603,000	724,000	403,000	377,000	109,000	180,000	78,700	35,100	89,300	2,820,000
1932	228,000	444,000	468,000	414,000	548,000	613,000	370,000	130,000	27,000	151,000	79,300	49,800	3,520,000
1933	142,000	559,000	508,000	517,000	78,000	413,000	176,000	225,000	73,000	29,000	75,800	212,000	3,410,000
1934	238,200	511,100	668,300	732,900	245,000	342,600	168,600	79,600	62,020	99,150	75,610	50,530	3,474,000
1935	261,600	622,700	475,100	445,000	483,200	325,900	154,700	196,800	202,300	129,100	50,190	139,500	4,486,000
1936	121,000	162,500	350,800	583,400	223,700	359,800	147,000	227,500	268,300	143,300	52,230	65,770	2,705,000
1937	57,770	44,840	484,600	109,500	900,533	400,285	200,422	200,297	200,422	700,87,250	57,750	44,020	2,467,000
1938	801,500	805,500	819,400	510,800	208,400	10,200	258,200	140,400	90,210	54,300	28,870	31,850	2,859,000
1939	190,300	331,400	499,400	351,400	514,900	217,400	155,300	500,277	100,116	15,500	49,090	58,800	3,827,000
1940	171,700	364,900	714,400	578,600	457,800	379,900	161,800	219,300	62,460	47,220	43,560	40,410	3,042,000
1941	358,600	255,400	430,600	353,200	289,300	208,700	139,400	231,500	95,420	53,730	41,560	167,200	2,625,000
1942	342,200	316,700	551,600	181,300	220,100	191,000	169,300	139,200	211,200	117,400	46,540	29,560	2,516,000
1943	99,380	358,600	397,600	212,300	327,600	242,800	363,500	140,500	500,104	90,300	78,520	48,580	3,692,000
1944	151,900	135,600	370,600	465,400	200,400	210,200	193,500	119,900	77,570	44,040	29,100	86,770	2,085,000
1945	128,500	435,500	274,200	637,200	402,000	423,500	193,700	274,900	88,440	70,530	37,220	71,270	2,937,000
1946	205,200	513,900	470,700	544,100	403,100	327,500	71,000	190,100	100,356	400	64,790	53,670	3,318,000
1947	116,000	302,300	553,900	455,200	496,900	142,200	212,000	145,900	152,500	28,200	51,780	61,430	2,829,000
1948	505,500	296,600	524,100	334,500	805,400	239,000	270,100	385,100	156,600	88,170	85,480	176,700	3,367,000
1949	197,500	517,000	453,700	144,400	481,700	346,600	222,500	251,600	117,400	92,150	76,900	80,410	2,952,000
1950	212,800	869,900	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1931	722	*47,000	Jan. 23, 1931	455	3,890	8.74	118.64	2,820,000	4,540	139.46	3,290,000
1932	737	*80,700	Feb. 26, 1932	646	4,850	10.9	148.37	3,520,000	4,950	151.09	3,590,000
1933	752	*48,400	Nov. 12, 1932	548	4,710	10.8	143.89	3,410,000	5,130	156.11	3,710,000
1934	767	*54,800	Dec. 21, 1933	530	4,798	10.6	146.80	3,474,000	4,579	139.62	3,315,000
1935	792	*130,400	Jan. 22, 1935	466	6,196	13.9	188.68	4,486,000	5,195	158.82	3,761,000
1936	812	*38,500	Jan. 4, 1936	614	3,727	8.38	114.06	2,705,000	3,662	112.02	2,658,000
1937	832	*44,900	Dec. 22, 1936	478	3,407	7.68	103.98	2,467,000	4,566	139.82	3,306,000
1938	862	*65,200	Dec. 28, 1937	401	3,950	8.88	120.54	2,859,000	3,390	103.44	2,454,000
1939	882	*63,600	Jan. 1, 1939	413	3,905	8.78	119.18	2,827,000	4,223	128.62	3,057,000
1940	902	*54,800	Dec. 15, 1939	470	4,190	9.42	128.22	3,042,000	3,906	119.51	2,836,000
1941	932	*58,200	Jan. 17, 1941	477	3,625	8.15	110.53	2,625,000	3,855	117.55	2,791,000
1942	962	*51,200	Dec. 2, 1941	410	3,475	7.81	106.02	2,516,000	2,985	91.08	2,161,000
1943	982	*38,500	Apr. 2, 1943	445	3,334	7.49	101.67	2,414,000	3,061	93.39	2,216,000
1944	1012	*58,000	Dec. 3, 1943	384	2,872	6.45	87.79	2,085,000	3,120	95.42	2,285,000
1945	1042	*78,900	Feb. 7, 1945	477	4,057	9.12	123.80	2,937,000	4,543	138.46	3,289,000
1946	1062	*43,500	Nov. 14, 1945	526	4,584	10.3	139.82	3,318,000	4,297	131.13	3,111,000
1947	1092	*61,200	Jan. 25, 1947	462	3,908	8.78	119.18	2,829,000	4,382	133.71	3,172,000
1948	1122	*64,400	Oct. 18 or 19, 1947	542	4,639	10.4	141.56	3,367,000	4,421	135.16	3,209,000
1949	1152	*62,800	Feb. 17, 1949	530	4,077	9.16	124.34	2,952,000	-	-	-
1950	1152	*93,000	Nov. 26, 1949	-	-	-	-	-	-	-	-

* Revised.

* Not previously published.

HOH RIVER BASIN

50. Hoh River near Spruce, Wash.

Location.--Lat 47°48'20", long. 124°06'20", in NE $\frac{1}{4}$ sec. 34, T. 27 N., R. 11 W., on left bank 1 mile downstream from Maple Creek, $2\frac{1}{2}$ miles west of Spruce, and 5 miles downstream from South Fork.

Drainage area.--208 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 320 ft (from river-profile map).

Average discharge.--24 years (1926-50), 1,952 cfs (revised).

Extremes.--1926-50: Maximum discharge, 38,700 cfs Nov. 26, 1949 (gage height, 22.2 ft, from high-water marks), from rating curve extended above 13,000 cfs on basis of slope-area determination of peak flow; minimum, 247 cfs Nov. 14, 15, 1929; minimum gage-height, 0.68 ft Oct. 18, 19, 1946.

Maximum stage known since at least 1891, that of Nov. 26, 1949.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Hoh River near Spruce, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	-	-	-	-	-	1,110	713	-
1927	2,670	2,490	3,180	2,870	2,460	1,790	1,260	2,320	2,400	1,740	1,340	1,720	2,190
1928	2,960	3,800	2,180	4,080	1,270	2,560	1,880	2,170	1,540	1,400	930	790	2,140
1929	1,900	2,050	1,590	1,060	612	1,440	1,630	1,950	2,360	1,580	1,160	772	1,510
1930	910	503	2,010	1,110	4,050	1,760	2,330	1,250	1,490	1,180	999	1,030	1,530
1931	1,540	1,490	1,450	3,600	1,930	2,360	2,410	1,710	2,440	1,500	926	1,080	1,870
1932	1,370	2,390	2,470	2,230	2,960	1,680	2,370	1,610	2,350	1,840	1,260	959	2,080
1933	1,250	1,70	3,290	2,640	1,310	2,100	1,480	1,790	2,390	2,320	1,600	2,040	2,220
1934	2,687	2,318	8,543	4,805	1,970	2,406	1,730	1,801	1,218	1,394	1,205	657	*2,442
1935	2,120	4,802	2,920	6,443	2,938	1,959	1,237	1,358	1,179	1,550	997	1,395	2,455
1936	1,074	1,000	1,954	3,220	1,244	2,184	1,616	2,608	3,069	1,999	1,162	982	1,850
1937	740	455	3,040	779	1,407	1,711	2,251	2,210	2,860	1,733	1,088	845	1,595
1938	1,799	3,937	3,618	2,199	1,212	1,715	1,796	1,611	1,698	1,357	816	865	1,869
1939	1,562	2,146	3,178	3,761	1,767	1,397	1,436	1,854	1,734	1,821	1,109	639	1,888
1940	1,125	2,604	5,361	2,842	2,661	2,545	1,561	2,157	1,208	1,067	947	649	2,081
1941	2,656	1,527	3,007	2,416	2,303	1,324	1,064	1,985	1,586	1,268	943	1,386	1,772
1942	2,561	2,582	3,939	1,267	1,387	1,031	1,181	1,372	2,103	1,799	1,096	699	1,756
1943	966	2,576	2,622	1,535	2,206	1,415	2,709	1,537	1,621	1,546	957	815	1,702
1944	1,517	1,141	2,265	2,782	1,313	1,173	1,171	2,550	1,511	1,032	790	1,161	1,396
1945	1,393	3,042	1,934	3,257	2,846	2,173	1,412	2,461	1,585	1,459	966	1,010	1,956
1946	1,482	3,222	3,144	2,725	2,024	2,306	2,086	2,298	2,356	2,070	1,270	822	2,152
1947	891	1,747	3,375	2,270	3,764	1,152	1,496	1,636	1,764	1,571	934	823	1,790
1948	2,984	2,149	3,519	2,391	2,222	1,419	1,532	2,654	2,664	1,609	1,357	1,649	2,181
1949	1,682	3,895	4,292	889	2,427	2,155	1,632	2,776	1,928	1,611	1,363	1,233	2,018
1950	1,590	3,963	4,112	2,430	3,148	2,651	2,066	1,656	2,597	2,091	1,488	792	2,378

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	-	-	-	-	-	68,200	42,400	-
1927	164,000	148,000	136,000	175,000	137,000	110,000	75,000	143,000	145,000	107,000	82,400	47,000	1,580,000
1928	182,000	225,000	134,000	251,000	73,000	12,000	112,000	133,000	91,600	85,100	57,200	47,000	1,550,000
1929	117,000	122,000	97,800	65,200	34,000	88,500	97,000	120,000	40,000	97,200	71,300	45,900	1,100,000
1930	56,000	29,900	124,000	68,200	225,000	108,000	139,000	76,900	88,700	72,600	61,400	61,300	1,110,000
1931	94,700	88,700	89,200	221,000	107,000	145,000	143,000	105,000	145,000	92,200	56,900	64,300	1,350,000
1932	84,200	178,000	152,000	137,000	170,000	77,000	141,000	99,000	128,000	113,000	76,900	51,100	1,510,000
1933	76,900	246,000	202,000	175,000	72,800	129,000	88,100	101,000	142,000	143,000	58,400	21,000	1,610,000
1934	177,500	137,900	142,500	235,500	109,400	148,000	102,900	110,800	72,480	85,590	74,120	51,580	1,756,000
1935	150,300	285,700	179,500	398,200	163,200	120,500	73,630	83,500	105,200	95,330	61,320	82,980	1,777,000
1936	66,040	59,530	120,200	198,000	71,530	134,300	96,180	160,400	82,600	122,900	72,680	58,450	1,343,000
1937	45,480	27,700	186,900	47,900	78,120	105,200	133,900	135,900	70,200	106,500	66,900	50,310	1,155,000
1938	110,600	34,000	22,500	135,200	67,340	105,500	106,900	99,030	101,000	85,420	50,190	51,450	1,367,000
1939	97,250	127,700	95,400	231,300	98,150	85,820	85,590	112,700	103,200	112,000	68,180	49,920	1,367,000
1940	69,170	154,900	330,474	800,164	600,156,500	80,970	132,600	71,850	65,610	58,240	50,530	51,100	1,511,000
1941	163,300	90,890	184,900	148,500	127,900	81,420	63,320	122,100	82,450	77,950	57,990	82,480	1,283,000
1942	157,500	153,700	242,200	77,930	77,030	63,400	70,260	84,380	255,200	110,600	67,370	41,620	1,271,000
1943	59,380	153,300	161,200	94,410	122,500	87,020	61,200	94,530	96,480	95,090	58,810	49,490	1,232,000
1944	80,970	67,870	40,400	171,100	75,530	72,120	69,660	76,840	77,990	63,480	48,580	69,080	1,014,000
1945	85,630	181,000	118,900	200,300	158,000	133,600	84,000	151,300	94,330	69,700	59,380	60,080	1,416,000
1946	91,120	191,700	133,300	367,500	112,400	141,800	141,000	141,300	40,200	200,270	78,110	48,900	1,558,000
1947	54,810	104,000	219,800	139,500	209,000	70,850	89,050	101,700	700,050	96,610	57,410	48,950	1,296,000
1948	183,500	127,900	204,100	147,000	127,800	87,240	91,190	175,500	58,500	98,960	83,440	98,140	1,583,000
1949	103,400	231,800	153,200	54,680	134,800	132,500	109,000	170,700	114,700	99,070	83,810	73,360	1,461,000
1950	97,770	235,800	252,900	474,800	147,800	163,000	124,100	101,900	154,500	128,600	91,470	47,130	1,721,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1926	652	-	-	-	-	-	-	-	-	-	-
1927	652	15,600	Oct. 16, 1926	802	2,190	10.5	142.72	1,580,000	2,230	145.81	1,620,000
1928	672	16,800	Jan. 12, 1928	514	2,140	10.3	139.83	1,550,000	1,850	121.30	1,340,000
1929	692	11,900	Oct. 8, 1928	434	1,510	7.26	98.79	1,100,000	1,340	87.33	969,000
1930	707	11,900	Feb. 18, 1930	250	1,530	7.36	100.14	1,110,000	1,620	105.83	1,170,000
1931	722	19,400	Jan. 22, 1931	505	1,870	8.99	121.97	1,550,000	2,060	134.72	1,490,000
1932	737	22,800	Feb. 26, 1932	592	2,080	10.0	135.95	1,510,000	2,230	145.14	1,620,000
1933	752	17,600	Nov. 12, 1932	560	2,220	10.7	144.79	1,610,000	*2,480	161.97	1,800,000
1934	767,1286	28,600	Dec. 21, 1933	516	*2,442	11.7	159.37	*1,768,000	2,274	148.38	1,646,000
1935	792	36,100	Nov. 5, 1934	530	2,455	11.8	160.23	1,777,000	1,972	128.69	1,428,000
1936	812	9,840	Jan. 4, 1936	463	1,850	8.89	121.04	1,343,000	1,869	122.34	1,357,000
1937	832	15,000	Dec. 22, 1936	333	1,595	7.67	104.12	1,155,000	2,020	131.82	1,462,000
1938	662	21,500	Oct. 28, 1937	647	1,889	9.08	123.26	1,367,000	1,686	110.00	1,220,000
1939	882	20,200	Jan. 1, 1939	519	1,888	9.08	123.24	1,367,000	2,074	135.38	1,502,000
1940	902	20,700	Dec. 15, 1939	525	2,081	10.0	136.17	1,511,000	1,921	125.72	1,395,000

* Revised.

Yearly discharge, in cubic feet per second, of Hoh River near Spruce, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1941	932	16,000	Jan. 17, 1941	498	1,772	8.52	115.67	1,283,000	1,930	125.98	1,398,000
1942	902	21,800	Dec. 2, 1941	480	1,756	8.44	114.59	1,271,000	1,508	99.40	1,092,000
1943	982	11,000	Oct. 31, 1942	487	1,702	8.18	111.09	1,232,000	1,585	103.47	1,148,000
1944	1012	17,400	Dec. 3, 1943	618	1,396	6.71	91.37	1,014,000	1,529	100.05	1,110,000
1945	1042	17,400	Feb. 7, 1945	638	1,956	9.40	127.68	1,416,000	2,081	135.84	1,507,000
1946	1062	9,580	(a)	495	2,152	10.3	140.43	1,558,000	2,017	131.64	1,460,000
1947	1092	15,700	Feb. 13, 1947	400	1,790	8.61	116.81	1,296,000	1,979	129.14	1,433,000
1948	1122	19,400	Oct. 18, 1947	711	2,181	10.5	142.72	1,585,000	2,144	140.28	1,556,000
1949	1152	12,200	Feb. 22, 1949	572	2,018	9.70	131.71	1,461,000	2,154	140.54	1,559,000
1950	1182	38,700	Nov. 26, 1949	539	2,378	11.4	155.17	1,721,000	-	-	-

a Oct. 26, Nov. 15, 1945.

QUILLAYUTE RIVER BASIN

51. Soleduck River near Fairholm, Wash.

Location (revised).--Lat 48°02'40", long. 123°57'35", in lot 4, SW $\frac{1}{4}$ sec. 35, T. 30 N., R. 10 W., on right bank 300 ft downstream from South Fork, 2.5 miles southwest of Fairholm, and 17 miles east of Beaver.

Drainage area.--83.8 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,060 ft (from topographic map). Oct. 10, 1917, to Sept. 26, 1921, water-stage recorder and Oct. 4 to Nov. 4, 1933, staff gage at datum 1.2 ft higher.

Average discharge.--21 years (1917-21, 1933-50), 604 cfs (revised).

Extremes.--1917-21, 1933-50: Maximum discharge, 23,500 cfs Nov. 26, 1949 (gage height, 16.42 ft, from high-water marks in well), from rating curve extended above 5,300 cfs on basis of slope-area determination of peak flow; minimum, 51 cfs Sept. 11, 12, 1944 (gage height, 1.07 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	143	252	2,650	1,430	1,100	869	636	457	408	165	125	71.3	692
1919	499	838	1,700	1,380	890	564	893	751	663	560	244	123	759
1920	89.9	822	929	1,000	449	461	312	363	512	217	112	617	490
1921	1,130	729	969	1,140	1,290	655	495	738	892	480	244	528	772
1934	732	702	2,495	1,747	652	882	520	570	254	171	108	107	750
1935	463	1,489	1,019	2,579	1,129	637	414	516	561	348	145	211	791
1936	227	318	567	1,070	382	717	570	796	717	343	126	129	498
1937	67.8	82.7	1,080	213	347	587	819	826	899	362	151	95.1	461
1938	588	1,341	1,146	863	372	614	657	564	444	207	97.1	76.3	591
1939	*532	655	1,114	1,329	517	491	552	584	469	317	133	88.3	*551
1940	193	723	1,981	939	1,025	997	439	620	209	107	76.0	67.2	615
1941	480	470	1,134	904	749	406	290	650	295	136	87.4	203	483
1942	629	802	1,439	407	439	331	399	397	504	266	111	71.9	483
1943	148	842	893	513	780	523	980	475	459	320	125	85.0	509
1944	265	314	654	1,010	412	350	359	354	270	122	72.8	124	359
1945	235	868	560	1,116	1,041	678	457	917	433	216	98.7	107	558
1946	379	1,038	1,156	981	703	744	740	869	738	489	215	121	681
1947	191	581	1,304	846	1,445	430	505	482	422	263	109	89.0	550
1948	797	669	1,159	852	766	465	514	987	857	364	210	296	680
1949	441	1,051	720	320	746	*730	721	1,052	644	401	242	234	*607
1950	407	1,469	1,606	712	1,109	870	821	756	1,166	658	298	145	832

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	8,790	15,000	163,000	87,900	61,100	53,400	37,800	28,100	24,300	10,100	7,690	4,240	501,000
1919	30,700	49,900	105,000	84,800	49,400	34,700	53,100	46,200	39,500	34,400	15,000	7,320	550,000
1920	5,530	48,900	57,100	61,500	25,800	28,300	18,600	22,300	30,500	13,300	6,890	36,700	355,000
1921	69,500	43,400	59,600	70,100	71,600	40,300	29,500	45,400	53,100	29,500	15,000	31,400	558,000
1934	45,020	41,770	153,400	107,400	36,180	54,250	30,920	35,020	15,090	10,490	6,670	6,390	542,600
1935	28,450	88,590	62,600	158,600	62,690	39,160	24,620	31,700	33,380	21,420	8,910	12,550	572,700
1936	13,940	18,930	34,840	65,810	21,990	44,100	33,890	48,910	42,670	21,060	7,740	7,690	361,600
1937	5,390	4,920	65,150	13,080	19,250	36,110	48,730	50,790	53,470	22,230	9,310	5,660	334,100
1938	25,870	79,810	88,920	53,380	20,670	37,750	39,110	34,680	26,430	12,700	5,970	4,540	427,800
1939	*20,390	39,590	68,490	81,690	28,730	30,200	32,870	35,890	27,930	19,470	8,200	5,260	*398,700
1940	11,880	43,040	21,800	57,720	58,930	61,290	26,120	38,090	12,460	6,610	4,680	4,000	446,600

* Revised.

Monthly and yearly runoff, in acre-feet, of Soleduck River near Fairholm, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	23,520	27,980	69,750	55,560	41,590	24,940	17,280	39,980	17,540	8,390	5,370	12,070	350,000
1942	36,700	47,730	86,480	25,000	24,390	20,330	23,740	23,810	29,980	16,350	6,820	4,280	349,600
1943	9,100	50,120	54,890	31,550	43,340	32,140	58,340	29,230	27,340	19,690	7,710	5,060	368,500
1944	16,140	18,670	40,200	62,080	23,710	21,540	21,380	21,790	16,050	7,520	4,470	7,410	261,000
1945	14,470	51,640	34,440	68,600	57,840	41,700	27,200	56,370	25,750	13,270	6,070	6,390	403,700
1946	23,280	61,790	71,050	60,320	39,040	45,720	44,040	53,420	43,900	30,100	13,200	7,210	493,100
1947	11,720	34,560	80,180	52,000	80,230	28,460	30,080	29,840	25,120	16,170	6,750	5,300	398,200
1948	49,010	39,830	70,030	52,370	44,040	28,580	50,560	60,700	51,020	22,410	12,910	17,590	479,100
1949	27,090	62,550	44,280	19,690	41,410	44,900	42,880	64,680	36,320	24,660	14,910	13,940	*439,300
1950	25,050	87,430	98,730	43,800	61,580	53,520	46,880	46,460	69,370	40,490	18,330	8,630	602,300

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acres-foot	
1916	482,1182	15,800	Dec. 18, 1917	59	692	8.26	112.12	501,000	*690	111.83	*500,000
1919	512,1182	13,200	Dec. 4, 1918	58	759	9.05	123.00	550,000	657	106.48	476,000
1920	512,1182	10,000	Nov. 15, 1919	75	490	5.85	79.58	355,000	574	93.25	416,000
1921	532,1182	11,400	Feb. 11, 1921	142	772	9.21	125.03	558,000	-	-	-
1934	767,1182	19,800	Dec. 21, 1933	75	750	8.95	121.41	542,600	666	107.87	492,100
1935	792,1182	18,800	Nov. 5, 1934	71	791	9.44	128.14	572,700	636	103.09	460,700
1936	812,1182	3,960	Jan. 4, 1936	84	496	5.94	80.91	361,800	509	82.64	369,300
1937	832,1182	8,670	Dec. 22, 1936	80	461	5.50	74.75	334,100	623	100.96	451,200
1938	862,1182	12,200	Dec. 28, 1937	66	591	7.05	95.72	427,800	*502	*81.37	*363,700
1939	882,1182	9,430	Jan. 1, 1939	62	*551	6.58	*89.23	*398,700	617	100.00	447,000
1940	902,1182	9,430	Dec. 15, 1939	58	615	7.34	99.93	446,600	547	88.86	397,200
1941	932,1182	8,100	Jan. 17, 1941	57	483	5.76	76.30	350,000	549	86.97	397,600
1942	962,1182	9,050	Dec. 2, 1941	51	485	5.76	76.23	349,600	399	64.82	286,800
1943	982,1182	4,710	Nov. 23, 1942	66	509	6.07	82.45	368,500	455	73.70	329,400
1944	1012,1182	6,670	Dec. 3, 1943	52	359	4.28	58.39	261,000	395	64.10	286,500
1945	1042,1182	14,600	Feb. 7, 1945	70	558	6.66	90.33	403,700	634	102.77	459,300
1946	1062,1182	6,330	Nov. 14, 1945	60	681	8.13	110.52	493,100	640	103.66	463,400
1947	1092,1182	7,360	Feb. 13, 1947	85	550	6.56	89.09	398,200	595	96.34	450,600
1948	1122,1182	7,920	Oct. 18, 1947	68	660	7.68	107.18	479,100	626	101.60	454,100
1949	1152,1182	4,810	Dec. 1, 1948	104	*607	*7.24	*96.23	*439,300	*714	*115.58	*516,600
1950	1182,1182	23,500	Nov. 26, 1949	117	832	9.33	134.75	602,300	-	-	-

* Revised.

Note.--See also Water-Supply Paper 1286 for revised 1939 and 1949 records.

52. Soleduck River at Snider ranger station, near Beaver, Wash.

Location.--Lat 48°04'00", long. 124°07'00", in E½ sec. 28, T. 30 N., R. 11 W., on right bank 1,250 ft upstream from Snider ranger station, 4 miles downstream from Camp Creek, 9 miles downstream from South Fork, and 11 miles east of Beaver.

Drainage area.--116 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 730 ft (from topographic map). Nov. 13 to Dec. 16, 1921, staff gage 250 ft upstream at same datum.

Extremes.--1922-28: Maximum discharge, 23,500 cfs Dec. 12, 1921 (gage height, 14.7 ft from graph based on gage readings); minimum observed, 28 cfs Sept. 14, 1926 (gage height, 1.10 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	*1,340	*1,380	*2,130	*330	*362	210	376	1,080	876	292	120	138	*723
1923			*1,550	2,140	547	444	554	802	523	319	114	85	
1924	196	513	1,850	1,510	2,110	420	*319	340	211	107	60.1	300	*641
1925	1,080	1,370	1,390	1,280	2,150	580	544	669	498	266	108	55.9	824
1926	*44.6	-	-	-	-	-	-	416	204	83.4	50.8	64.4	-
1927	-	-	-	-	-	-	-	524	805	745	355	313	-
1928	735	1,380	698	1,630	454	979	758	743	411	198	79.5	60.5	663

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

QUILLAYUTE RIVER BASIN

59

Monthly and yearly runoff, in acre-feet, of Soleduck River at Snider ranger station, near Beaver, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	#82,400	#82,100	#131,000	#20,300	#20,100	12,900	22,400	66,400	52,100	18,000	7,380	8,210	#523,000
1923	-	-	#95,300	32,000	30,400	27,300	33,000	37,000	31,100	19,600	7,010	5,060	-
1924	12,100	30,500	14,000	80,800	21,000	25,800	*19,000	20,900	12,800	6,580	3,700	17,900	*465,000
1925	66,400	61,500	85,500	78,700	119,000	35,700	32,400	41,100	29,500	16,400	6,640	3,350	596,000
1926	#2,740	-	-	-	-	-	-	25,700	12,100	5,130	3,120	3,830	-
1927	-	-	-	-	-	-	31,200	52,300	44,300	21,800	8,360	18,800	-
1928	45,200	82,100	42,900	104,000	26,100	60,200	45,000	45,700	24,500	11,600	4,890	3,600	496,000

* Revised.

† Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second											
Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1922	572	23,500	Dec. 12, 1921	#72	#723	#6.23	#84.66	#523,000	-	-	-
1923	572	#11,800	Dec. 24, 1922	-	-	-	-	-	661	77.22	479,000
1924	1346, 592	#15,600	Jan. 31, 1924	34	*641	*5.53	*75.07	*485,000	*747	*67.67	*541,000
1925	612	*7,430	Feb. 3, 1925*	44	824	7.10	96.44	596,000	-	-	-
1926	632	-	-	-	-	-	-	-	-	-	-
1927	652	-	-	-	-	-	-	-	-	-	-
1928	672	*7,430	Jan. 12, 1928*	45	683	5.89	80.13	496,000	-	-	-

* Revised.

† Corrected.

‡ Not previously published.

53. Soleduck River near Quillayute, Wash. 1/

Location.--Lat 47°57'05", long. 124°28'00", in NE¼ sec. 11, T. 28 N., R. 14 W., on county highway bridge 3½ miles east of Quillayute, 3½ miles west of Forks, and 8½ miles north-east of La Push.

Drainage area.--219 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 140 ft (from topographic map).

Extremes.--1897-1901: Maximum discharge, 14,400 cfs Dec. 28, 1897 (gage height, 15.0 ft, from graph based on gage readings), from rating curve extended above 3,200 cfs; minimum observed, 155 cfs Oct. 16, 17, 1901; minimum gage height observed, 0.95 ft Sept. 8, 9, 11, 12, 14-18, 1898.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	#2,050	3,800	1,720	2,830	1,240	1,190	1,040	1,000	878	368	†417	-
1899	1,170	1,800	†2,080	*2,720	1,840	1,170	1,190	1,040	939	†720	466	283	*1,280
1900	607	2,860	2,890	2,600	1,400	†2,700	-	-	-	-	-	-	-
1901	-	-	-	3,090	2,070	2,120	2,150	1,810	1,260	671	374	236	-
1902	368	4,290	3,590	-	-	-	-	-	-	-	-	-	-

* Revised.

† Corrected.

‡ Not previously published; estimated on the basis of records for Elwha River at McDonald Bridge, near Port Angeles.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	#123,000	234,000	106,000	157,000	76,200	70,700	64,100	59,800	41,800	22,500	†24,800	-
1899	72,000	107,000	127,000	†167,000	102,000	71,900	70,900	63,900	55,900	†44,300	28,700	16,800	*928,000
1900	37,300	170,000	178,000	160,000	77,600	†166,000	-	-	-	-	-	-	-
1901	-	-	-	190,000	115,000	130,000	†126,000	111,000	75,100	41,300	23,000	14,000	-
1902	†22,600	†55,000	†21,000	-	-	-	-	-	-	-	-	-	-

* Revised.

† Corrected.

‡ Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1898	(a)	#14,400	Dec. 28, 1897	-	-	-	-	-	*1,280	*79.52	*929,000
1899	1346 (b)	#8,120	Jan. 18, 1899	240	*1,280	*5.85	*79.47	*928,000	*1,390	*86.26	*1,010,000
1900	(c)	#13,700	Mar. 10, 1900	-	-	-	-	-	-	-	-
1901	75	-	-	-	-	-	-	-	*1,830	†13.51	*1,330,000
1902	75	-	-	-	-	-	-	-	-	-	-

* Revised.

† Not previously published.

a 20th Ann. Rept., Pt. 4.

b 21st Ann. Rept., Pt. 4.

c 22d Ann. Rept., Pt. 4.

1/ Published as Soleduck (or Solduck) River at Quillayute prior to 1900.

QUILLAYUTE RIVER BASIN

54. Calawah River near Forks, Wash. 1/

Location.--Lat 47°57'40", long. 124°23'20", in SW $\frac{1}{4}$ sec. 4, T. 28 N., R. 13 W., at highway bridge 0.8 mile north of Forks and 7 miles upstream from mouth.

Drainage area.--131 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 230 ft (from topographic map).

Extremes.--1897-1901: Maximum discharge, 15,000 cfs Nov. 18, 1897 (gage height, 17.2 ft, from graph based on gage readings); minimum, 15 cfs Sept. 28, 1899 (gage height, -0.65 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	*1,970	*3,580	1,230	*2,730	765	824	449	524	323	*201	329	-
1899	807	*1,460	2,180	*2,770	2,190	1,240	1,230	823	483	194	116	*65.3	*1,120
1900	576	*3,580	*2,720	2,940	1,740	2,400	*742	*721	1,130	460	169	*133	*1,420
1901	*1,810	2,310	3,110	*1,580	1,150	1,370	*1,040	*966	478	180	*86.5	*82.8	1,180
1902	*229	2,450	2,090	-	-	-	-	-	-	-	-	-	-

* Revised.

† Corrected.

‡ Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	*117,000	*220,000	75,400	*151,000	47,000	49,000	27,600	31,200	19,900	*12,400	19,600	-
1899	49,600	87,100	134,000	170,000	121,000	76,100	73,400	50,600	28,700	11,900	7,130	*3,890	*814,000
1900	35,400	*201,000	*167,000	181,000	96,500	148,000	*44,200	*44,300	87,100	28,500	10,400	*7,910	*1,030,000
1901	*12,000	137,000	191,000	*96,900	*63,900	84,400	*62,100	*59,400	28,400	11,100	*5,320	*4,930	857,000
1902	*14,100	146,000	129,000	-	-	-	-	-	-	-	-	-	-

* Revised.

† Corrected.

‡ Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1898	1346 (a)	*15,000	Nov. 18, 1897	-	-	-	-	-	*973	*100.82	*704,000	
1899	1346 (b)	*8,600	Jan. 20, 1899	*15	*1,120	*8.58	*116.52	*814,000	*1,310	*135.55	*947,000	
1900	1346 (c)	*13,900	Mar. 9, 1900	*70	*1,420	*10.9	*147.57	*1,030,000	1,470	152.78	1,070,000	
1901	1346, 75	*12,600	Jan. 12, 1901	*71	1,180	9.03	122.60	857,000	*973	*100.84	*704,000	

* Revised.

‡ Not previously published.

a 20th Ann. Rept., Pt. 4.

b 21st Ann. Rept., Pt. 4.

c 22d Ann. Rept., Pt. 4.

LYRE RIVER BASIN

55. Lyre River at Piedmont, Wash.

Location (revised).--Lat 48°05'35", long. 123°47'30", in NE $\frac{1}{4}$ sec. 14, T. 30 N., R. 9 W., on north shore of Crescent Lake, on dock at Log Cabin Hotel at Piedmont, and half a mile upstream from lake outlet.

Drainage area.--49.5 sq mi.

Gage.--Staff gage. Altitude of gage is 580 ft (from topographic map). Oct. 15, 1917, to Oct. 16, 1922 and Oct. 1, 1923, to Dec. 16, 1925, water-stage recorder three-quarters of a mile downstream at different datums.

Average discharge.--10 years (1917-27), 218 cfs.

Extremes.--1917-27: Maximum discharge observed, 1,180 cfs Jan. 10, 11, 1923; minimum discharge, 18 cfs Sept. 19, 1924.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	65.6	71.4	388	642	457	350	316	217	143	81.3	61.2	42.1	235
1919	134	251	500	434	518	367	313	277	229	171	90.0	53.5	277
1920	37.4	102	163	258	261	192	157	126	135	64.1	53.8	96.0	137
1921	232	204	311	485	509	377	228	227	262	181	94.2	76.7	264
1922	201	408	675	328	238	198	169	230	272	137	139	83.1	257
1923	70.9	88.3	230	850	342	272	208	209	184	126	64.5	50.9	225
1924	63.8	77.0	330	243	634	286	163	127	92.1	55.7	35.2	53.8	179
1925	177	436	323	364	608	316	208	203	167	89.5	47.6	35.9	245
1926	28.6	56.4	202	291	321	216	154	141	86.5	55.4	38.5	33.1	134
1927	113	161	267	405	352	324	238	268	252	158	72.9	60.7	222

1/ Published as Calowa River at Forks, 1898-99, Calowa River near Forks, 1900, and Kalawa River near Forks, 1901.

Monthly and yearly runoff, in acre-feet, of Lyre River at Piedmont, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	4,030	4,250	23,900	39,500	25,400	21,500	18,800	13,300	8,510	5,000	3,780	2,510	170,000
1919	8,240	14,900	30,700	26,700	29,800	22,600	18,600	17,000	13,600	10,500	5,530	3,180	200,000
1920	2,300	6,070	10,000	15,900	15,000	11,800	9,340	7,750	8,030	3,940	3,310	5,710	99,200
1921	14,300	12,100	19,100	29,800	28,300	23,200	13,600	14,000	15,600	11,100	5,790	4,560	191,000
1922	12,400	24,300	41,500	20,200	13,200	12,200	10,100	14,100	16,200	8,420	8,550	4,940	186,000
1923	4,360	5,250	14,100	52,300	19,000	16,700	12,400	12,900	10,900	7,750	3,970	3,030	163,000
1924	3,920	4,580	20,300	14,900	36,500	17,600	9,700	7,810	5,480	3,420	2,160	3,200	130,000
1925	10,900	25,900	19,900	22,400	33,800	19,400	12,400	12,500	9,940	5,500	2,930	2,140	178,000
1926	1,760	3,360	12,400	17,900	17,800	13,300	9,160	8,670	5,150	3,410	2,370	1,970	97,200
1927	6,950	9,580	16,400	24,900	19,500	19,900	14,200	16,500	15,000	9,720	4,480	3,610	161,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1918	482	1,080	Jan. 4, 1918	32	235	4.75	64.59	170,000	265	72.83	192,000
1919	512	692	Dec. 14, 1918	39	277	5.60	75.96	200,000	228	62.50	165,000
1920	512	320	(a)	21	137	2.77	37.56	99,200	174	47.85	126,000
1921	532	718	Feb. 14, 1921	49	264	5.33	72.53	191,000	310	84.83	224,000
1922	552	985	Dec. 13, 1921	33	257	5.19	70.39	186,000	182	49.84	132,000
1923	592	1,180	Jan. 10, 1923	39	225	4.55	61.65	163,000	232	63.57	168,000
1924	592	862	Feb. 12, 1924	20	179	3.62	49.09	130,000	217	59.66	157,000
1925	612	827	Feb. 5, 1925	30	245	4.95	67.32	178,000	191	52.47	139,000
1926	632	376	Feb. 10, 1926	26	134	2.71	36.85	97,200	156	42.68	113,000
1927	652	560	Jan. 5-7, 1927	39	222	4.48	60.89	161,000	-	-	-

a Jan. 30 to Feb. 20, 1920.

ELWHA RIVER BASIN

56. Lake Mills at Glines Canyon, near Port Angeles, Wash.

Location.--Lat 48°00'05", long. 123°36'00", in SE¹/₄ sec. 17, T. 29 N., R. 7 W., at Glines Canyon Dam, 2 miles upstream from Griff Creek, 4 miles south of Elwha, and 11 miles southwest of Port Angeles.

Drainage area.--245 sq mi.

Gage.--Staff gage. Datum of gage is 19.74 ft below mean sea level, datum of 1929, supplementary adjustment of 1947.

Extremes.--1927-50: Maximum contents observed, 39,940 acre-ft Dec. 22, 1936 (gate height, 613.0 ft); minimum observed (since reservoir first filled in May 1927), 24,290 acre-ft Nov. 14, 1929 (gate height, 574.4 ft).

Remarks.--Reservoir is formed by concrete dam completed in 1927; storage began Apr. 1, 1927. Capacity, 37,790 acre-ft at top of gates (gate height, 608 ft). Water is used by Crown Zellerbach Corp. for power development. Records given herein represent total contents. Records previously published only in conjunction with those for Elwha River at McDonald Bridge, near Port Angeles; data furnished by Crown Zellerbach Corp.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1927	-	-	-	-	-	-	20,060	35,260	35,520	36,610	36,770	36,560
1928	37,780	37,490	36,230	38,390	36,740	38,520	38,440	38,520	38,390	35,820	31,630	31,110
1929	34,900	37,120	37,580	32,360	29,070	37,450	36,610	38,050	38,090	38,350	35,650	34,290
1930	27,800	25,700	38,220	34,570	38,690	38,740	32,440	38,050	38,130	36,280	34,900	36,610
1931	38,440	38,690	37,830	38,310	38,610	38,560	38,690	38,790	38,650	36,320	38,260	37,240
1932	38,330	38,740	37,600	38,180	38,590	38,780	37,200	38,760	38,610	34,820	35,130	35,460
1933	36,030	38,130	38,740	38,560	38,560	35,520	38,560	38,390	38,560	38,650	37,290	38,650
1934	38,060	36,550	38,350	38,610	38,480	38,650	38,610	38,650	36,680	36,970	37,220	35,020
1935	38,780	35,210	38,840	36,190	38,740	34,530	32,990	38,740	38,670	38,370	36,970	35,840
1936	35,520	36,570	38,970	36,420	37,940	35,710	38,890	38,890	38,820	37,880	37,390	31,710
1937	29,490	32,910	38,050	31,850	37,540	35,960	36,550	38,760	38,500	36,970	38,200	35,400
1938	37,920	38,370	37,450	38,710	38,540	35,380	37,850	38,650	38,560	37,920	33,140	33,300
1939	38,610	37,120	38,310	38,560	35,940	37,880	38,560	38,910	38,910	38,820	37,030	34,660
1940	34,700	37,960	38,560	38,860	38,910	38,820	38,560	38,820	37,290	38,130	35,350	37,450
1941	37,200	37,580	38,650	38,860	38,780	38,440	37,080	38,390	36,450	37,030	38,130	36,400
1942	35,270	38,820	38,690	37,710	32,520	30,750	30,950	37,830	36,870	35,980	35,400	30,470
1943	33,550	38,740	38,820	37,660	38,440	38,740	38,310	38,820	38,950	38,130	37,710	34,450
1944	36,870	36,870	37,290	38,560	36,780	35,490	36,780	38,620	35,610	35,900	34,700	36,070
1945	38,820	38,740	38,130	38,310	37,750	37,790	38,910	38,740	37,120	38,260	35,940	35,310
1946	37,710	38,440	38,390	38,480	38,520	37,960	38,650	38,740	38,860	38,820	36,700	35,940
1947	34,330	38,780	38,310	38,860	38,820	38,390	38,820	38,560	38,820	36,310	37,790	37,540
1948	38,690	37,290	38,520	37,850	38,820	37,370	37,030	38,480	38,560	38,910	37,370	37,960
1949	37,540	38,560	37,710	35,440	38,860	37,290	38,260	38,310	38,740	38,910	36,910	35,350
1950	36,360	38,740	38,690	37,920	36,650	36,320	36,110	38,740	38,390	38,740	36,530	37,240

57. Elwha River at McDonald Bridge, near Port Angeles, Wash. 1/

Location.--Lat 48°03'20" long. 123°34'55", in NE 1/4 sec. 33, T. 30 N., R. 7 W., on right bank 300 ft upstream from site of McDonald Bridge (now removed), half a mile upstream from Little River, 7 miles upstream from mouth, and 8 miles southwest of Port Angeles.

Drainage area.--269 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 200.00 ft above mean sea level, datum of 1929. Oct. 8, 1897, to Dec. 31, 1901, wire-weight gage and Dec. 9, 1918, to May 1, 1936, water-stage recorder, 300 ft downstream at different datums.

Average discharge.--36 years (1897-1901, 1918-50), 1,441 cfs (revised), adjusted for storage since April 1927.

Extremes.--1897-1901, 1918-50: Maximum discharge, 41,600 cfs (revised) Nov. 8, 1897 (revised) gage height, 14.5 ft, revised, from graph based on gage readings, site and datum then in use), from rating curve extended above 3,300 cfs on basis of two recent determinations of peak flow over dam referred to 1897 datum; minimum daily, 10 cfs Oct. 3, 1938.

Remarks.--Diversion for power returned to stream above station. Flow regulated since 1927 by Lake Mills (see preceding page).

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	*635	*2,400	*2,960	*1,590	2,160	1,250	1,230	2,010	2,230	*1,750	1,200	695	*1,670
1899	889	1,070	1,220	*1,470	1,370	684	763	1,250	2,120	2,040	999	570	*1,200
1900	742	*4,670	*2,910	2,520	920	*3,160	1,740	1,920	2,790	1,250	941	672	*2,020
1901	1,330	1,650	*4,410	*1,820	*1,660	*1,450	957	*2,180	*2,160	1,640	1,170	*711	*1,770
1902	664	*3,210	*2,090	-	-	-	-	-	-	-	-	-	-
1919	1,300	1,600	*2,470	2,080	1,840	990	1,750	2,100	2,310	2,300	1,300	657	*1,740
1920	381	1,140	1,440	1,690	1,230	864	689	962	1,540	1,220	720	1,330	1,100
1921	2,770	1,880	1,860	2,160	2,320	1,490	1,120	2,010	3,670	2,290	1,300	1,110	2,000
1922	2,710	2,600	3,550	919	765	559	691	2,000	2,990	1,400	726	594	1,630
1923	695	596	1,670	2,820	1,100	884	1,210	2,070	2,280	1,610	752	305	1,350
1924	494	875	2,310	1,660	1,830	992	751	1,770	1,360	840	562	739	1,320
1925	2,070	2,610	2,020	1,470	2,350	1,000	1,570	2,600	2,180	1,550	751	454	1,710
1926	313	409	1,860	1,440	1,680	1,060	1,170	1,140	922	595	444	330	943
1927	1,180	1,340	1,920	1,810	1,460	1,140	727	1,660	2,970	1,900	932	828	1,490
1928	1,300	2,120	1,300	2,750	1,140	1,500	1,360	2,330	1,670	1,050	620	454	1,470
1929	830	1,080	1,000	815	476	511	900	1,790	2,140	1,390	753	424	1,010
1930	485	328	642	509	2,200	1,190	2,040	1,240	1,490	996	550	423	1,010
1931	638	717	780	1,920	1,560	1,550	1,460	1,930	1,950	1,160	508	532	1,220
1932	608	1,580	1,470	1,350	*1,890	1,980	1,760	2,040	2,840	1,710	828	495	*1,540
1933	708	2,470	1,930	1,700	770	1,100	1,050	1,720	3,000	2,820	1,530	1,050	1,660
1934	1,424	1,738	4,713	3,445	1,923	2,234	2,065	1,898	1,362	917	635	503	1,910
1935	1,005	3,105	1,487	3,513	2,792	1,671	1,028	1,610	2,449	1,575	863	829	1,803
1936	604	555	921	1,592	635	1,270	1,435	2,662	2,629	1,279	697	617	1,232
1937	400	219	1,141	638	538	1,044	1,306	2,077	3,155	1,757	773	536	1,135
1938	802	2,481	2,902	1,800	871	1,245	1,546	2,219	2,933	1,933	729	435	1,584
1939	625	945	1,639	2,391	1,102	944	1,396	1,880	1,460	1,262	695	473	1,237
1940	1,029	1,029	3,619	2,262	2,029	2,094	1,571	1,968	1,285	675	539	361	1,481
1941	1,327	1,097	2,009	1,769	1,652	1,057	980	1,521	1,295	777	483	581	1,210
1942	1,060	1,380	2,832	974	981	656	832	1,091	1,578	1,059	525	376	1,114
1943	321	1,076	1,433	1,067	1,275	990	2,210	1,530	1,827	1,532	696	490	1,201
1944	534	633	1,194	1,549	883	705	744	1,158	1,370	696	434	406	859
1945	477	1,452	1,272	1,896	1,878	1,149	904	2,265	1,841	1,101	640	524	1,279
1946	659	1,429	1,825	1,679	1,080	1,138	1,471	2,950	2,689	2,101	1,068	570	1,557
1947	543	785	2,254	1,351	3,068	1,144	1,198	1,858	1,582	1,065	544	345	1,300
1948	1,527	1,452	2,050	1,758	1,229	899	903	2,657	3,512	1,596	968	768	1,602
1949	1,002	1,474	1,298	692	1,235	1,477	1,564	3,164	2,562	1,714	1,053	761	1,501
1950	736	2,660	2,592	1,559	1,820	1,852	1,474	2,020	4,096	2,917	1,405	680	1,981

* Revised.

† Corrected.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	*39,000	*143,000	*182,000	*97,800	120,000	76,800	73,000	123,000	133,000	108,000	73,800	41,400	*1,210,000
1899	54,700	63,700	74,900	90,400	75,100	42,100	45,400	78,800	126,000	125,000	61,400	33,900	*871,000
1900	45,600	*278,000	*179,000	155,000	*51,100	194,000	104,000	118,000	166,000	77,000	57,900	40,000	*1,470,000
1901	81,600	98,100	*271,000	*112,000	*92,200	*89,000	56,900	*134,000	*128,000	101,000	72,100	*42,300	*1,280,000
1902	40,800	*191,000	*129,000	-	-	-	-	-	-	-	-	-	-
1919	79,900	95,200	*152,000	128,000	102,000	60,900	104,000	129,000	137,000	141,000	79,900	39,100	*1,250,000
1920	23,400	67,800	86,500	104,000	70,800	53,100	41,000	59,200	91,600	75,000	44,300	79,100	798,000
1921	170,000	112,000	114,000	133,000	129,000	91,600	66,600	124,000	218,000	141,000	79,900	66,000	1,450,000
1922	167,000	155,000	218,000	56,500	42,500	34,400	41,100	123,000	178,000	86,100	44,600	35,300	1,180,000
1923	42,700	35,500	103,000	73,000	61,100	54,400	72,000	127,000	136,000	99,000	46,200	30,000	980,000
1924	30,400	40,000	142,000	102,000	220,000	61,000	44,700	109,000	80,900	51,600	34,600	4,000	960,000
1925	127,000	155,000	124,000	90,400	131,000	61,500	93,400	160,000	130,000	95,300	46,200	27,000	1,240,000

* Revised.

† Corrected.

1/ Published as Elwha River at McDonald, 1897-1901.

Monthly and yearly runoff, in acre-feet, of Elwha River at McDonald Bridge, near Port Angeles, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	19,200	24,300	14,000	88,500	93,300	65,200	69,600	70,100	54,900	36,600	27,300	19,600	685,000
1927	71,300	79,700	18,000	11,000	81,100	70,100	43,300	102,000	177,000	117,000	57,300	49,300	1,080,000
1928	79,900	26,000	79,900	169,000	65,600	92,200	80,900	143,000	99,400	64,600	38,100	25,800	1,060,000
1929	51,000	64,300	61,500	50,000	26,400	31,400	53,600	110,000	127,000	85,500	46,300	25,200	732,000
1930	29,600	19,500	39,500	37,400	122,000	73,200	121,000	76,200	68,700	61,200	33,900	25,200	728,000
1931	39,200	42,700	48,000	118,000	86,600	95,300	86,900	119,000	116,000	71,300	31,200	1,700	686,000
1932	37,400	94,000	90,400	83,000	109,000	122,000	105,000	125,000	169,000	105,000	50,900	29,500	*1,120,000
1933	43,400	147,000	119,000	105,000	42,800	67,600	62,500	106,000	179,000	173,000	94,100	62,500	1,200,000
1934	87,580	103,400	289,800	211,800	106,800	137,300	122,900	116,700	81,040	56,380	39,020	29,980	1,385,000
1935	61,790	184,800	91,450	126,000	155,100	102,700	61,160	99,000	133,800	96,870	53,040	49,330	1,303,000
1936	37,110	33,620	56,650	97,860	36,520	78,080	85,380	164,900	146,900	78,650	42,250	36,710	894,600
1937	24,580	13,050	70,390	99,220	29,900	64,200	77,700	27,700	87,700	108,000	47,510	31,910	821,600
1938	49,320	47,600	78,400	110,700	48,390	76,540	91,980	136,400	150,700	85,650	44,840	25,910	1,146,000
1939	38,410	56,210	100,700	147,000	61,190	58,020	83,050	115,600	86,860	77,610	42,750	28,130	895,500
1940	31,390	61,260	22,500	39,100	116,700	128,800	81,580	121,000	76,440	41,500	33,150	21,500	1,075,000
1941	81,590	65,290	123,500	108,700	91,730	64,980	58,340	93,500	76,440	47,750	29,690	34,540	876,000
1942	85,180	82,130	74,100	59,880	54,470	40,330	49,490	77,080	93,920	55,500	62,290	23,880	1,009,400
1943	19,730	64,040	88,080	65,590	70,820	60,840	90,410	94,090	108,700	94,210	42,810	29,160	869,600
1944	32,630	37,680	73,440	95,240	50,800	43,380	44,240	71,100	81,510	42,810	26,670	24,170	623,900
1945	29,330	66,390	78,180	116,000	104,300	70,620	53,790	139,200	109,500	67,730	39,390	31,160	926,100
1946	40,510	85,010	112,200	103,300	59,980	70,000	87,510	181,400	158,800	129,200	65,690	33,950	1,128,000
1947	33,360	46,700	138,600	83,040	70,400	70,350	71,270	114,100	94,120	65,490	33,450	20,510	941,400
1948	93,670	86,380	26,100	108,100	70,680	55,290	53,760	157,200	209,000	97,520	59,520	45,710	1,163,000
1949	81,610	87,700	79,800	42,540	68,800	90,800	93,040	194,500	52,500	105,400	64,720	45,260	1,086,000
1950	45,360	158,300	159,400	95,850	101,100	113,900	87,710	124,200	243,700	79,300	86,400	39,280	1,434,000

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1898	(a), 492	*41,600	Nov. 18, 1897	*300	*1,670	*6.22	84.34	*1,210,000	1,440	72.44	1,040,000	
1899	(b)	*5,820	Feb. 16, 1899	330	*1,200	*4.47	*80.67	*871,000	*1,630	*82.16	*1,180,000	
1900	(c)	*30,200	Mar. 11, 1900	475	*2,020	*7.52	102.13	*1,470,000	*1,950	*98.63	*1,410,000	
1901	75	*20,600	Dec. 20, 1900	495	*1,770	*6.57	*89.13	*1,280,000	*1,640	*82.80	*1,190,000	
1902	75	*33,600	Nov. 27, 1901	-	-	-	-	-	-	-	-	
1919	512	-	-	-	*1,740	*6.47	*87.83	*1,250,000	1,520	76.70	1,100,000	
1920	512	*11,000	Nov. 15, 1919	250	1,100	4.09	55.67	798,000	1,400	70.78	1,010,000	
1921	532	*11,700	Feb. 11, 1921	646	2,000	7.43	100.86	1,450,000	2,190	110.50	1,590,000	
1922	552	*21,400	Dec. 12, 1921	458	1,630	6.06	82.26	1,180,000	1,140	57.56	823,000	
1923	572	*9,880	Dec. 24, 1922	374	1,350	5.02	68.14	980,000	1,400	70.59	1,010,000	
1924	592	*14,200	Jan. 31, 1924	310	1,320	4.91	66.83	960,000	1,590	80.44	1,150,000	
1925	612	*9,500	Nov. 19, 1924	350	1,710	6.36	86.33	1,240,000	1,370	69.09	992,000	
1926	632	*6,550	Dec. 11, 1925	254	943	3.51	47.65	683,000	1,100	55.52	794,000	

* Revised.

† Corrected.

a 20th Ann. Rept., Pt. 4.

b 21st Ann. Rept., Pt. 4.

c 22d Ann. Rept., Pt. 4.

d Maximum during period October to December.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Observed				Runoff in acre-feet	Adjusted		Observed		Adjusted		
		Momentary maximum	Date	Minimum day	Mean		Per square mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches	
													Discharge
1927	652	*7,600	Dec. 2, 1926	203	1,490	1,080,000	1,540	5.72	77.65	1,510	1,090,000	1,560	78.73
1928	672	*10,700	Jan. 12, 1928	38	1,470	1,060,000	1,460	5.43	75.91	1,320	955,000	1,320	66.83
1929	692	*9,800	Oct. 9, 1928	33	1,010	732,000	1,020	3.79	51.45	890	644,000	890	44.93
1930	707	*7,150	Feb. 18, 1930	29	1,010	728,000	1,010	3.75	50.90	1,060	769,000	1,060	53.48
1931	722	*12,100	Jan. 23, 1931	-	1,220	886,000	1,220	4.54	61.63	1,350	978,000	1,350	68.14
1932	737	*16,200	Feb. 26, 1932	11	1,540	1,120,000	*1,540	*6.72	*77.94	1,660	*1,210,000	1,660	*83.98
1933	752	*12,100	Nov. 12, 1932	27	1,660	1,200,000	1,660	6.17	83.75	1,950	1,370,000	1,950	95.83
1934	767	26,700	Dec. 21, 1933	75	1,910	1,383,000	1,905	7.08	96.11	1,713	1,240,000	1,713	86.47
1935	792	a25,200	Nov. 5, 1934	180	1,803	1,305,000	1,804	6.71	91.08	1,512	1,094,000	1,512	76.29
1936	812	4,680	Jan. 4, 1936	36	1,232	894,600	1,227	4.56	62.07	1,205	875,000	1,204	60.98
1937	832	8,870	Dec. 22, 1936	40	1,135	821,600	1,140	4.24	57.58	1,505	1,089,000	1,501	75.74
1938	862	18,600	Dec. 28, 1937	14	1,584	1,146,000	1,581	5.88	79.82	1,335	966,400	1,339	67.60
1939	882	17,100	Jan. 1, 1939	10	1,237	895,500	1,239	6.11	62.58	1,403	1,015,000	1,403	70.86
1940	902	15,600	Dec. 15, 1939	22	1,481	1,075,000	1,485	5.52	75.14	1,419	1,030,000	1,420	71.87
1941	932	10,800	Jan. 17, 1941	76	1,210	876,000	1,209	4.49	60.95	1,281	927,100	1,281	64.61
1942	962	17,100	Dec. 2, 1941	12	1,114	806,400	1,108	4.11	55.79	907	656,800	907	45.75
1943	982	6,770	Apr. 2, 1943	34	1,201	869,600	1,207	4.49	60.95	1,163	841,700	1,160	58.51
1944	1012	10,000	Dec. 3, 1943	44	859	623,900	862	3.20	43.56	928	673,800	929	46.96
1945	1042	14,000	Feb. 7, 1945	224	1,279	926,100	1,278	4.75	64.48	1,340	970,000	1,340	67.60
1946	1062	5,910	Dec. 28, 1945	217	1,557	1,128,000	1,558	5.79	78.60	1,531	1,108,000	1,531	77.24
1947	1092	13,000	Feb. 13, 1947	98	1,300	941,400	1,302	4.84	65.70	1,421	1,029,000	1,422	71.81
1948	1122	18,000	Oct. 18, 1947	168	1,602	1,163,000	1,603	5.96	81.12	1,496	1,086,000	1,495	75.68
1949	1152	5,370	Nov. 28, 1948	171	1,501	1,086,000	1,497	5.57	75.61	1,686	1,220,000	1,687	85.11
1950	1182	30,000	Nov. 26, 1949	382	1,981	1,434,000	1,984	7.36	100.18	-	-	-	-

* Revised.

† Corrected.

Note.--See also Water-Supply Paper 1286 for revised 1898, 1900-1902, 1919 and 1932 records.

58. Elwha River near Port Angeles, Wash.

Location (revised).--Lat 48°05'40", long. 123°33'20", in sec. 15, T. 30 N., R. 7 W., at powerplant in Elwha Canyon, 2½ miles downstream from McDonald Bridge, and 6 miles southwest of Port Angeles.

Drainage area.--315 sq mi (revised).

Supplemental records available.--October 1911 to September 1912, gage heights and discharge measurements only.

Gage.--Chain gage. Datum of gage is 74.21 ft (from Olympic Power Company benchmarks). Prior to May 4, 1911, staff gage at same site and datum.

Extremes.--April to September 1911: Maximum discharge observed, 5,520 cfs May 3; maximum gage height observed, 8.3 ft June 13; minimum discharge observed, 455 cfs Aug. 29.

Flood of November 1911 reached a stage of 11.55 ft. Flood of October 1912, caused by failure of Olympic Power Co. dam, reached a stage much greater (stage and discharge not known).

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Water year						April	May	June	July	Aug.	Sept.	
1911						-	#2,820	3,210	2,620	1,020	818	

* Not previously published; partly estimated on the basis of records for Dosewallips River at Brinnon.

Monthly runoff, in acre-feet

Water year						April	May	June	July	Aug.	Sept.	
1911						-	#173,000	191,000	161,000	62,700	48,700	

* Not previously published; see footnote to preceding table.

DUNGENESS RIVER BASIN

59. Dungeness River near Sequim, Wash.

Location.--Lat 48°00'55" (revised), long. 123°07'50", in SW¼ sec. 12, T. 29 N., R. 4 W., on right bank three-quarters of a mile upstream from Canyon Creek, 4½ miles southwest of Sequim, and 11½ miles upstream from mouth.

Drainage area.--156 sq mi. At site prior to 1931, 157 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 569.3 ft above mean sea level (from river-profile survey). June 8, 1923, to Sept. 30, 1930, staff gage half a mile downstream at different datum. June 19 to Aug. 12, 1937, staff gage at present site and datum.

Average discharge.--20 years (1923-30, 1937-50), 340 cfs.

Extremes.--1923-30, 1937-50: Maximum discharge, 6,820 cfs Nov. 27, 1949 (gage height, 7.3 ft), from rating curve extended above 2,000 cfs on basis of slope-area determination of peak flow; minimum observed, 77 cfs Sept. 10, 1928.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	-	-	-	-	-	-	-	-	733	553	341	210	-
1924	178	169	392	368	1,040	233	210	490	390	291	176	167	340
1925	379	636	470	344	473	253	519	800	626	487	266	172	452
1926	125	148	293	224	243	197	279	307	289	179	134	105	210
1927	262	301	515	449	402	306	351	517	978	624	354	223	437
1928	243	333	264	609	268	284	314	561	458	292	145	93.8	321
1929	185	206	186	133	106	134	201	525	666	447	228	129	263
1930	96.7	86.6	187	105	297	211	374	361	486	284	169	134	232
1937	-	-	-	-	-	-	-	-	880	555	228	138	-
1938	156	392	575	393	218	261	438	713	879	537	229	152	413
1939	170	180	256	459	202	229	329	448	454	375	190	125	284
1940	120	168	740	586	397	400	344	666	535	308	188	156	565
1941	348	261	434	393	359	240	276	416	508	344	174	152	325
1942	209	364	715	251	217	163	270	477	638	457	201	120	341
1943	106	225	281	235	255	194	460	449	586	495	231	137	304
1944	149	137	207	195	156	161	185	343	412	220	129	108	199
1945	110	237	219	276	417	231	240	609	579	409	200	150	306
1946	127	214	310	283	194	201	318	684	696	631	324	165	347
1947	133	173	336	269	652	306	347	622	551	346	186	130	336
1948	349	265	414	333	284	214	265	772	1,196	584	308	216	434
1949	234	305	333	141	381	318	385	772	697	477	294	225	380
1950	145	597	529	313	379	408	320	598	1,103	813	412	201	485

Monthly and yearly runoff, in acre-feet, of Dungeness River near Sequim, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	-	-	-	-	-	-	-	-	43,600	34,000	21,000	12,500	-
1924	10,900	10,100	24,100	22,600	59,800	14,300	12,500	30,100	23,200	17,900	10,800	9,940	246,000
1925	23,300	37,800	28,900	21,200	26,300	15,600	30,900	49,200	37,200	29,900	16,400	10,200	327,000
1926	7,690	8,810	18,000	13,800	13,500	12,100	16,800	18,900	17,200	11,000	8,240	6,250	152,000
1927	16,100	17,900	31,700	27,600	22,300	18,800	19,700	31,800	58,200	38,400	20,500	13,300	316,000
1928	14,900	19,800	16,200	37,400	15,400	17,500	18,700	34,500	26,100	18,000	8,790	5,580	233,000
1929	11,400	12,300	11,400	8,180	5,890	8,240	12,000	32,300	39,600	27,500	14,000	7,680	190,000
1930	5,950	5,150	11,500	6,460	16,500	13,000	22,300	22,200	28,900	17,500	10,400	7,970	168,000
1937	-	-	-	-	-	-	-	-	52,370	34,110	14,040	8,230	-
1938	9,590	23,320	35,380	24,170	12,090	16,070	26,070	43,820	52,280	33,000	14,050	9,020	298,900
1939	10,440	9,500	15,720	28,230	11,220	14,100	19,580	27,580	27,010	23,080	11,690	7,450	205,600
1940	7,400	10,030	45,480	38,030	22,850	24,620	20,490	40,940	31,860	18,920	11,530	9,270	279,400
1941	21,390	15,500	26,700	24,140	19,920	14,730	16,440	25,890	30,240	21,160	10,690	9,050	235,600
1942	12,840	21,640	43,970	15,430	12,040	9,990	16,100	29,310	37,950	28,070	12,330	7,160	246,800
1943	6,540	13,360	17,260	14,470	14,190	11,900	27,400	27,600	34,880	30,420	14,210	8,180	220,400
1944	6,190	8,180	12,730	12,000	7,810	9,930	11,030	21,070	24,530	13,520	7,940	6,450	144,400
1945	9,760	14,110	13,490	16,960	25,170	14,210	14,270	37,420	34,450	25,160	12,290	8,820	221,200
1946	7,800	12,760	19,070	17,370	10,750	12,360	18,920	42,050	41,440	38,780	19,910	9,820	251,000
1947	8,200	10,310	20,680	16,530	36,190	18,790	20,660	38,270	32,810	21,280	11,420	7,750	242,900
1948	21,490	15,790	25,430	20,480	16,340	13,170	15,790	47,460	71,190	35,930	18,980	12,830	314,900
1949	14,390	18,150	20,470	6,670	21,180	19,560	22,910	47,470	41,460	29,300	18,100	13,370	275,000
1950	8,900	35,500	32,550	19,220	21,060	25,090	19,070	36,760	65,610	50,010	25,320	11,960	351,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1923	592	-	-	-	-	-	-	-	-	-	-	-
1924	592	*6,340	Feb. 11, 1924*	90	340	2.17	29.45	246,000	1402	34.82	291,000	-
1925	612	*3,120	Nov. 19, 1924	140	452	2.88	39.04	327,000	375	32.41	271,000	-
1926	632	740	Dec. 23, 1925	82	210	1.34	18.15	152,000	253	21.88	183,000	-
1927	652	*2,860	Dec. 1, 1926*	99	437	2.78	37.78	316,000	417	36.02	302,000	-
1928	672	1,400	Jan. 12, 1928	77	321	2.04	27.81	233,000	299	25.91	217,000	-
1929	692	1,000	June 15, 1929	82	263	1.68	22.74	190,000	246	21.25	178,000	-
1930	707	920	Feb. 20, 1930	-	232	1.48	20.03	168,000	-	-	-	-
1937	832	-	-	-	-	-	-	-	-	-	-	-
1938	862	5,380	Dec. 28, 1937	104	413	2.65	35.93	298,900	368	32.03	266,200	-
1939	882	3,850	Jan. 1, 1939	109	284	1.82	24.71	205,600	322	27.98	232,800	-
1940	902	4,010	Dec. 15, 1939	98	385	2.47	33.59	279,400	386	33.66	280,100	-
1941	932	2,400	Jan. 17, 1941	117	325	2.08	28.31	235,600	346	30.09	250,400	-
1942	962	4,120	Dec. 2, 1941	100	341	2.19	29.64	246,800	284	24.69	205,500	-
1943	982	1,010	May 26, 1943	87	304	1.95	26.50	220,400	295	25.64	213,400	-
1944	1012	1,520	Dec. 3, 1943	92	199	1.28	17.34	144,400	205	17.86	148,600	-
1945	1042	3,380	Feb. 7, 1945	80	306	1.96	26.59	221,200	313	27.22	226,500	-
1946	1062	1,200	June 14, 1946	84	347	2.22	30.16	251,000	346	30.12	250,600	-
1947	1092	2,530	Feb. 12, 1947	93	336	2.15	29.20	242,900	368	32.02	266,400	-
1948	1122	2,790	Oct. 19, 1947	118	434	2.78	37.84	314,900	420	36.67	305,200	-
1949	1152	2,820	Dec. 1, 1948	96	380	2.44	33.06	275,000	413	35.94	299,000	-
1950	1182	6,820	Nov. 27, 1949	108	495	3.11	42.20	351,000	-	-	-	-

* Revised.

† Corrected.

60. Dungeness River below Canyon Creek, near Sequim, Wash. 1/

Location.--Lat 48°02'30", long. 123°08'45", in NE¼ sec. 2, T. 29 N., R. 4 W., on right bank at county bridge, 3½ miles southwest of Sequim, and 9 miles upstream from mouth.

Drainage area.--170 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 410 ft (from topographic map).

Extremes.--1897-98: Maximum discharge, 2,950 cfs Nov. 18, 1897 (gage height, 8.10 ft, from graph based on gage readings); minimum observed, 85 cfs Dec. 26, 1897 (gage height, 3.80 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1897	-	-	-	-	-	-	-	-	-	-	321	181	-
1898	182	636	*738	*277	*498	*223	*279	*698	*740	*370	-	-	-

* Revised; see Water-Supply Paper 1346.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1897	-	-	-	-	-	-	-	-	-	-	19,700	10,800	-
1898	11,200	37,800	*45,400	*17,000	*27,700	*13,700	*16,600	*42,900	*44,000	*22,800	-	-	-

* Revised; see Water-Supply Paper 1346.

1/ Published as Dungeness River at Sequim in 20th Ann. Rept., Pt. 4, and Dungeness River near Sequim in Water-Supply Paper 492.

61. Dungeness River at Dungeness, Wash. 1/

Location.--Lat 48°08'40", long. 123°07'40", in NE $\frac{1}{4}$ sec. 36, T. 31 N., R. 4 W., on highway bridge at Dungeness 1 mile upstream from mouth.

Drainage area.--197 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 10 ft (from topographic map).

Extremes.--1898-1900: Maximum discharge, 7,540 cfs Dec. 20, 1900 (gage height, 11.30 ft, from graph based on gage readings); minimum observed, 65 cfs Aug. 20, 1899; minimum gage height observed, 2.30 ft Dec. 14-18, 1898.

Remarks.--Two irrigation ditches diverted an unknown amount of water above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1899	*229	*165	*231	*458	*394	*297	*304	*470	*664	*521	*233	*200	*347
1900	*222	*1,160	*784	*589	*296	*1,180	*670	*604	*827	*529	*339	*224	*620
1901	*294	*326	*1,340	*572	*420	*375	*330	*855	*810	*664	*457	*225	*558
1902	*180	*669	*504	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; computed from previously published gage heights.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1899	*14,100	*9,830	*14,200	*28,200	*21,900	*18,300	*18,100	*28,900	*39,500	*32,000	*14,300	*11,900	*251,000
1900	*13,600	*69,200	*48,200	*36,200	*16,400	*72,500	*39,900	*37,200	*49,200	*32,500	*20,800	*13,300	*449,000
1901	*18,100	*19,400	*82,400	*55,200	*23,300	*23,000	*19,600	*52,600	*48,200	*40,800	*28,100	*13,400	*404,000
1902	*11,100	*39,800	*31,000	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; computed from previously published gage heights.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1898	-	-	-	-	-	-	-	-	-	-	-
1899	1346(a)	*1,080	Jan. 21, 1899	*65	*347	*1.76	*23.91	*251,000	*475	*32.75	*344,000
1900	1346(b)	*7,000	Mar. 11, 1900	*122	*620	*3.15	*42.75	*449,000	*605	*41.69	*438,000
1901	1346(b)	*7,540	Dec. 20, 1900	*153	*558	*2.85	*38.46	*404,000	*506	*34.85	*366,000
1902	-	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published.

Note.--Records for July to September 1898 published in Water-Supply Paper 28 and 20th Ann. Rept., Pt. 4 have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. Those records are not published herein and should not be used.

LITTLE QUILCENE RIVER BASIN

62. Little Quilcene River near Quilcene, Wash.

Location.--Lat 47°50'15", long. 122°53'10", in NE $\frac{1}{4}$ sec. 14, T. 27 N., R. 2 W., on left bank at Olympic Highway crossing, 1 $\frac{1}{4}$ miles northwest of Quilcene, and 1 $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--19.6 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 95 ft (from topographic map).

Extremes.--1926-27: Maximum discharge, 271 cfs (revised) Jan. 2, 1927 (gage height, 3.1 ft, revised, from graph based on gage readings); minimum observed, 4.1 cfs Sept. 1, 1926.

Remarks.--Large part of low flow diverted during summer for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	-	-	-	-	-	-	7.48	-
1927	27.7	41.2	74.8	90.4	76.2	60.0	*45.2	*55.4	*39.8	20.2	13.0	17.5	*46.7

* Not previously published; estimated on the basis of records for Big Quilcene River near Quilcene, and Dungeness River near Sequim.

1/ Published as Dungeness River at Sequim prior to 1899.

LITTLE QUILCENE RIVER BASIN

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Monthly and yearly runoff, in acre-feet, of Little Quilcene River near Quilcene, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	-	-	-	-	-	-	445	-
1927	1,700	2,450	4,600	5,560	4,230	3,690	2,690	3,410	2,370	1,240	799	1,040	23,800

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet		
		Discharge	Date							
1926	652	-	-	-	-	-	-	-	-	-
1927	652	*271	Jan. 2, 1927	-	25.7	46.7	33,800	-	-	-

* Revised.

* Not previously published.

BIG QUILCENE RIVER BASIN

63. Big Quilcene River near Quilcene, Wash.

Location (revised).--Lat 47°48'40", long. 122°54'35", in SE $\frac{1}{4}$ sec. 22, T. 27 N., R. 2 W., on right bank at Olympic Highway crossing, 2 miles southwest of Quilcene, and 2 $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--66.4 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 120 ft (from topographic map).

Extremes.--1926-27: Maximum discharge, 1,620 cfs Dec. 2, 1926 (gage height, 4.10 ft, from graph based on gage readings); minimum observed, 24 cfs Sept. 27, 1926 (gage height, 0.67 ft).

Remarks.--No diversion. Possible slight regulation by fish hatchery above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	-	-	-	-	-	-	34.3	-
1927	182	260	301	356	284	167	161	262	280	156	91.2	68.3	214

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	-	-	-	-	-	-	2,040	-
1927	11,200	15,500	18,500	21,900	15,800	10,300	9,580	16,100	16,700	9,590	5,610	4,060	155,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1926	652	-	-	-	-	-	-	-	-	-	-
1927	652	1,620	Dec. 2, 1926	33	214	3.22	43.69	155,000	-	-	-

DOSEWALLIPS RIVER BASIN

64. Dosewallips River near Brinnon, Wash.

Location.--Lat 47°43'35", long. 123°00'30", in SW $\frac{1}{4}$ sec. 24, T. 26 N., R. 3 W., on left bank half a mile west of Corrigenda ranger station, 5 $\frac{1}{2}$ miles northwest of Brinnon, and 7 $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--93.5 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 295 ft (from river-profile map).

Average discharge.--19 years (1930-49), 445 cfs.

Extremes.--1930-49: Maximum discharge, 10,900 cfs Nov. 5, 1934 (gage height, 9.57 ft), from rating curve extended above 4,500 cfs; minimum, 65 cfs Dec. 4, 1936 (gage height, 1.71 ft).
Flood of November 1949 reached a stage of 9.92 ft, from floodmarks (discharge, 13,200 cfs).

Remarks.--No diversion or regulation above station.

DOSEWALLIPS RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Dosewallips River near Brinnon, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	167	189	171	662	424	359	401	676	664	368	182	200	372
1932	172	395	426	371	558	520	521	732	981	535	278	154	469
1933	161	630	383	354	158	280	369	632	1,190	1,060	482	315	504
1934	385	479	1,203	811	480	583	648	637	467	316	189	132	529
1935	409	1,080	543	1,091	692	422	326	625	760	519	265	248	581
1936	173	149	298	401	205	279	468	899	943	424	214	154	384
1937	107	79.4	264	106	111	340	406	896	1,272	692	265	155	546
1938	258	762	736	496	293	412	551	935	1,116	602	235	157	547
1939	244	251	409	587	246	278	429	603	546	397	198	127	361
1940	131	244	1,068	826	611	579	489	827	607	325	187	154	505
1941	523	372	618	552	564	413	482	594	565	355	191	208	453
1942	271	510	858	328	326	185	360	564	689	445	208	132	405
1943	122	340	397	293	342	280	677	551	685	529	235	145	382
1944	245	228	369	373	245	224	265	477	508	251	147	135	289
1945	161	541	412	522	628	334	293	863	750	477	223	180	447
1946	181	381	562	434	291	296	451	1,078	1,039	832	392	204	513
1947	164	239	570	323	806	381	423	703	587	350	184	132	403
1948	545	353	483	400	294	218	306	903	1,273	593	292	259	494
1949	306	370	332	167	332	426	477	1,008	837	531	281	205	440
1950	174	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	10,300	11,200	10,500	40,700	23,500	22,100	23,900	41,600	39,500	22,600	11,200	11,900	269,000
1932	10,600	23,500	26,200	22,800	32,100	32,000	31,000	45,000	58,400	32,900	17,100	9,160	341,000
1933	9,900	37,500	23,600	21,800	8,780	17,200	22,000	38,900	70,800	66,400	29,600	18,700	365,000
1934	23,670	28,500	73,950	49,860	26,680	35,820	38,550	39,170	27,790	19,440	11,630	7,840	382,900
1935	25,170	64,280	33,410	67,060	38,410	25,920	19,410	38,460	45,240	31,920	16,270	14,780	420,300
1936	10,610	8,840	18,310	24,630	11,800	17,150	27,820	55,280	56,100	26,050	13,160	9,180	278,900
1937	6,560	4,730	16,220	8,540	6,140	20,930	24,160	49,660	75,680	42,570	16,280	9,840	279,300
1938	15,850	45,320	45,350	30,470	16,260	25,320	32,770	57,470	66,380	37,030	14,460	9,470	396,200
1939	14,980	14,960	25,180	36,120	13,680	17,080	25,530	37,060	32,470	24,390	12,180	7,570	261,200
1940	8,050	14,540	65,660	50,810	35,160	35,590	29,100	50,850	36,130	19,980	11,480	9,190	366,500
1941	32,180	22,110	37,980	33,930	31,320	25,370	28,680	36,510	33,620	21,820	11,730	12,350	327,600
1942	16,670	30,360	22,450	20,180	18,110	11,330	21,420	34,660	33,810	27,330	12,780	7,830	293,300
1943	7,480	20,220	24,730	17,980	18,980	17,230	40,290	33,870	40,780	32,440	14,440	8,650	276,800
1944	14,930	13,570	22,660	22,960	13,960	13,800	15,610	29,360	30,210	15,420	9,030	8,010	209,500
1945	9,880	32,160	25,340	32,090	34,880	20,520	17,410	53,040	44,650	29,340	13,730	10,710	323,800
1946	11,130	22,660	34,530	26,660	16,170	18,200	26,850	66,260	61,820	51,190	24,090	12,170	371,700
1947	10,110	14,230	35,070	19,840	44,740	23,430	25,200	43,250	34,920	21,510	11,290	7,860	291,400
1948	33,510	20,990	29,700	24,600	16,900	13,410	18,230	55,550	75,740	36,440	17,940	15,420	358,400
1949	18,810	21,990	20,400	10,270	18,410	26,220	28,380	62,000	48,820	32,660	17,250	12,180	318,400
1950	10,710	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1931	722	4,860	Jan. 23, 1931	91	372	3.98	53.95	269,000	411	59.62	297,000
1932	757	4,790	Feb. 26, 1932	106	469	5.02	68.50	341,000	484	70.44	351,000
1933	752	4,050	Nov. 13, 1932	107	504	5.39	73.17	365,000	581	84.23	420,000
1934	767	5,980	Dec. 21, 1933	106	529	5.66	76.78	382,900	524	76.13	379,600
1935	792	10,900	Nov. 5, 1934	101	581	6.21	84.29	420,300	463	67.23	335,200
1936	812	2,460	June 16, 1936	112	384	4.11	55.94	278,900	370	53.88	268,700
1937	832	1,980	Dec. 22, 1936	67	386	4.13	56.01	279,300	495	71.86	358,300
1938	862	3,870	Dec. 28, 1937	126	547	5.85	79.44	396,200	476	69.13	344,800
1939	886	4,220	Jan. 1, 1939	102	361	3.86	52.38	261,200	407	59.02	294,300
1940	902	4,310	Dec. 8, 1939	94	505	5.40	73.51	366,500	510	74.31	370,600
1941	932	3,400	Oct. 20, 1940	115	453	4.84	65.70	327,600	463	67.20	335,100
1942	962	6,370	Dec. 2, 1941	108	405	4.33	58.82	293,300	339	49.26	245,600
1943	982	1,580	Apr. 2, 1943	80	382	4.09	55.51	276,800	381	55.31	275,800
1944	1012	3,410	Dec. 3, 1943	109	289	3.09	42.01	209,500	311	45.27	225,700
1945	1042	4,950	Feb. 7, 1945	86	447	4.78	64.92	323,800	448	65.11	324,700
1946	1062	1,780	June 14, 1946	97	513	5.49	74.54	371,700	501	72.76	362,800
1947	1092	3,650	Feb. 12, 1947	97	403	4.31	58.45	291,400	437	63.42	316,200
1948	1122	5,740	Oct. 18, 1947	115	494	5.28	71.88	358,400	462	67.27	335,400
1949	1152	1,830	May 12, 1949	112	440	4.71	63.85	318,400	-	-	-
1950	-	\$13,200	Nov. 26, 1949	-	-	-	-	-	-	-	-

* Not previously published.

65. Dosewallips River at Brinnon, Wash.

Location.--Lat 47°41'30", long. 122°54'10", in NW¼ sec. 2, T. 25 N., R. 2 W., on left bank at old highway bridge half a mile upstream from mouth and 0.9 mile north of Brinnon.

Drainage area.--116 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 17 ft (from river-profile map). Oct. 30, 1910, to Oct. 31, 1911, staff gage at different datum.

Extremes.--1910-11, 1924-25, 1928-30: Maximum gage height observed, 7.7 ft Nov. 20, 1910 (discharge not determined); minimum observed, 19 cfs Aug. 24, 1925 (storage behind splash dam).

Remarks.--No diversion. Slight regulation prior to 1928 by splash dam used for logging operations.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	802	779	286	203	333	396	897	946	771	394	243	-
1912	192	-	-	-	-	-	-	-	-	-	-	-	-
1924	-	-	-	-	-	-	-	-	-	-	182	195	-
1925	789	924	636	431	796	277	629	1,080	812	564	264	148	610
1926	116	218	662	-	-	-	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	177	126	-
1929	177	412	391	226	84.4	215	343	653	748	502	237	109	343
1930	107	64.6	258	82.9	629	339	615	493	521	348	174	138	311

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	47,700	47,900	17,600	11,300	20,500	23,600	55,200	56,300	47,400	24,200	14,500	-
1912	11,800	-	-	-	-	-	-	-	-	-	-	-	-
1924	-	-	-	-	-	-	-	-	-	-	11,200	11,600	-
1925	48,500	55,000	39,100	26,500	44,200	17,000	37,400	66,400	48,300	34,700	16,200	8,810	442,000
1926	7,130	13,000	40,700	-	-	-	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	10,300	7,500	-
1929	10,900	24,500	24,000	13,900	4,690	13,200	20,400	40,200	44,500	30,900	14,600	6,490	248,000
1930	6,580	3,840	15,900	5,100	34,900	20,800	36,600	30,400	31,000	21,300	10,700	8,210	225,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1911	312	-	-	-	-	-	-	-	-	-	-	-
1912	312	-	-	-	-	-	-	-	-	-	-	-
1924	592	-	-	-	-	-	-	-	-	-	-	-
1925	612	*3,060	Oct. 29, 1924	113	610	5.26	71.44	442,000	†497	58.21	360,000	-
1926	612	-	-	-	-	-	-	-	-	-	-	-
1928	692	-	-	-	-	-	-	-	-	-	-	-
1929	692	2,200	Nov. 12, 1928	73	343	2.96	40.13	248,000	297	34.77	215,000	-
1930	707	2,350	Feb. 20, 1930	40	311	2.68	36.43	225,000	-	-	-	-

* Revised.

† Corrected.

DUCKABUSH RIVER BASIN

66. Duckabush River near Brinnon, Wash. 1/

Location.--Lat 47°41'00", long. 123°00'40", in SW¼ sec. 1, T. 25 N., R. 3 W., on left bank ½ miles upstream from mouth and 5 miles west of Brinnon.

Drainage area.--66.5 sq mi (revised).

Supplemental records available.--August to November 1910, gage heights and discharge measurements only.

Gage.--Water-stage recorder. Datum of gage is 241.49 ft above mean sea level, datum of 1929. Aug. 19, 1910, to Dec. 31, 1911, staff gage at different datum and June 24 to Aug. 9, 1938, at present datum.

Average discharge.--12 years (1938-50), 373 cfs.

Extremes.--1910-11, 1938-50: Maximum discharge, 8,960 cfs Nov. 26, 1949 (gage height, 10.06 ft), from rating curve extended above 1,800 cfs on basis of slope-area determination of peak flow; minimum, 45 cfs Oct. 26, 28, 29, 1942; minimum gage height, 1.32 ft Sept. 30, 1939.

Remarks.--No diversion or regulation above station.

1/ Published as Duckabush River near Duckabush, 1910-11.

DUCKABUSH RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Duckabush River near Brinnon, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	216	113	322	337	851	833	470	177	177	-
1912	149	556	519	-	-	-	-	-	-	-	-	-	-
1938	-	-	-	-	-	-	-	-	-	343	113	68.3	-
1939	258	301	450	656	220	254	318	411	370	236	96.9	63.3	304
1940	89.0	217	1,266	811	588	547	402	584	358	154	82.2	70.6	432
1941	513	384	672	569	539	357	374	507	380	180	107	226	400
1942	254	617	951	335	334	162	287	430	486	272	98.8	57.6	357
1943	71.9	413	382	256	334	277	656	396	463	308	115	68.7	357
1944	351	248	375	452	246	198	232	354	358	145	75.1	73.0	257
1945	115	704	342	518	648	300	251	717	499	301	120	119	384
1946	129	474	690	459	326	300	457	810	777	586	240	118	448
1947	136	282	650	292	878	297	290	403	349	180	95.8	77.3	324
1948	662	324	521	370	340	223	325	796	861	364	169	208	431
1949	275	400	302	129	375	495	405	728	520	323	156	132	353
1950	132	822	596	351	547	462	398	569	903	592	267	116	480

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	13,500	6,280	19,800	20,100	52,300	49,600	28,900	10,900	10,500	-
1912	9,160	33,100	31,900	-	-	-	-	-	-	-	-	-	-
1938	-	-	-	-	-	-	-	-	-	21,080	6,930	4,070	-
1939	15,890	17,890	27,690	40,350	12,210	15,630	18,930	25,270	22,010	14,480	5,960	3,760	220,100
1940	5,470	12,900	77,830	49,870	33,840	33,640	23,900	35,900	21,310	9,490	5,050	4,200	313,400
1941	31,540	22,830	41,300	34,990	29,920	21,960	22,250	31,150	22,600	11,090	6,590	13,460	289,700
1942	15,590	35,690	58,460	20,620	18,540	9,360	17,070	26,460	28,890	16,740	6,080	3,430	258,500
1943	4,420	24,560	23,510	15,740	19,570	17,020	39,020	24,320	27,540	18,940	7,090	4,090	224,800
1944	19,780	14,730	23,060	27,770	14,150	12,200	13,830	21,770	21,270	8,900	4,620	4,340	186,400
1945	7,070	41,970	21,030	31,880	35,960	18,440	14,960	44,070	29,670	18,520	7,380	7,080	277,900
1946	7,920	28,210	42,460	28,210	18,120	18,440	27,200	49,820	46,250	36,060	14,740	7,010	324,400
1947	8,380	16,800	39,990	17,980	48,730	18,290	17,250	24,780	20,780	11,090	5,890	4,600	234,600
1948	40,700	19,300	32,050	22,740	19,570	13,710	19,380	48,950	51,220	22,370	10,360	12,360	312,700
1949	18,930	23,800	18,590	7,940	20,850	30,470	24,100	44,780	30,940	19,840	9,620	7,870	255,700
1950	8,130	46,890	36,670	21,600	30,390	29,640	23,660	35,020	53,760	36,420	16,400	6,910	347,500

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	332	-	-	-	-	-	-	-	395	80.64	286,000
1912	332	-	-	-	-	-	-	-	-	-	-
1938	882	-	-	-	-	-	-	-	-	-	-
1939	882	4,960	Jan. 1, 1939	46	304	4.57	62.05	220,100	352	71.84	254,800
1940	902	6,080	Dec. 15, 1939	51	432	6.50	88.37	313,400	431	88.21	312,900
1941	932	4,750	Oct. 23, 1940	50	400	6.02	81.68	289,700	421	85.93	304,800
1942	962	6,080	Dec. 2, 1941	47	357	5.37	72.89	258,500	277	56.47	200,300
1943	982	2,700	Apr. 2, 1943	46	311	4.68	63.39	224,800	318	64.82	229,900
1944	1012	3,790	(a)	51	257	3.86	52.56	186,400	274	56.06	198,800
1945	1042	65,500	Feb. 7, 1945	49	384	5.77	78.37	277,900	396	80.80	286,600
1946	1062	2,530	Dec. 3, 1945	53	448	6.74	91.48	324,400	430	87.69	311,000
1947	1092	5,370	Feb. 12, 1947	58	324	4.87	66.14	234,600	361	73.72	261,400
1948	1122	5,970	Oct. 18 or 19, 1947	58	431	6.48	88.16	312,700	386	78.93	280,000
1949	1152	2,410	Mar. 19, 1949	76	353	5.31	72.10	255,700	401	81.79	290,100
1950	1182	8,960	Nov. 26, 1949	80	480	7.22	97.97	347,500	-	-	-

a Oct. 24, Dec. 3, 1943.

b Estimated.

HAMMA HAMMA RIVER BASIN

67. Hamma Hamma River near Hoodsport, Wash.

Location.--Lat 47°33'00", long. 123°03'15", in NW 1/4 sec. 27, T. 24 N., R. 3 W., on left bank 900 ft upstream from old bridge site, half a mile upstream from U. S. Highway 101, three-quarters of a mile upstream from mouth, and 11 miles northeast of Hoodsport.

Drainage area.--84 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is mean sea level, approximately (from river-profile map).

Extremes.--1926-30: Maximum discharge, 5,770 cfs (revised) Dec. 2, 1926 (gage height, 8.3 ft, revised, from graph based on gage readings); minimum observed, 23 cfs Sept. 28, 1929 (gage height, 1.25 ft).

Remarks.--No diversion or regulation above station.

HAMMA HAMMA RIVER BASIN

71

Monthly and yearly mean discharge, in cubic feet per second, of Hamma Hamma River near Hoodsport, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	318	285	330	172	81.7	45.8	39.9	-
1927	871	1,290	1,050	1,050	765	443	378	669	791	401	164	175	670
1928	300	880	460	1,060	484	646	523	639	346	162	75.6	49.3	469
1929	195	826	716	297	95.5	370	505	568	561	241	83.2	46.0	376
1930	46.1	30.6	681	179	310	346	670	346	237	116	64.6	38.8	332

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	19,600	17,000	20,300	10,200	5,020	2,820	2,370	-
1927	53,600	76,800	64,800	64,600	42,500	27,200	22,500	41,100	47,100	24,700	10,100	10,400	485,000
1928	18,400	52,400	28,300	65,200	27,800	39,700	31,100	39,300	20,600	9,960	4,850	2,930	340,000
1929	12,000	49,200	44,000	18,300	5,300	22,800	30,000	34,600	35,400	14,800	5,120	2,740	272,000
1930	2,850	1,820	41,900	11,000	2,800	21,400	39,900	21,300	14,100	7,130	3,970	2,310	240,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1926	632	-	-	-	-	-	-	-	-	-	-
1927	652	*5,770	Dec. 2, 1926	84	670	7.98	108.34	485,000	538	86.91	389,000
1928	672	3,840	Jan. 3, 1928	36	489	5.58	75.99	340,000	477	77.31	346,000
1929	692	3,750	Nov. 12, 1928	23	376	4.48	60.79	272,000	295	47.71	214,000
1930	707	3,420	Feb. 20, 1930	26	332	3.95	53.66	240,000	-	-	-

* Revised.

SKOKOMISH RIVER BASIN

68. North Fork Skokomish River below Staircase Rapids, near Hoodsport, Wash.

Location (revised).--Lat 47°30'55", long. 123°19'45", in NW¼ sec. 4, T. 23 N., R. 5 W., on left bank 1½ miles upstream from Lake Cushman, 8 miles northwest of Cushman Dam No. 1, and 1½ miles northwest of Hoodsport.

Drainage area.--58.1 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 762.26 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 1, 1934, water-stage recorder, and Nov. 1, 1934, to Nov. 10, 1941, staff gages on right bank at same datum.

Average discharge.--26 years (1924-50), 461 cfs (revised).

Extremes.--1924-50: Maximum discharge, 27,000 cfs (revised) Nov. 5, 1934 (gage height, 14.4 ft, from high-water mark, from rating curve extended above 1,500 cfs on basis of slope-area determination of peak flow at gage height 12.2 ft; minimum recorded, 16 cfs Sept. 23, 1930 (gage height, 1.12 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1924	-	-	-	-	-	-	-	-	-	-	63.6	122	-
1925	1,020	916	598	669	1,030	337	565	770	541	289	110	69.2	573
1926	47.5	396	1,000	547	743	372	382	402	211	88.5	54.9	50.2	356
1927	782	930	795	704	508	310	344	606	848	404	163	210	550
1928	449	792	354	968	470	642	412	688	403	172	69.1	54.8	457
1929	268	544	363	194	111	306	294	601	598	258	112	58.4	310
1930	75.5	48.9	396	150	698	331	585	335	242	135	64.2	60.1	256
1931	154	240	255	922	475	583	611	539	518	216	70.8	113	391
1932	207	*587	585	420	566	661	682	766	835	427	185	85.3	*500
1933	155	926	535	480	186	366	433	699	984	817	309	380	524
1934	494	464	1,778	1,204	571	661	419	438	184	188	108	86.1	552
1935	673	*1,320	665	1,235	744	431	338	610	604	334	140	197	*606
1936	181	213	583	698	348	406	473	848	771	334	115	82.2	421
1937	44.5	40.0	503	124	128	507	637	923	1,091	438	139	95.9	399
1938	396	1,169	1,052	599	267	466	602	727	610	266	94.8	60.8	526
1939	323	467	706	851	283	335	438	489	338	202	95.2	60.1	384
1940	111	335	1,604	1,007	780	707	501	626	282	119	65.9	61.5	516
1941	765	551	857	710	679	495	448	547	284	140	113	275	490
1942	369	694	1,166	428	413	228	346	428	506	252	97.7	58.1	415
1943	95.0	582	503	338	381	429	901	475	465	267	108	65.6	387
1944	321	299	517	648	351	260	318	412	325	126	63.0	84.0	310
1945	163	878	448	702	856	325	328	959	504	269	110	145	471
1946	182	628	851	634	450	437	641	1,017	881	619	223	120	558
1947	204	460	955	443	1,153	408	410	400	314	190	93.1	84.0	422
1948	898	455	755	493	365	272	438	1,000	974	349	160	280	538
1949	564	514	366	155	366	635	634	1,056	639	351	164	148	449
1950	166	1,215	929	507	629	620	537	759	1,099	661	286	123	626

* Revised.

Monthly and yearly runoff, in acre-feet, of North Fork Skokomish River below Staircase Rapids, near Hoodspott, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1924													
1925	62,700	54,500	-	41,100	57,200	20,700	33,600	47,500	32,200	17,800	3,910 6,760	7,260 4,120	- 415,000
1926	2,920	23,600	61,500	33,600	41,300	22,900	22,700	24,700	12,600	5,440	3,380	2,990	258,000
1927	48,100	55,300	48,900	43,300	28,200	19,100	20,500	37,300	50,500	24,400	10,000	21,500	398,000
1928	27,600	47,100	21,800	59,500	29,000	39,500	24,500	42,300	24,000	10,600	4,250	3,260	331,000
1929	16,500	32,400	22,300	11,900	6,160	18,800	17,500	37,000	35,600	15,900	6,890	3,480	224,000
1930	4,640	2,910	24,300	9,220	3,810	20,400	34,800	20,500	14,400	8,300	3,950	3,580	185,000
1931	9,470	14,300	15,700	56,700	26,400	35,800	36,400	33,100	30,800	13,300	4,350	6,720	283,000
1932	12,700	34,900	36,000	25,800	32,600	40,600	40,600	47,100	49,700	26,300	11,400	5,080	*363,000
1933	9,530	55,100	32,900	29,500	10,500	22,500	25,800	43,000	58,600	50,200	18,900	22,800	379,000
1934	30,350	27,640	09,300	74,060	31,740	40,660	24,930	26,910	10,950	11,570	6,720	5,120	400,000
1935	41,380	78,540	40,860	75,950	41,330	26,520	20,090	37,480	35,960	20,520	8,630	11,710	*439,000
1936	11,160	12,690	35,870	42,310	20,030	24,960	28,170	52,160	45,860	20,550	7,050	4,890	305,700
1937	2,730	2,380	37,100	7,610	7,090	31,200	37,910	56,760	64,930	26,950	8,540	5,710	288,900
1938	24,370	69,570	64,690	34,970	14,840	29,890	35,800	44,690	36,310	16,340	5,830	3,610	380,900
1939	19,860	27,800	43,400	52,350	15,750	20,570	26,040	30,050	20,120	12,420	5,860	3,570	277,800
1940	6,840	19,940	98,600	61,930	44,890	43,500	29,800	38,510	15,620	7,340	4,050	3,660	374,700
1941	48,280	32,770	52,680	43,630	37,710	30,460	26,680	33,640	16,920	8,600	6,920	16,340	354,600
1942	22,680	41,290	71,700	26,330	22,930	14,030	20,560	26,320	30,140	15,470	6,010	3,340	300,800
1943	5,840	34,610	33,910	20,810	21,160	26,370	53,600	29,210	27,680	16,440	6,640	3,900	280,200
1944	19,710	17,800	31,800	39,720	20,180	15,970	18,900	25,310	19,360	7,760	3,870	5,000	225,400
1945	10,040	52,270	27,540	43,150	47,520	19,990	19,400	58,980	30,020	16,530	6,740	8,650	340,800
1946	11,180	37,370	52,320	38,970	24,990	26,880	38,120	62,550	52,420	38,050	13,710	7,160	403,700
1947	12,550	27,400	58,740	27,230	64,030	25,090	24,410	24,590	18,700	11,710	5,720	5,000	305,200
1948	55,220	27,070	46,450	30,330	20,990	16,740	26,090	61,480	57,960	21,480	9,820	16,690	390,300
1949	22,400	30,610	22,480	9,430	21,430	38,930	37,720	63,710	38,020	21,600	10,090	8,800	325,200
1950	10,180	72,280	57,110	31,180	34,920	38,130	31,940	46,660	65,380	40,660	17,570	7,340	453,400

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1924	592	-	-	-	-	-	-	-	-	-	-
1925	612	4,400	Feb. 2, 1925	49	573	9.86	133.94	415,000	482	112.58	349,000
1926	632	4,250	Dec. 11, 1925	28	356	6.13	83.13	258,000	445	103.89	322,000
1927	652	5,350	Dec. 1, 1926	93	550	9.47	128.57	398,000	473	110.56	343,000
1928	672	4,100	Jan. 3, 1928	38	457	7.87	106.96	331,000	422	98.80	306,000
1929	692	2,540	Nov. 9, 1928	47	310	5.34	72.43	224,000	256	59.76	185,000
1930	707	4,050	Dec. 14, 1929	17	256	4.41	59.75	185,000	266	62.17	193,000
1931	722	8,830	Jan. 22, 1931	31	391	6.73	91.34	283,000	*452	*105.61	*327,000
1932	1286, 737	9,950	Dec. 19, 1931	54	*800	*9.61	*117.06	*363,000	519	121.56	377,000
1933	752	4,940	Nov. 12, 1932	42	524	9.02	122.31	379,000	619	144.82	448,000
1934	767	10,900	Dec. 21, 1933	58	552	9.50	129.07	400,000	*543	*126.96	*393,400
1935	1286, 792	*27,000	Nov. 5, 1934	53	*606	*10.4	*141.67	*439,000	467	109.05	337,900
1936	812	2,410	June 17, 1936	54	421	7.25	98.65	305,700	397	93.01	288,200
1937	832	*5,150	Dec. 22, 1936	33	399	6.87	93.24	288,900	460	130.81	405,300
1938	862	10,200	Oct. 28, 1937	50	526	9.05	122.93	380,900	433	101.32	313,300
1939	882	8,580	Jan. 1, 1939	40	384	6.63	89.63	277,800	431	100.71	312,100
1940	902	-	-	40	516	8.88	120.91	374,700	528	123.61	383,000
1941	932	6,830	Jan. 17, 1941	42	490	8.43	114.44	354,600	493	115.07	356,600
1942	962	*9,700	Dec. 2, 1941	45	415	7.14	97.07	300,800	331	77.29	239,500
1943	982	4,400	Apr. 2, 1943	43	387	6.66	90.42	280,200	380	98.79	275,100
1944	1012	5,540	Dec. 3, 1943	42	310	5.34	72.74	225,400	339	79.36	245,900
1945	1042	*12,900	Feb. 7, 1945	53	471	8.11	109.99	340,800	486	113.54	351,800
1946	1062	3,140	Nov. 14, 1945	53	558	9.60	130.29	403,700	555	129.59	401,500
1947	1092	*6,500	Feb. 12, 1947	58	422	7.26	98.48	305,200	463	108.18	335,200
1948	1122	*10,100	Oct. 18, 1947	64	538	9.26	125.96	390,300	464	108.78	337,100
1949	1152	2,530	Feb. 22, 1949	76	449	7.73	104.93	325,200	538	125.63	389,300
1950	1182	24,200	Nov. 26, 1949	85	628	10.8	146.30	453,400	-	-	-

* Revised.

69. Lake Cushman reservoir near Hoodspott, Wash.

Location.--Lat 47°25'05", long. 123°13'20", in SW¹/₄ sec. 5, T. 22 N., R. 4 W., on upstream face of Cushman Dam No. 1, 4 miles northwest of Hoodspott.

Drainage area.--93.7 sq mi.

Gage.--Staff gage. Datum of gage is 2.99 ft below mean sea level (levels by city of Tacoma).

Since May 28, 1931, auxiliary staff gage at spillway.

Extremes.--1925-50: Maximum contents observed, 459,200 acre-ft Dec. 22, 1933 (gage height, 739.38 ft); minimum observed (since reservoir first filled), 164,560 acre-ft Dec. 13, 1929 (gage height, 650.8 ft).

Remarks.--Reservoir is formed by concrete arch dam; dam was completed and storage began Oct. 21, 1925. Capacity, 281,300 acre-ft between gage height 649.0 ft (lower limit of operation and 735.0 ft (spillway crest). Water used by city of Tacoma for power development. Records not previously published.

Contents, in acre-feet, on last day of month, of Lake Cushman reservoir near Hoodsport, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1926	2,000	36,860	126,940	180,220	247,500	277,260	302,700	329,450	338,550	338,550	333,300	292,820
1927	269,670	277,420	252,340	247,100	277,670	296,980	320,330	370,550	429,800	434,850	420,080	422,320
1928	439,850	410,330	370,840	390,370	380,530	403,810	417,800	423,920	422,040	423,120	412,630	382,560
1929	368,320	368,750	351,880	288,240	218,860	216,110	223,240	266,100	312,780	321,140	300,220	264,520
1930	229,620	177,010	207,180	201,320	266,320	298,290	353,990	361,050	391,550	394,650	395,870	373,000
1931	339,250	319,100	297,140	381,340	417,440	446,410	446,580	445,020	446,120	441,330	432,920	420,880
1932	423,480	441,110	428,800	413,450	437,470	420,560	422,960	438,700	437,310	443,500	441,370	433,210
1933	428,880	426,000	414,850	417,920	414,030	418,440	425,440	442,190	445,870	442,270	430,800	433,870
1934	435,100	416,100	451,680	441,820	437,270	435,790	442,270	441,370	439,850	440,590	431,360	417,800
1935	418,000	422,560	412,320	446,820	430,000	418,800	421,640	434,190	440,300	439,980	429,360	423,640
1936	404,800	392,220	421,920	421,120	424,560	407,950	423,320	444,980	444,940	437,310	421,520	395,980
1937	363,130	323,320	348,660	327,980	317,270	349,260	398,280	445,060	445,920	435,180	412,780	386,670
1938	389,700	442,150	446,990	422,000	424,400	421,860	431,600	436,410	440,590	431,400	411,570	382,040
1939	370,150	374,830	392,290	421,960	416,960	413,910	415,470	421,600	416,020	397,840	366,260	326,690
1940	291,350	286,260	421,200	441,040	441,980	440,880	445,590	449,830	438,740	424,560	400,050	373,680
1941	393,700	398,940	432,720	434,360	426,160	418,440	415,590	440,380	439,400	414,770	382,530	372,170
1942	362,810	390,640	430,360	414,190	401,760	369,110	386,150	410,870	436,650	439,500	437,880	433,170
1943	406,450	413,020	400,500	385,740	380,270	397,960	436,610	444,460	443,750	451,720	448,540	423,600
1944	413,910	370,940	366,120	393,180	357,340	358,700	382,080	406,540	424,440	428,200	428,520	420,480
1945	396,590	400,920	368,460	380,160	396,690	370,510	373,430	434,280	441,780	448,750	444,200	420,520
1946	399,210	414,260	415,400	401,720	386,780	375,840	402,250	438,540	449,540	451,800	439,110	421,120
1947	401,830	411,920	409,270	376,850	404,150	395,180	411,300	426,860	445,060	451,050	450,460	433,330
1948	436,160	414,690	419,160	392,400	385,040	370,300	386,970	440,590	448,180	451,720	449,370	444,690
1949	423,280	420,320	395,450	362,920	378,610	405,570	433,050	432,120	444,200	452,140	446,250	439,690
1950	417,840	448,630	431,200	409,000	429,520	402,440	415,440	436,900	445,100	451,970	445,720	435,200

Note.--Contents not previously published; computed from gage heights furnished by city of Tacoma.

70. North Fork Skokomish River near Hoodsport, Wash.

Location (revised).--Lat 47°24'50", long. 123°12'40", in NE¼ sec. 8, T. 22 N., R. 4 W., on left bank 1 mile downstream from Lake Cushman Dam No. 1 and 3½ miles west of Hoodsport

Drainage area.--93.7 mi (revised): October 1923 to November 1930, 94.8 sq mi (revised).

Supplemental records available.--August 1910 to September 1911, fragmentary record of gage heights and discharge.

Monthly mean discharges, October 1911 to January 1913 are contained in Washington State Water-Supply Bulletin No. 5.

Gage.--Water-stage recorder. Altitude of gage is 430 ft (from river-profile map). Prior to Sept. 2, 1918, water-stage recorder 1 mile upstream at datum 486.4 ft above mean sea level (levels by city of Tacoma), and Sept. 2, 1918, to Sept. 30, 1923, at datum 5.00 ft higher.

Average discharge.--37 years (1913-50), 706 cfs.

Extremes.--1913-30: Maximum discharge, 14,000 cfs Jan. 6, 1914 (gage height, 23.5 ft, from graph based on gage readings); no flow Oct. 22, 1925, when gates in dam were closed.

Remarks.--No diversion. Flow regulated by storage in Lake Cushman reservoir near Hoodsport since October 1925.

Cooperation.--Records for 1931-50, not previously published by Geological Survey, furnished by city of Tacoma.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	-	-	-	-	666	546	704	1,000	1,200	885	383	561	-
1914	511	1,620	925	2,410	727	1,010	973	1,190	809	506	215	464	948
1915	1,270	1,500	566	667	848	989	1,350	806	515	279	165	128	771
1916	428	834	1,660	545	1,270	1,330	948	1,060	1,300	1,060	517	239	934
1917	195	684	536	491	564	394	751	1,010	1,100	871	333	223	596
1918	169	500	2,290	1,530	1,110	1,010	806	577	447	221	156	104	744
1919	475	900	1,590	1,490	1,170	1,090	975	857	583	298	161	864	864
1920	133	812	1,310	1,060	569	556	338	365	661	263	163	821	587
1921	1,640	1,290	1,290	1,210	1,120	805	610	961	1,310	741	378	467	984
1922	1,850	1,560	1,810	380	397	339	490	973	1,080	405	210	220	813
1923	486	393	1,300	1,840	549	499	690	682	824	372	168	168	651
1924	268	410	1,220	1,080	2,270	521	312	469	267	157	115	425	623
1925	1,490	1,570	929	992	1,790	613	786	910	691	410	191	138	870
1926	72.2	10	10	10	14.1	54.9	80.0	106	128	127	209	824	137
1927	1,540	1,310	1,630	1,380	552	326	235	196	143	463	452	324	716
1928	436	1,750	1,240	1,190	834	751	562	857	524	215	263	618	768
1929	651	922	1,040	1,420	1,450	624	526	96.4	48.3	218	511	730	661
1930	721	978	265	405	95.6	66.6	32.9	42.4	155	114	69.8	507	268
1931	823	782	862	298	233	518	922	661	650	334	278	443	568
1932	511	1,160	948	1,060	524	1,290	1,020	688	935	376	223	292	752
1933	332	1,520	1,130	878	480	823	589	824	1,090	919	536	501	803
1934	710	988	2,141	1,949	937	1,010	458	611	242	258	298	356	832
1935	828	2,201	1,255	1,651	1,464	943	500	583	654	395	337	444	934

Note.--Records for 1931-50 not previously published; computed from records of power output and releases from Lake Cushman, furnished by city of Tacoma.

Monthly and yearly mean discharge, in cubic feet per second, of North Fork Skokomish River near Hoodsport, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	560	645	558	1,227	491	901	305	880	893	499	403	563	645
1937	633	753	530	618	649	381	362	479	1,298	687	516	550	620
1938	582	1,127	1,899	1,369	594	974	728	838	636	438	452	596	839
1939	716	628	718	1,031	681	628	589	555	534	557	650	781	673
1940	836	669	401	1,242	1,424	1,186	647	755	659	373	487	569	753
1941	812	758	789	1,135	1,217	841	572	321	340	548	607	574	707
1942	716	785	1,057	916	919	934	217	159	194	268	200	157	541
1943	586	830	1,124	770	796	413	619	430	504	140	161	508	571
1944	660	1,168	873	654	1,216	426	118	112	76.2	89.7	92.2	263	476
1945	643	1,308	1,184	876	1,162	1,155	440	253	429	143	135	570	688
1946	584	862	1,420	1,306	1,131	944	542	566	805	617	431	452	804
1947	606	633	1,551	1,259	1,336	724	258	207	89.3	113	105	365	601
1948	1,353	963	1,141	1,292	815	715	442	566	985	323	225	481	774
1949	843	1,009	1,078	770	615	854	404	1,260	489	257	262	277	661
1950	572	1,279	1,778	1,209	877	1,573	588	542	1,083	585	426	311	903

Note.--Records for 1931-50 not previously published; computed from records of power output and releases from Lake Cushman, furnished by city of Tacoma.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	-	-	-	-	37,000	33,600	41,900	61,500	71,400	54,400	23,600	33,400	-
1914	31,400	96,400	56,900	48,000	40,400	62,100	70,800	59,800	48,100	31,100	13,200	27,600	686,000
1915	78,100	89,300	34,800	53,300	47,100	60,800	80,300	49,600	30,600	17,200	10,100	7,620	559,000
1916	26,300	49,600	102,000	33,500	73,000	81,800	56,400	66,400	77,400	65,200	31,800	14,200	678,000
1917	12,300	40,700	33,300	30,300	31,300	24,200	44,700	62,100	65,500	53,600	20,500	13,500	431,000
1918	10,300	29,600	41,000	94,100	61,600	62,100	48,000	35,500	26,600	15,600	9,780	6,190	391,000
1919	29,200	53,900	97,100	81,900	65,000	42,100	64,900	50,000	51,000	42,000	18,300	10,000	626,000
1920	8,180	48,300	80,600	65,200	32,700	34,200	20,100	22,400	39,300	16,200	10,000	48,900	426,000
1921	101,000	76,800	79,300	74,400	62,200	49,500	36,300	59,100	78,000	45,600	23,200	27,800	713,000
1922	114,000	92,800	111,000	23,400	22,000	20,800	29,200	59,800	64,300	24,900	12,900	13,100	588,000
1923	29,900	23,400	79,900	13,000	30,500	30,700	41,100	41,900	37,100	22,900	10,300	10,000	471,000
1924	16,500	24,400	75,000	66,400	31,000	32,000	18,600	30,100	17,100	9,650	7,070	25,500	453,000
1925	91,600	93,400	57,100	61,000	99,400	37,700	46,800	56,000	41,100	25,200	11,700	8,210	629,000
1926	4,440	595	615	615	783	3,380	4,760	6,520	7,620	7,810	12,900	49,000	99,000
1927	94,700	78,000	100,000	84,800	30,700	20,000	14,000	12,100	8,510	28,500	27,800	19,300	518,000
1928	26,800	04,000	76,200	73,200	48,000	46,200	33,400	52,700	31,200	13,200	16,200	36,800	558,000
1929	40,000	54,800	94,000	87,300	80,500	38,400	31,500	5,930	2,870	13,400	31,400	43,400	493,000
1930	44,300	58,200	16,300	24,900	5,310	4,100	1,960	2,610	9,220	7,010	4,290	30,200	206,000
1931	50,600	46,500	53,000	18,300	12,900	31,900	54,900	40,600	38,700	20,500	17,100	26,400	411,400
1932	31,400	69,000	58,300	65,200	30,100	79,300	60,700	42,300	55,600	23,100	13,700	17,400	546,000
1933	20,400	90,400	69,500	54,000	26,700	50,600	35,000	50,700	64,900	56,500	33,000	29,800	582,000
1934	43,880	58,760	31,600	109,900	52,010	62,130	27,250	37,550	14,370	15,880	18,320	21,160	602,600
1935	50,930	31,000	77,190	101,500	61,280	57,990	29,730	35,850	38,890	24,510	20,740	26,450	675,900
1936	34,450	38,440	34,330	75,470	28,260	55,410	18,130	41,790	53,120	30,690	24,790	33,480	468,300
1937	38,930	44,610	32,560	37,990	36,050	23,410	21,520	29,450	77,240	42,220	31,760	32,710	448,600
1938	35,760	67,040	104,400	84,190	33,000	59,900	43,310	51,500	37,870	26,910	27,770	35,440	607,100
1939	44,040	37,390	44,150	63,420	37,830	38,590	35,060	34,150	31,780	34,230	39,990	46,460	487,100
1940	51,430	39,780	24,689	76,580	81,940	72,940	38,520	46,420	27,910	22,940	29,950	33,830	546,700
1941	49,950	45,120	48,690	69,780	67,570	51,700	34,020	19,760	20,230	33,710	37,350	34,160	511,800
1942	44,050	47,730	65,020	56,310	51,060	57,440	12,920	17,770	11,570	16,530	12,280	8,170	391,800
1943	36,000	49,380	99,120	47,380	44,230	25,400	36,860	26,450	29,960	8,610	9,880	30,210	413,500
1944	40,580	69,590	53,660	40,200	69,970	26,210	7,030	6,860	4,530	5,510	5,670	15,650	345,400
1945	39,550	77,810	72,770	53,870	64,540	71,010	26,160	15,580	25,520	8,790	8,880	33,900	497,800
1946	35,890	51,280	87,330	80,290	62,810	58,070	32,230	34,780	47,890	37,920	26,480	26,880	581,800
1947	37,240	37,680	95,390	77,440	74,190	44,540	15,370	12,710	5,310	6,950	6,450	21,710	435,000
1948	83,170	57,330	70,150	79,410	46,890	43,830	29,280	34,200	58,580	19,840	15,830	28,640	562,200
1949	51,820	60,020	66,290	47,380	34,140	40,240	24,030	77,480	29,100	15,820	9,130	16,460	476,900
1950	35,190	76,130	109,300	74,320	48,730	96,730	35,020	33,330	64,420	35,950	26,220	18,500	653,800

Note.--Records for 1931-50 not previously published; computed from records of power output and releases from Lake Cushman.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Momentary		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		Mean	Inches	Acres-feet
		Discharge	Date										
1910	312	-	-	-	-	-	-	-	-	-	-	-	-
1911	312	-	-	-	-	-	-	-	-	-	-	-	-
1913	442	-	-	-	-	-	-	-	-	-	-	-	-
1914	442	14,000	Jan. 6, 1914	136	948	10.1	137.36	686,000	771	110.82	703,000	-	-
1915	442	46,030	Oct. 19, 1914	100	771	8.23	111.76	559,000	738	107.01	535,000	-	-
1916	442	78,030	Dec. 8, 1915	105	934	9.97	135.75	678,000	806	117.22	585,000	-	-
1917	462	2,260	Nov. 4, 1916	124	596	6.36	86.30	431,000	727	105.36	427,000	-	-
1918	482	9,580	Dec. 18, 1917	89	744	7.94	107.77	539,000	744	107.78	538,000	-	-
1919	512	7,530	Dec. 4, 1918	92	864	9.22	125.19	626,000	804	116.41	582,000	-	-
1920	512	6,380	Dec. 24, 1919	111	587	6.26	85.25	426,000	752	109.18	546,000	-	-
1921	532	5,680	Feb. 11, 1921	178	984	10.5	142.57	713,000	1,070	154.92	774,000	-	-
1922	552	12,100	Dec. 12, 1921	128	813	6.68	117.84	588,000	857	10.83	404,000	-	-
1923	572	7,860	Dec. 27, 1922	105	651	6.95	94.26	471,000	626	90.48	453,000	-	-
1924	592	12,400	Jan. 31, 1924	79	623	6.57	89.49	453,000	798	114.59	580,000	-	-
1925	612	5,530	Feb. 2, 1925	121	870	6.18	124.56	629,000	-	-	-	-	-

† Corrected.

* Not previously published.

Yearly discharge, in cubic feet per second, of North Fork Skokomish River near Hoodsport, Wash.--
Continued

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year						
		Observed					Adjusted		Observed			Adjusted			
		Momentary maximum		Mini- mum day	Mean	Runoff in acre-feet	Mean	Per Runoff square mile in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches	Mean	Runoff in inches	Mean
		Discharge	Date												
1926	632	2,250	Sept. 30, 1926	0	137	99,000	541	5.71	77.54	506	366,000	680	97.37		
1927	652	3,190	Dec. 9, 1926	47	716	518,000	896	9.45	128.28	625	453,000	789	112.95		
1928	672	3,640	Nov. 25, 1927	2	768	558,000	713	7.52	102.45	702	510,000	676	97.07		
1929	692	2,370	Nov. 26, 1928	3	681	493,000	518	5.46	74.25	626	453,000	426	61.06		
1930	707	2,130	Oct. 3, 10, 1929	2	288	208,000	438	4.62	62.68	331	240,000	455	65.23		
1931	-	-	-	-	568	411,000	634	6.75	91.68	580	420,000	761	110.28		
1932	-	-	-	-	752	546,000	769	8.21	111.71	782	568,000	763	110.79		
1933	-	-	-	-	803	582,000	804	8.58	116.50	877	635,000	928	134.51		
1934	-	-	-	-	832	602,600	810	8.64	117.37	867	627,700	813	117.73		
1935	-	-	-	-	934	675,900	942	10.1	136.42	724	523,900	737	106.76		
1936	-	-	-	-	845	468,300	607	6.48	88.18	658	477,400	557	80.88		
1937	-	-	-	-	820	448,600	607	6.48	87.91	745	539,600	881	127.64		
1938	-	-	-	-	839	607,100	832	8.88	120.55	726	525,500	650	94.20		
1939	-	-	-	-	673	487,100	597	6.37	86.43	659	477,400	699	101.31		
1940	-	-	-	-	753	546,700	818	8.73	118.76	791	574,400	807	117.25		
1941	-	-	-	-	707	511,800	705	7.52	102.12	724	524,100	721	104.48		
1942	-	-	-	-	541	391,800	626	6.68	90.69	539	390,500	498	72.17		
1943	-	-	-	-	571	413,500	558	5.98	80.82	584	422,700	536	77.71		
1944	-	-	-	-	476	345,400	471	5.03	68.49	512	371,800	515	74.86		
1945	-	-	-	-	688	497,800	688	7.34	99.62	666	482,200	731	105.87		
1946	-	-	-	-	804	581,800	805	8.59	116.55	798	577,700	789	114.37		
1947	-	-	-	-	601	435,000	618	6.60	89.49	657	475,300	670	97.10		
1948	-	-	-	-	774	562,200	790	8.43	114.76	730	529,600	697	101.24		
1949	-	-	-	-	661	478,900	655	6.98	94.83	720	521,400	770	111.49		
1950	-	-	-	-	903	653,800	898	9.58	130.14	-	-	-	-	-	-

Note.--1931-50 not previously published by Geological Survey; furnished by city of Tacoma.

71. North Fork Skokomish River near Potlatch, Wash.

Location (revised).--Lat 47°19'40", long. 123°14'30", in NE¼NW¼ sec. 7, T. 21 N., R. 4 W., on left bank 1 mile upstream from mouth, 6 miles southwest of Potlatch, and 7 miles downstream from Cushman Dam No. 2.

Drainage area.--117 sq mi, includes 99 sq mi above Cushman Dam No. 2 which is normally non-contributing.

Gage.--Water-stage recorder. Datum of gage is 63.49 ft above mean sea level (levels by city of Tacoma). Prior to May 10, 1950, water-stage recorder 200 ft downstream at same datum.

Average discharge.--5 years (1944-49), 94.6 cfs (unadjusted).

Extremes.--1944-50: Maximum discharge, 4,800 cfs about Nov. 27, 1949 (gage height, 9.66 ft, from high-water mark), from rating curve extended above 2,400 cfs on basis of slope-area determination of peak flow; minimum recorded, 1.6 cfs July 23, 1949 (gage height, 2.15 ft).

Remarks.--Entire flow of river normally diverted at Cushman Dam No. 2, 7 miles upstream, to supply powerplant which discharges directly into sea (Hood Canal). Flow regulated by Lake Cushman reservoir (see p. 72) and by pondage in Cushman Reservoir No. 2. Flow at station includes infrequent releases and spillage from dams above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	-	-	-	-	-	-	59.5	30.5	20.6	9.22	7.85	4.52	-
1945	5.37	96.7	80.5	180	222	191	65.1	55.6	24.3	12.3	7.97	9.08	78.4
1946	10.3	154	217	199	169	150	145	251	320	215	14.0	10.8	154
1947	18.7	57.1	134	127	187	56.2	41.4	22.2	16.2	12.2	7.21	9.49	56.6
1948	356	167	128	157	134	98.2	85.7	139	28.9	13.3	12.0	19.2	112
1949	35.5	134	85.6	53.5	254	164	58.6	45.1	24.3	6.52	7.52	8.87	72.1
1950	12.7	-	-	-	-	-	106	38.3	18.2	9.87	7.65	8.35	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	-	-	-	-	-	-	3,540	1,870	1,230	567	483	269	-
1945	330	5,760	4,950	11,070	12,340	11,720	3,930	3,420	1,440	758	490	540	56,750
1946	636	9,180	13,340	12,250	9,410	9,240	8,630	15,410	19,010	13,220	858	645	111,800
1947	1,150	3,400	8,210	7,820	10,410	3,460	2,460	1,370	956	750	443	555	41,000
1948	21,910	9,940	7,730	9,660	7,720	6,040	5,100	8,570	1,720	817	739	1,150	81,100
1949	2,180	7,980	5,270	3,290	14,130	10,110	5,490	2,770	1,450	524	452	528	52,180
1950	781	-	-	-	-	-	6,440	2,350	1,080	607	470	497	-

Yearly discharge, in cubic feet per second, of North Fork Skokomish River near Potlatch, Wash.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1944	1012	-	-	-	-	-	-	-
1945	1042	2,160	Feb. 7, 1945	3.6	78.4	56,750	95.1	68,860
1946	1062	1,530	June 3, 1946	4.4	154	111,800	140	101,400
1947	1092	1,730	Feb. 14, 1947	4.4	56.6	41,000	93.7	67,820
1948	1122	*2,500	Oct. 19, 1947	9.0	112	81,100	78.4	56,950
1949	1152	2,030	Feb. 22, 1949	2.1	72.1	52,180	-	-
1950	1182	4,800	Nov. 27, 1949	-	-	-	-	-

* Not previously published.

72. South Fork Skokomish River near Potlatch, Wash.

Location (revised).--Lat 47°23'10", long. 123°18'30", in NW¹ sec. 22, T. 22 N., R. 5 W., on right bank at head of canyon, 1 mile upstream from Rock Creek, 3 miles downstream from Brown Creek, and 7½ miles west of Potlatch.

Drainage area.--65.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 456 ft (by barometer).

Average discharge.--13 years (1923-32, 1946-50), 545 cfs.

Extremes.--1923-32, 1946-50: Maximum discharge, 19,300 cfs Nov. 26, 1949 (gage height, 17.75 ft), from rating curve extended above 5,600 cfs, by logarithmic plotting; minimum, 38 cfs Sept. 15, 1926; minimum gage height, 0.95 ft Oct. 17-19, 1947.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1924	189	366	1,020	853	1,820	422	247	178	97.7	68.7	62.1	317	465
1925	1,230	1,330	804	1,110	1,480	457	445	419	296	137	86.9	74.6	651
1926	66.1	542	1,350	760	1,080	407	269	346	155	64.8	51.2	63.5	426
1927	812	1,020	1,320	1,050	598	465	725	471	203	109	236	668	668
1928	551	1,150	544	1,280	569	1,040	731	549	276	132	82.2	92.1	583
1929	371	745	588	384	200	510	570	477	463	179	114	77.1	391
1930	103	77.1	694	302	1,160	437	546	283	189	106	71.8	89.3	333
1931	251	403	453	1,480	716	950	815	301	369	177	82.7	159	513
1932	496	808	1,080	841	1,010	1,150	1,000	500	369	240	148	88.3	644
1946	-	-	-	-	-	-	-	-	-	-	-	105	-
1947	269	745	1,293	799	1,506	439	423	275	204	179	101	109	522
1948	1,109	490	1,007	754	638	491	652	1,024	510	186	120	367	613
1949	425	951	702	236	850	1,033	734	783	340	186	121	145	540
1950	241	1,495	1,377	816	1,133	1,132	862	695	600	266	186	118	740

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1924	11,600	21,800	62,700	52,400	105,000	25,900	14,700	10,900	5,810	4,220	3,820	18,900	338,000
1925	75,600	79,100	49,400	68,200	82,200	28,100	26,500	25,800	17,600	8,420	5,340	4,440	471,000
1926	4,060	32,300	83,000	46,700	60,000	25,000	16,000	21,300	9,220	3,980	3,150	3,790	308,000
1927	49,900	60,700	62,700	81,200	58,300	36,800	27,700	44,600	28,000	12,500	6,700	14,000	483,000
1928	33,900	68,400	33,400	78,700	32,700	64,000	43,500	33,800	16,400	8,120	5,050	5,480	420,000
1929	22,800	44,300	36,200	23,600	11,100	31,400	33,900	29,300	27,600	11,000	7,010	4,590	283,000
1930	6,330	4,590	42,700	18,600	64,400	26,900	32,500	17,400	11,200	6,520	4,410	5,310	241,000
1931	15,400	24,000	27,900	91,000	39,800	58,400	48,500	18,500	22,000	10,900	5,080	9,460	371,000
1932	30,500	48,100	66,400	51,700	58,100	70,700	59,500	30,700	23,100	14,800	9,100	5,250	468,000
1946	-	-	-	-	-	-	-	-	-	-	-	6,260	-
1947	16,570	44,310	79,500	49,120	83,640	26,960	25,150	16,920	12,150	10,990	6,190	6,490	378,000
1948	68,210	29,150	61,920	46,360	36,710	30,210	38,770	62,940	30,320	11,420	7,360	21,870	445,200
1949	26,110	56,570	43,190	14,520	47,200	63,520	43,680	48,120	20,240	11,450	7,460	8,620	390,700
1950	14,810	88,940	85,680	50,180	62,940	69,580	51,270	42,710	35,670	16,330	11,410	6,990	535,500

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1924	592	9,950	Jan. 31, 1924	44	465	7.09	96.54	338,000	614	127.34	446,000
1925	612	7,700	Feb. 1, 1925	65	651	9.92	134.62	471,000	533	110.47	386,000
1926	632	4,560	Dec. 11, 1925	39	426	6.49	88.08	308,000	501	103.67	362,000
1927	652	4,960	Dec. 1, 1926	95	668	10.2	138.29	483,000	615	127.43	446,000
1928	672	5,070	Jan. 12, 1928	73	583	8.89	120.97	423,000	539	111.71	391,000
1929	692	3,010	Mar. 28, 1929	67	391	5.96	80.83	283,000	322	66.60	233,000
1930	707	4,570	Dec. 22, 1929	53	333	5.08	68.84	241,000	352	72.77	255,000

Yearly discharge, in cubic feet per second, of South Fork Skokomish River near Potlatch, Wash.--
Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1931	722	9,110	Jan. 22, 1931	66	513	7.82	106.09	371,000	620	128.21	449,000
1932	752	11,500	(a)	72	644	9.82	133.68	468,000	-	-	-
1946	1092	-	-	-	-	-	-	-	-	-	-
1947	1092	7,800	Feb. 13, 1947	75	522	7.96	108.04	378,000	548	113.44	396,900
1948	1122	8,760	Oct. 18, 1947	89	613	9.34	127.26	445,200	567	117.71	411,800
1949	1152	5,350	Feb. 22, 1949	79	540	8.25	111.67	390,700	626	129.55	453,200
1950	1216	*19,300	Nov. 26, 1949	90	740	11.3	153.06	535,500	-	-	-

* Revised.

a Probably occurred Feb. 26, 1932.

73. South Fork Skokomish River near Union, Wash.

Location.--Lat 47°20'30", long. 123°16'30", in NE $\frac{1}{4}$ sec. 2, T. 21 N., R. 5 W., on right bank $\frac{3}{4}$ miles (revised) upstream from North Fork and Vance Creek, and 8 miles west of Union.

Drainage area.--79.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 110 ft (by barometer).

Average discharge.--19 years (1931-50), 673 cfs.

Extremes.--1931-50: Maximum discharge, 21,600 cfs Jan. 22, 1935, Nov. 26, 1949 (gage height, 11.0 ft), from rating curves extended above 11,000 cfs; minimum, 62 cfs Sept. 18, 1938; minimum gage height, 2.95 ft Sept. 5, 6, 1944.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	-	-	-	-	-	-	-	-	-	-	109	190	-
1932	584	915	1,250	1,030	1,230	1,330	1,110	588	407	260	163	107	747
1933	209	1,410	1,020	1,120	523	1,110	830	937	716	421	185	446	744
1934	807	697	2,998	2,112	739	845	371	415	161	205	141	117	806
1935	680	1,912	1,082	2,888	1,115	842	584	532	361	180	108	242	876
1936	223	405	1,074	1,684	705	874	430	634	598	276	128	116	597
1937	85.3	76.8	1,116	289	450	1,074	1,397	997	821	301	158	129	573
1938	554	1,976	1,746	992	693	1,044	941	502	274	144	91.8	69.0	752
1939	415	729	1,107	1,696	702	620	463	361	228	145	89.6	84.8	554
1940	194	626	2,583	1,292	1,472	1,123	598	547	170	107	80.1	97.6	741
1941	1,098	857	1,279	1,161	965	632	439	584	239	131	116	356	654
1942	629	996	1,722	570	786	446	378	361	398	236	121	86.8	560
1943	128	864	1,007	570	827	793	1,112	407	308	168	106	82.5	535
1944	346	370	778	1,107	681	498	515	531	197	105	81.7	106	426
1945	202	1,246	642	1,137	1,515	926	566	675	275	145	94.0	155	642
1946	240	1,180	1,490	1,366	987	979	954	638	452	334	135	114	738
1947	278	877	1,528	954	1,738	502	455	298	198	183	102	112	595
1948	1,222	616	1,153	930	781	633	789	1,259	549	191	132	401	722
1949	465	1,110	855	243	1,084	1,247	613	615	366	202	130	150	620
1950	*248	*1,708	*2,010	*1,124	*1,404	*1,375	1,016	741	624	514	226	148	*908

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	-	-	-	-	-	-	-	-	-	-	6,700	11,300	-
1932	35,900	54,400	76,900	63,300	70,800	81,800	66,000	36,200	24,200	16,000	10,000	6,370	542,000
1933	12,900	83,900	62,700	68,900	29,000	68,200	49,400	57,600	42,600	25,900	11,400	26,500	539,000
1934	49,610	41,480	84,400	129,900	41,030	51,980	22,060	25,510	9,560	12,630	6,860	6,970	585,800
1935	41,810	113,700	66,510	177,600	61,920	51,790	34,760	32,720	21,470	11,080	6,620	14,380	634,400
1936	13,690	24,090	66,060	103,600	40,540	53,760	25,570	39,010	35,560	16,980	7,900	6,910	433,700
1937	5,240	4,570	68,640	16,540	24,980	66,020	83,110	61,300	48,860	18,480	9,560	7,700	415,000
1938	34,060	117,600	67,400	61,020	38,510	64,220	56,010	30,840	16,310	8,860	5,640	4,100	544,600
1939	25,520	43,360	68,050	104,300	39,000	38,100	27,540	22,250	13,580	8,910	5,510	5,040	401,100
1940	11,960	37,230	58,800	79,420	84,670	69,040	35,610	33,640	10,140	6,600	4,930	5,810	537,800
1941	67,530	51,010	78,670	71,410	53,600	39,880	26,140	35,920	14,230	8,080	7,130	21,200	473,800
1942	38,700	59,280	65,900	35,070	43,670	27,410	22,380	22,200	23,700	14,510	7,460	5,170	405,400
1943	7,750	57,340	61,940	35,020	45,920	47,950	66,170	25,010	16,330	10,310	6,490	4,910	387,100
1944	21,250	22,040	47,850	68,040	39,160	30,500	30,650	20,360	11,720	6,440	5,030	6,230	309,500
1945	12,400	74,140	39,450	69,920	84,110	58,930	33,660	53,780	16,360	8,900	5,780	9,250	464,700
1946	14,750	70,190	91,630	84,020	54,790	60,210	56,790	39,250	26,870	20,560	8,310	6,760	534,100
1947	17,100	52,170	35,970	58,680	96,510	60,690	27,100	18,330	11,810	11,240	6,250	6,640	430,700
1948	75,110	36,660	70,920	57,170	44,950	39,300	46,940	77,430	32,660	11,770	8,100	23,850	524,400
1949	28,600	66,050	52,590	14,920	60,180	76,680	46,350	50,100	21,760	12,430	7,390	8,910	448,600
1950	*15,270	*101,700	*123,600	*69,100	*78,000	*84,570	60,450	45,580	37,130	19,290	13,870	8,810	*657,400

* Revised.

Yearly discharge, in cubic feet per second, of South Fork Skokomish River near Union, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Acre-feet	Mean	Runoff Inches
		Discharge	Date							
1931	752	-	-	-	-	-	-	-	-	-
1932	752	13,000	Feb. 26, 1932	90	747	9.38	127.65	542,000	736	125.83
1933	752	6,740	Nov. 13, 1932	74	744	9.35	126.93	539,000	904	154.27
1934	767	*20,800	Dec. 21, 1933	89	806	10.1	137.50	593,800	733	124.92
1935	792	21,600	Dec. 22, 1935	83	876	11.0	149.43	634,400	713	121.58
1936	812	5,830	Feb. 27, 1936	94	597	7.50	102.14	433,700	562	96.16
1937	832	10,000	Dec. 22, 1936	71	573	7.20	97.75	415,000	823	140.29
1938	862	*16,000	Dec. 28, 1937	63	752	9.45	128.27	544,600	584	99.51
1939	882	13,900	Jan. 1, 1939	64	554	6.96	94.48	401,100	652	111.23
1940	902	17,200	Dec. 15, 1939	66	741	9.31	126.70	537,800	726	124.15
1941	932	12,500	Jan. 17, 1941	69	854	8.22	111.60	473,800	664	113.16
1942	962	17,600	Dec. 2, 1941	79	560	7.04	95.49	405,400	454	77.40
1943	982	8,540	Mar. 27, 1943	74	535	6.72	91.19	387,100	485	82.74
1944	1012	8,470	Dec. 3, 1943	71	426	5.35	72.86	309,300	474	81.07
1945	1042	19,400	Feb. 7, 1945	80	642	8.07	109.45	464,700	712	121.37
1946	1062	4,920	Feb. 24, 1946	78	738	9.27	125.81	534,100	719	122.68
1947	1092	8,160	Feb. 13, 1947	83	595	7.47	101.44	430,700	622	106.02
1948	1122	9,730	Oct. 18, 1947	93	722	9.07	123.54	524,400	674	115.18
1949	1152	6,290	Feb. 22, 1949	85	620	7.79	105.66	448,600	*748	127.63
1950	1216,1182	*21,600	Nov. 26, 1949	106	*908	*11.4	*154.85	*657,400	-	-

* Revised.

74. Skokomish River near Potlatch, Wash.

Location.--Lat 47°19'00", long. 123°11'05", in NW¼ sec. 15, T. 21 N., R. 4 W., on right bank half a mile upstream from U. S. Highway 101, 2.8 miles downstream from confluence of North and South Forks, 4.7 miles southwest of Potlatch, and 5.5 miles upstream from mouth.

Drainage area.--230 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 16.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to May 22, 1947, water-stage recorder on left bank, May 22 to July 23, 1947, staff gage on left bank, and July 24 to Sept. 30, 1947, water-stage recorder on right bank, at datum 2.87 ft higher.

Average discharge.--7 years (1943-50), 1,113 cfs.

Extremes.--1943-50: Maximum discharge, 19,200 cfs Nov. 27, 1949 (gage height, 14.51 ft); minimum, 125 cfs Sept. 14-17, 1944 (gage height, 2.86 ft, present datum).

Flood of December 1933 reached a stage of 14.3 ft, present datum (discharge, 18,600 cfs).

Remarks.--Flow partly regulated by Lake Cushman reservoir near Hoodsport. Practically entire flow of North Fork is diverted at dam No. 2 and returned to sea through Cushman powerplant No. 2.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	296	197	161	-
1944	470	557	1,324	1,660	1,012	789	833	504	308	189	144	150	662
1945	284	1,761	999	1,715	2,316	1,725	959	1,125	426	217	175	225	985
1946	377	1,981	2,467	2,147	1,776	1,722	1,666	1,221	1,146	734	219	194	1,301
1947	427	1,386	2,674	1,578	3,048	772	643	497	341	297	202	201	993
1948	2,435	1,279	2,074	1,903	1,306	1,033	1,184	1,675	692	310	229	585	1,228
1949	739	1,924	1,807	524	2,112	2,151	1,181	1,147	505	307	225	287	1,068
1950	476	2,802	3,179	1,910	2,648	3,241	1,624	1,049	837	462	313	213	1,556

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	18,230	12,110	9,600	-
1944	28,930	33,160	81,380	102,100	58,200	48,520	49,500	31,000	18,300	11,630	8,860	8,950	480,600
1945	17,480	104,800	61,440	105,400	128,600	106,100	57,070	69,140	25,360	13,370	10,750	13,800	712,900
1946	23,210	17,900	51,700	32,000	98,610	105,900	99,150	75,050	68,210	45,140	13,440	11,540	941,800
1947	26,280	82,490	64,400	97,010	169,300	47,490	38,240	30,560	20,270	18,230	12,440	11,940	718,600
1948	149,800	76,100	27,500	17,000	75,100	63,550	70,440	103,000	41,150	19,090	14,080	34,790	891,600
1949	45,410	114,500	11,100	32,200	117,300	132,300	70,300	70,540	30,100	18,880	13,830	17,050	773,500
1950	29,270	166,700	195,500	17,400	147,100	199,300	96,650	64,490	49,820	28,410	19,230	12,670	1,127,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1943	1012	-	-	-	-	-	-	-
1944	1012	11,400	Dec. 3, 1943	126	662	480,600	717	520,800
1945	1042	16,700	Feb. 7, 1945	150	985	712,900	1,135	822,000

Yearly discharge, in cubic feet per second, of Skokomish River near Potlatch, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1946	1062	9,320	Apr. 11, 1946	152	1,301	941,800	1,274	922,200
1947	1092	14,100	Feb. 14, 1947	164	993	718,600	1,103	798,900
1948	1122	15,100	Oct. 19, 1947	173	1,228	891,600	1,115	809,200
1949	1152	11,900	Feb. 22, 1949	160	1,068	773,500	1,235	894,000
1950	1182	19,200	Nov. 27, 1949	165	1,556	1,127,000	-	-

75. Union River near Bremerton, Wash.

Location (revised).--Lat 47°31'45", long. 122°47'05", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 34, T. 24 N., R. 1 W., on left bank $1\frac{1}{2}$ miles upstream from Hazel Creek and 7 miles southwest of Bremerton.

Drainage area.--3.16 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 398.0 ft above mean sea level (closed stadia traverse).

Average discharge.--5 years (1945-50), 12.0 cfs.

Extremes.--1945-50: Maximum discharge, 476 cfs (revised) Feb. 22, 1949 (gage height, 3.85 ft), from rating curve extended above 160 cfs by logarithmic plotting; minimum, 0.3 cfs on many days in August and September 1950.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	1.05	17.8	24.6	27.6	26.2	19.9	19.8	3.35	2.42	1.71	0.79	0.80	12.1
1947	1.66	19.2	23.9	20.7	34.0	9.45	4.37	2.62	1.79	.94	.65	.85	9.86
1948	18.6	11.2	18.4	23.7	22.1	14.6	10.5	15.5	5.35	1.70	1.03	1.88	12.0
1949	3.84	21.3	24.6	10.2	*38.3	14.4	5.79	5.83	1.68	.81	.56	.69	*10.5
1950	1.25	*30.3	27.9	*34.7	41.5	32.7	12.4	3.66	1.56	.76	.62	.50	*15.5

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	65	1,060	1,520	1,700	1,450	1,230	1,180	206	144	105	49	48	8,760
1947	102	1,140	1,470	1,270	1,890	581	260	161	106	58	40	51	7,130
1948	1,140	667	1,330	1,460	1,270	896	623	954	319	105	63	112	8,740
1949	238	1,270	1,510	628	*2,130	885	344	358	99	50	35	41	*7,590
1950	77	*1,800	1,720	*2,130	2,310	2,010	736	225	93	47	38	30	*11,220

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	142	Apr. 11, 1946	0.6	12.1	3.83	51.84	8,780	12.2	52.32	8,820
1947	1092	218	Feb. 2, 1947	.5	9.86	3.12	42.36	7,130	10.2	43.69	7,350
1948	1122	*332	Oct. 19, 1947	.7	12.0	3.80	51.88	8,740	12.1	52.32	8,820
1949	1286, 1152	*476	Feb. 22, 1949	.5	*10.5	*3.32	*45.02	*7,590	*11.3	*48.46	*8,170
1950	1286, 1182	*465	Nov. 26, 1949	.3	*15.5	*4.91	*66.55	*11,220			

* Revised.

76. Union River near Belfair, Wash.

Location.--Lat 47°28'20", long. 122°49'40", in NE $\frac{1}{4}$ sec. 20, T. 23 N., R. 1 W., on left bank at highway bridge $1\frac{1}{2}$ miles (revised) north of Belfair and 2 miles upstream from mouth.

Drainage area.--19.2 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 45.6 ft above mean sea level (closed stadia traverse).

Extremes.--1947-50: Maximum discharge, 1,610 cfs Feb. 22, 1949 (gage height, 7.81 ft), from rating curve extended above 500 cfs; minimum, 13 cfs Sept. 29, 1947.

Remarks.--City of Bremerton diverts approximately 3,100 acre-ft about 5 miles above station annually for municipal use; entire low-water flow is diverted at times each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	18.6	16.2	16.7	-
1948	66.8	36.8	60.2	89.3	79.7	60.5	43.6	57.9	30.4	24.9	22.9	24.8	49.8
1949	27.2	67.3	90.1	38.5	187	64.1	40.2	33.9	25.9	22.5	20.4	20.7	52.2
1950	19.5	90.6	106	123	147	130	60.7	37.1	32.2	26.7	21.5	18.0	67.2

MISSION CREEK BASIN

Monthly and yearly runoff, in acre-feet, of Union River near Belfair, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	1,140	998	994	-
1948	4,110	2,190	3,700	5,490	4,580	3,720	2,590	3,560	1,810	1,530	1,400	1,480	36,160
1949	1,670	4,000	5,540	2,370	10,400	3,940	2,390	2,080	1,540	1,380	1,250	1,230	37,790
1950	1,200	5,390	6,490	7,580	8,180	7,990	3,610	2,280	1,910	1,640	1,320	1,070	48,660

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1947	1092	-	-	-	-	-	-
1948	1122	1,090	Oct. 19, 1947	15	49.8	36,160	51.5
1949	1152	1,610	Feb. 22, 1949	19	52.2	37,790	54.8
1950	1182	1,160	Jan. 22, 1950	16.5	67.2	48,660	-

77. Mission Creek near Bremerton, Wash.

Location.--Lat 47°32'00", long. 122°50'05", in NE¼NW¼ sec. 32, T. 24 N., R. 1 W., on west shore of Mission Lake, 300 ft upstream from lake outlet, and 9½ miles southwest of Bremerton.

Drainage area.--1.91 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 513.0 ft above mean sea level (closed stadia traverse).

Average discharge.--5 years (1945-50), 6.45 cfs.

Extremes.--1945-50: Maximum discharge, 96 cfs Feb. 22, 1949 (gage height, 6.36 ft); no flow at times each year.

Remarks.--No diversion. Fish screen at lake outlet may have slight regulating effect since November 1949.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	1.71	0.296	0.002	0.043	-
1946	0.19	5.78	18.0	18.6	14.6	13.9	13.0	2.66	1.08	.83	.06	0	7.36
1947	.23	4.35	12.6	9.53	20.2	6.21	2.86	1.15	.69	.14	0	0	4.74
1948	5.70	6.57	8.79	15.7	11.0	8.66	6.26	9.77	3.41	.83	.33	.47	6.46
1949	1.05	8.52	15.4	6.21	21.8	8.48	3.54	2.27	.67	.10	0	0	5.57
1950	.02	11.4	16.8	18.5	22.4	19.4	7.14	2.19	.70	.13	.006	0	8.14

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	102	18	0.14	2.5	-
1946	12	344	1,110	1,140	813	855	773	163	64	51	3.6	0	5,330
1947	14	259	773	586	1,120	382	170	71	41	6.3	0	0	3,420
1948	350	391	540	966	630	533	372	601	203	51	20	28	4,680
1949	65	507	948	382	1,210	521	211	140	40	6.0	0	0	4,030
1950	1.2	677	1,030	1,140	1,240	1,190	425	135	42	7.9	.4	0	5,890

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff
		Discharge	Date				Inches Acre-feet
1945	1042	-	-	-	-	-	-
1946	1082	38	Jan. 4, 5, 1946	0	7.36	3.65	52.33
1947	1092	51	Feb. 14, 1947	0	4.74	2.48	33.64
1948	1122	36	Jan. 2, 1948	0	6.46	3.38	46.03
1949	1152	96	Feb. 22, 1949	0	5.57	2.92	39.57
1950	1182	90	Jan. 22, 1950	0	8.14	4.26	57.81

78. Mission Creek near Belfair, Wash.

Location (revised).--Lat 47°29'20", long. 122°51'45", in NW¼NW¼ sec. 18, T. 23 N., R. 1 W., on left bank 3 miles northwest of Belfair and 5 miles upstream from mouth.

Drainage area.--4.37 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 330.0 ft above mean sea level (closed stadia traverse).

Average discharge.--5 years (1945-50), 11.9 cfs.

Extremes.--1945-50: Maximum discharge, 403 cfs Feb. 22, 1949 (gage height, 6.10 ft, from graph based on gage readings); minimum, 0.1 cfs July 16-24, Aug. 31 to Sept. 4, Oct. 6, 7, 1947.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Mission Creek near Belfair, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	0.60	12.8	36.9	35.7	27.4	24.6	20.5	2.97	0.86	0.63	0.50	0.39	13.6
1947	.42	7.86	22.4	15.9	41.8	10.5	3.48	1.03	.47	.23	.22	.27	8.61
1948	11.6	12.0	17.4	30.2	20.5	15.6	11.0	17.6	4.24	.91	.59	.56	11.8
1949	.61	12.8	31.0	9.47	50.0	16.8	5.56	3.48	.91	.64	.43	.33	10.7
1950	.30	21.7	29.9	35.9	38.7	34.6	12.7	3.53	.99	.68	.39	.23	14.8

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	37	761	2,270	2,200	1,520	1,520	1,220	182	51	39	31	23	9,850
1947	26	468	1,380	977	2,320	647	207	63	28	14	14	16	6,160
1948	715	712	1,070	1,860	1,180	962	652	1,080	252	56	36	34	8,610
1949	37	759	1,910	582	2,780	1,040	331	214	54	39	26	20	7,790
1950	18	1,290	1,840	2,210	2,150	2,130	754	217	59	42	24	14	10,750

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	93	Jan. 4, 1946	0.3	13.6	3.11	42.24	9,850	11.9	37.11	8,660
1947	1092	140	Feb. 14, 1947	.1	8.51	1.95	26.43	6,160	9.37	29.11	6,780
1948	1122	96	Jan. 2, 1948	.2	11.8	2.70	36.92	8,610	12.1	37.81	8,820
1949	1152	403	Feb. 22, 1949	.2	10.7	2.45	33.39	7,790	11.4	35.30	8,250
1950	1182	-	-	.2	14.8	3.39	46.11	10,750	-	-	-

TAHUYA RIVER BASIN

79. Gold Creek near Bremerton, Wash.

Location (revised).--Lat 47°33'20", long. 122°48'35", in NE¼SW¼ sec. 21, T. 24 N., R. 1 W., on right bank 1½ miles upstream from mouth and 8 miles west of Bremerton.

Drainage area.--1.54 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 750.9 ft above mean sea level (closed stadia traverse).

Average discharge.--5 years (1945-50), 5.97 cfs.

Extremes.--1945-50: Maximum discharge, 203 cfs (revised) Feb. 22, 1949 (gage height, 3.27 ft); minimum, 0.2 cfs Aug. 14, 1950; minimum gage height, 0.75 ft Oct. 2, 1945, Aug. 14, 1950.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	0.80	10.5	13.9	13.0	11.6	11.3	9.72	2.92	1.77	1.50	0.86	0.65	6.52
1947	1.02	8.36	9.54	11.7	16.3	5.20	2.55	1.53	1.23	.69	.56	.77	4.89
1948	9.70	6.28	9.58	11.2	10.4	6.90	5.97	7.68	3.09	1.18	1.03	1.19	6.10
1949	1.99	8.67	9.75	3.84	17.6	9.34	3.85	3.34	1.85	1.18	.73	.83	5.08
1950	.93	13.6	12.6	15.9	17.0	15.2	6.63	2.73	1.28	.79	.56	.52	7.26

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	49	624	857	802	645	695	578	180	106	92	53	39	4,720
1947	63	497	586	721	907	320	152	94	73	42	35	46	3,540
1948	535	372	589	691	598	424	355	472	184	73	63	70	4,430
1949	123	516	589	236	977	513	229	205	110	73	45	49	3,680
1950	51	810	784	979	945	932	394	169	76	48	34	31	5,250

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	65	Apr. 11, 1946	0.3	6.52	4.23	57.47	4,720	5.99	52.82	4,340
1947	1092	*122	Feb. 2, 1947	.5	4.89	3.18	43.09	3,540	5.37	47.33	3,890
1948	1122	*148	Oct. 18, 1947	.7	6.10	3.96	53.91	4,430	5.74	50.77	4,170
1949	1152	*203	Feb. 22, 1949	.5	5.08	3.30	44.75	3,680	5.64	49.71	4,080
1950	1182	*194	Nov. 26, 1949	.3	7.26	4.71	63.95	5,250	-	-	-

* Revised.

80. Tahuya River near Bremerton, Wash.1/

Location.--Lat 47°33'00", long. 122°50'30", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 19, T. 24 N., R. 1 W., on left bank $\frac{1}{4}$ miles downstream from Tahuya Lake and 10 miles west of Bremerton.

Drainage area.--6.12 sq mi.

Gage.--Water-stage recorder. Datum of gage is 539.0 ft above mean sea level (closed stadia traverse).

Average discharge.--5 years (1945-50), 21.0 cfs.

Extremes.--1945-50: Maximum discharge, 431 cfs Jan. 21, 22, 1950; maximum gage height, 5.58 ft Nov. 27, 1949; minimum discharge, 0.1 cfs Sept. 22-26, 1947, Sept. 1-10, 12, 13, 1949.

Remarks.--Small diversions above station for irrigation and domestic use below station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	4.82	1.77	0.75	1.02	-
1946	1.45	32.8	50.7	50.7	44.4	38.9	31.8	6.53	3.28	3.65	1.17	.68	22.0
1947	2.37	29.1	37.6	32.7	63.2	15.9	6.93	4.51	3.27	1.39	.47	.47	16.2
1948	27.1	20.1	36.3	45.9	40.6	24.1	21.2	31.9	7.84	2.34	1.14	2.35	21.6
1949	6.11	42.5	48.5	18.8	68.7	25.4	9.67	7.86	2.61	.95	.60	.38	19.0
1950	1.22	51.1	49.5	57.8	70.4	57.6	19.8	5.11	2.16	.44	.41	.36	28.3

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	287	109	46	61	-
1946	89	1,950	3,120	3,120	2,470	2,390	1,890	401	195	225	72	41	15,960
1947	146	1,730	2,310	2,010	3,510	977	412	277	195	86	29	28	11,710
1948	1,660	1,200	2,230	2,700	2,330	1,480	1,260	1,960	467	144	70	139	15,640
1949	375	2,530	2,990	1,180	3,820	1,560	575	483	156	58	37	23	13,770
1950	75	3,040	3,040	3,550	3,910	3,550	1,180	376	128	27	25	21	18,920

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary		maximum	Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date					Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-	-
1946	1062	161	Apr. 11, 1946	0.4	22.0	3.59	48.89	15,960	20.7	45.92	14,990	
1947	1092	314	Feb. 14, 1947	.1	18.2	2.65	35.90	11,710	17.4	38.67	12,610	
1948	1122	248	Oct. 19, 1947	.2	21.6	3.53	47.96	15,640	22.7	50.40	16,440	
1949	1152	424	Feb. 22, 1949	.1	19.0	3.10	42.15	13,770	19.4	42.97	14,030	
1950	1182	431	Jan. 21, 22, 1950	.2	26.1	4.26	58.00	18,920	-	-	-	-

81. Panther Creek near Bremerton, Wash.

Location (revised).--Lat 47°31'50", long. 122°51'30", in NW $\frac{1}{4}$ sec. 31, T. 24 N., R. 1 W., on left bank half a mile downstream from Panther Lake and 11 miles southwest of Bremerton.

Drainage area.--1.00 sq mi.

Gage.--Water-stage recorder. Datum of gage is 486 ft above mean sea level (closed stadia traverse).

Average discharge.--5 years (1945-50), 2.98 cfs.

Extremes.--1945-50: Maximum discharge, 88 cfs (revised) Feb. 22, 1949 (gage height, 3.02 ft); no flow at times each year.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	#0.16	0.05	0	0	-
1946	0	1.67	8.87	9.01	7.82	6.29	4.10	1.69	.23	.27	.07	0	3.32
1947	.05	3.02	6.85	4.74	11.6	2.42	.86	.28	.11	0	0	0	2.43
1948	3.58	3.00	5.04	7.55	5.27	3.64	2.50	4.62	.91	.08	0	.01	3.02
1949	.12	4.40	7.62	3.56	*10.7	3.92	.97	.87	.13	.01	0	0	*2.64
1950	0	4.33	6.99	7.31	10.6	9.19	3.06	.58	.09	0	0	0	3.47

* Revised.

Not previously published; estimated on the basis of records for stations on nearby streams.

1/ Published as Tahuyeh Creek near Bremerton, 1945, and as Tahuya Creek near Bremerton, 1946.

Monthly and yearly runoff, in acre-feet, of Panther Creek near Bremerton, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	#9.7	3.3	0	0	-
1946	0	99	546	554	434	387	244	104	14	17	4.4	0	2,400
1947	2.8	180	421	291	642	149	51	17	6.3	0	0	0	1,760
1948	220	179	310	464	303	224	149	284	54	5.2	0	.4	2,190
1949	7.3	262	469	219	*594	241	58	54	7.7	.4	0	0	*1,910
1950	0	258	430	449	588	565	182	36	5.6	0	0	0	2,510

* Revised.

* Not previously published; estimated on the basis of records for stations on nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	30	Apr. 11, 1946	0	3.32	3.32	45.05	2,400	3.26	44.28	2,360
1947	1092	43	Feb. 14, 1947	0	2.43	2.43	33.01	1,760	2.58	34.97	1,870
1948	1122	43	Oct. 18, 1947	0	3.02	3.02	41.12	2,190	3.06	41.67	2,220
1949	1286, 1152	*88	Feb. 22, 1949	0	*2.64	*2.64	*35.87	*1,910	*2.57	*34.92	*1,860
1950	1182	*49	Nov. 26, 1949	0	3.47	3.47	47.11	2,510	-	-	-

* Revised.

82. Tahuya River near Belfair, Wash. 1/

Location.--Lat 47°29'40", long. 122°54'20", in SE 1/4 sec. 10, T. 23 N., R. 2 W., on left bank 3 1/2 miles downstream from Panther Creek and 5 miles northwest of Belfair.

Drainage area.--16.1 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 353 ft above mean sea level (closed stadia traverse).

Average discharge.--5 years (1945-50), 45.5 cfs.

Extremes.--1945-50: Maximum discharge not determined, probably occurred Jan. 21 or 22, 1950; no flow at times each year.

Remarks.--Small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	7.40	0.83	0.25	0.19	-
1946	0.29	67.9	121	118	98.8	82.9	71.9	12.8	4.22	4.16	.55	.17	48.3
1947	.43	56.5	86.8	69.6	156	35.6	12.0	6.36	4.19	.73	.18	.15	33.4
1948	63.2	44.4	87.5	113	89.0	58.3	44.5	78.2	13.3	2.09	.43	1.77	49.6
1949	6.34	83.1	115	39.2	159	57.8	18.1	13.5	2.34	.42	.16	.14	40.4
1950	.05	76.5	87.0	144	180	131	43.9	11.2	2.50	.37	.12	0	55.8

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	441	51	15	11	-
1946	18	4,040	7,420	7,270	5,480	5,100	4,280	787	251	256	34	9.9	34,950
1947	26	3,360	5,340	4,280	7,570	2,190	715	391	249	45	11	9.1	24,190
1948	3,890	2,640	5,380	6,920	5,120	3,580	2,650	4,810	790	129	27	105	36,040
1949	390	4,950	7,050	2,410	8,840	3,550	1,080	820	139	26	10	8.1	29,270
1950	3.2	4,680	5,350	8,840	9,990	8,040	2,810	687	149	23	7.1	0	40,380

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	428	Apr. 11, 1946	0	48.3	3.00	40.69	34,950	44.5	37.49	32,190
1947	1092	622	Feb. 14, 1947	0	33.4	2.07	28.18	24,190	37.8	31.88	27,370
1948	1122	544	Oct. 19, 1947	0	49.6	3.08	41.96	36,040	50.3	42.51	36,520
1949	1152	900	Feb. 22, 1949	0	40.4	2.51	34.09	29,270	37.2	31.35	26,920
1950	1182	-	-	0	55.8	3.47	47.04	40,380	-	-	-

1/ Published as Tahuyeh Creek near Belfair, 1945 and as Tahuya Creek near Belfair, 1946.

TAHUYA RIVER BASIN

83. Tahuya River near Tahuya, Wash.

Location.--Lat 47°24'20", long. 123°00'20", in SW $\frac{1}{4}$ sec. 12, T. 22 N., R. 3 W., on right bank $2\frac{1}{2}$ miles upstream from mouth and $2\frac{1}{2}$ miles northeast of Tahuya.

Drainage area.--43.1 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 60 ft (from topographic map).

Extremes.--July to October 1947: Maximum discharge, 30 cfs Oct. 2 (gage height, 2.88 ft); minimum, 6.9 cfs Sept. 2, 3 (gage height, 2.55 ft).

Remarks.--Several small diversions for domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1947							10.9	8.39	9.82	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1947							671	516	584	-			

DEWATTO CREEK BASIN

84. Dewatto Creek near Dewatto, Wash.

Location.--Lat 47°28'10", long. 123°01'30", in sec. 23, T. 23 N., R. 3 W., on right bank at county road bridge, $1\frac{1}{2}$ miles upstream from mouth, and 2 miles northeast of Dewatto.

Drainage area.--17.5 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 55 ft (from topographic map).

Extremes.--1947-50: Maximum discharge, 1,630 cfs Nov. 27, 1949 (gage height, 6.75 ft), from rating curve extended above 780 cfs; minimum, 9.6 cfs Sept. 22, 1950.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	15.4	13.2	13.6	-
1948	82.1	53.1	101	128	99.6	69.3	62.3	84.1	33.2	21.1	18.4	21.2	64.5
1949	25.5	110	135	58.6	213	96.3	43.8	35.1	21.4	17.0	16.0	16.0	64.6
1950	16.0	131	123	142	221	165	75.8	37.0	23.5	17.2	14.7	12.0	80.6

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	946	809	811	-
1948	5,050	3,160	6,200	7,850	5,730	4,260	3,710	5,170	1,980	1,300	1,130	1,260	46,800
1949	1,570	6,570	8,320	3,610	11,810	5,920	2,600	2,160	1,270	1,050	921	953	46,750
1950	982	7,790	7,560	8,710	12,290	10,140	4,510	2,270	1,400	1,060	901	717	58,330

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1947	1092	-	-	-	-	-	-	-	-	-	-
1948	1122	660	Oct. 19, 1947	13	64.5	3.69	50.14	46,800	67.3	52.33	48,850
1949	1152	1,430	Feb. 22, 1949	13	64.6	3.69	50.07	46,750	64.4	49.93	46,630
1950	1182	1,630	Nov. 27, 1949	10	80.6	4.61	62.50	58,330	-	-	-

ANDERSON CREEK BASIN

85. Anderson Creek near Holley, Wash.

Location (revised).--Lat 47°34'05", long. 122°57'40", in S $\frac{1}{2}$ sec. 17, T. 24 N., R. 2 W., on left bank half a mile upstream from mouth and 1 mile northeast of Holley.

Drainage area.--6.3 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Extremes.--July to October 1947: Maximum discharge, 12 cfs Oct. 2 (gage height, 1.47 ft); minimum, 4.8 cfs July 29-31, Aug. 4.

Remarks.--No diversion or regulation above station.

ANDERSON CREEK BASIN

85

Monthly and yearly mean discharge, in cubic feet per second, of Anderson Creek near Holley, Wash.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1947							5.22	5.30	5.93	-			

Monthly and yearly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1947							321	326	353	-			

STAVIS CREEK BASIN

86. Stavis Creek near Seabeck, Wash.

Location (revised).--Lat 47°37'25", long. 122°52'30", in SW¼ sec. 25, T. 25 N., R. 2 W., on right bank three-quarters of a mile upstream from mouth and 2¼ miles west of Seabeck.

Drainage area.--5.60 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 15 ft (from topographic map).

Extremes.--July to October 1947: Maximum discharge, 40 cfs (revised) Oct. 15 (gage height, 1.89 ft); minimum, 6.3 cfs July 20, 21, 29, 30 (gage height, 1.36 ft).

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1947							7.07	7.04	7.31	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1947							435	433	435	-			

DOGFISH CREEK BASIN

87. Dogfish Creek near Poulsbo, Wash.

Location.--Lat 47°45'10", long. 122°38'30", in SW¼ sec. 11, T. 26 N., R. 1 E., on left bank half a mile upstream from mouth and 1 mile north of Poulsbo.

Drainage area.--6.77 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

Extremes.--1947-50: Maximum discharge, 265 cfs Feb. 22, 1949 (gage height, 9.82 ft, from high-water mark on gage house), by contracted-opening method; minimum, 1.8 cfs Aug. 13, 1947 (gage height, 0.64 ft).

Remarks.--Small diversions for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	2.54	2.51	3.05	-
1948	7.38	6.34	12.6	13.5	14.7	8.15	8.57	10.2	5.00	3.68	3.81	4.47	8.19
1949	5.30	11.2	11.9	6.92	30.9	14.1	6.13	3.83	3.41	3.55	2.93	3.61	8.49
1950	4.45	8.62	10.0	16.2	24.5	17.1	7.35	4.51	3.48	3.18	3.17	3.30	8.73

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	156	154	181	-
1948	454	377	774	833	846	501	510	629	297	226	234	266	5,950
1949	326	666	730	425	1,720	870	365	235	203	219	180	215	6,150
1950	274	513	618	995	1,360	1,050	437	277	207	195	195	196	6,320

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1947		1092	-	-	-	-	-	-
1948		1122	93	Jan. 1, 1948	3.0	8.19	5,950	6,060
1949		1152	265	Feb. 22, 1949	2.7	8.49	6,150	5,840
1950		1182	109	Jan. 21, 1950	2.9	8.73	6,320	-

CLEAR CREEK BASIN

88. Clear Creek near Silverdale, Wash.

Location.--Lat 47°39'50", long. 122°40'50", at north line sec. 16, T. 25 N., R. 1 E., on left bank 75 ft downstream from highway crossing, 1 mile upstream from mouth, and 1½ miles northeast of Silverdale.

Drainage area.--8.5 sq mi, approximately.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 30 ft (from topographic map).

Extremes.--July to October 1947: Maximum discharge, 9.0 cfs Sept. 6 (gage height, 2.20 ft); minimum, 1.5 cfs July 30 (gage height, 1.46 ft).

Remarks.--A few small diversions for irrigation above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1947							2.39	2.30	2.89	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1947							147	141	172	-			

CHICO CREEK BASIN

89. Chico Creek near Bremerton, Wash.

Location.--Lat 47°35'30", long. 122°42'30", at north line sec. 8, T. 24 N., R. 1 E., on left bank at highway crossing half a mile downstream from Dickerson Creek and 2½ miles northwest of Bremerton.

Drainage area.--15.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 50 ft (from topographic map).

Extremes.--1947-50: Maximum discharge, 1,640 cfs Feb. 22, 1949 (gage height, 5.40 ft), from rating curve extended above 170 cfs; no flow Aug. 31 to Sept. 6, 1947.

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947										1.81	0.31	1.58	-
1948	34.5	25.0	43.7	92.0	71.8	51.3	39.4	42.2	15.8	6.02	3.65	5.26	35.8
1949	7.72	45.9	82.4	40.4	175	51.4	21.7	15.1	5.49	2.29	1.08	.96	36.5
1950	2.70	55.7	72.7	94.2	121	105	44.0	17.2	7.07	3.47	2.46	1.61	43.5

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	111	19	94	-
1948	2,120	1,490	2,690	5,660	4,130	3,150	2,350	2,590	938	370	225	313	26,030
1949	475	2,730	5,070	2,490	9,700	3,160	1,290	926	326	141	66	57	26,430
1950	166	3,310	4,470	5,790	6,720	6,440	2,620	1,060	420	213	151	96	31,460

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1947	1092	-	-	-	-	-	-	-	-	-	-
1948	1182	738	Oct. 18, 1947	1.0	35.8	2.34	31.88	26,030	38.6	34.30	28,000
1949	1182	1,640	Feb. 22, 1949	.2	36.5	2.59	32.37	26,430	36.1	51.98	26,100
1950	1182	855	Nov. 26, 1949	.9	43.5	2.84	38.56	31,460	-	-	-

90. Blackjack Creek at Port Orchard, Wash.

Location.--Lat 47°32'20", long. 122°37'50", in SE $\frac{1}{4}$ sec. 26, T. 24 N., R. 1 E., on left bank at Port Orchard, a third of a mile upstream from mouth.

Drainage area.--14.5 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 30 ft (from topographic map).

Extremes.--1947-50: Maximum discharge, 285 cfs Feb. 22, 1949 (gage height, 3.62 ft), from rating curve extended above 150 cfs by logarithmic plotting; minimum, 6.7 cfs July 25, Sept. 2, 3, 1947 (gage height, 1.32 ft).

Remarks.--Many small diversions for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	7.69	7.49	8.05	-
1948	19.0	11.9	23.3	38.9	38.8	30.1	25.6	27.1	14.2	10.5	9.27	11.7	21.7
1949	12.3	24.6	36.5	19.6	61.8	23.8	15.8	15.0	10.8	8.38	8.81	8.70	20.2
1950	11.0	25.8	35.0	51.4	43.1	55.8	29.0	17.9	14.2	11.0	10.8	10.1	26.2

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	473	461	479	-
1948	1,170	711	1,430	2,390	2,230	1,850	1,530	1,670	845	644	570	693	15,730
1949	753	1,460	2,240	1,210	3,430	1,480	941	922	642	518	542	518	14,630
1950	678	1,540	2,150	3,160	2,390	3,420	1,720	1,100	844	675	567	601	18,940

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1947	1092	-	-	-	-	-	-	-	-
1948	1122	-	Mar. 21, 1948	8.1	21.7	15,730	23.2	16,880	-
1949	1152	285	Feb. 22, 1949	7.6	20.2	14,630	20.1	14,550	-
1950	1182	213	Jan. 21, 22, 1950	8.4	26.2	18,940	-	-	-

BURLEY CREEK BASIN

91. Burley Creek at Burley, Wash.

Location.--Lat 47°24'50", long. 122°37'50", in NE $\frac{1}{4}$ sec. 11, T. 22 N., R. 1 E., on left bank at county road bridge 400 ft west of State Highway No. 14 at Burley and a quarter of a mile upstream from mouth.

Drainage area.--10.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).

Extremes.--1947-50: Maximum discharge, 291 cfs Mar. 3, 1950 (gage height, 4.53 ft); minimum, 11 cfs July 19-21, 1947.

Remarks.--Several small diversions for domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	13.5	13.8	14.9	-
1948	29.5	26.5	31.4	33.1	38.4	34.2	28.3	29.2	20.0	15.8	16.0	19.4	26.8
1949	21.0	34.0	42.3	27.5	50.8	30.3	24.1	20.0	18.9	15.9	15.5	15.5	26.0
1950	19.2	32.7	34.9	43.1	50.4	58.9	31.9	21.1	18.1	16.4	16.8	16.8	29.9

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	833	851	889	-
1948	1,820	1,570	1,930	2,030	2,100	2,110	1,680	1,790	1,190	969	986	1,150	19,420
1949	1,290	2,030	2,600	1,690	2,820	1,860	1,430	1,230	1,010	977	956	923	18,820
1950	1,180	1,950	2,150	2,650	2,800	3,620	1,900	1,300	1,080	1,010	1,030	1,000	21,670

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1947	1092	-	-	-	-	-	-	-	-
1948	1122	255	Oct. 18, 1947	14	26.8	19,420	27.6	†20,020	-
1949	1152	264	Feb. 10, 1949	14	26.0	18,820	25.1	18,180	-
1950	1182	291	Mar. 3, 1950	14.5	29.9	21,670	-	-	-

† Corrected.

MINTER CREEK BASIN

92. Huge Creek near Wauna, Wash.

Location.--Lat 47°23'20", long. 122°41'50", at north line sec. 20, T. 22 N., R. 1 E., on right bank at downstream side of bridge an eighth of a mile upstream from mouth and 2½ miles northwest of Wauna.

Drainage area.--5.51 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Extremes.--1947-50: Maximum discharge, 286 cfs about Jan. 21, 1950 (gage height, 3.37 ft, from recorded range in stage); minimum, 3.2 cfs Sept. 1, 1950.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	4.28	4.24	4.36	-
1948	6.95	5.94	9.25	17.2	16.1	14.0	9.87	11.2	6.20	4.56	4.54	5.90	9.30
1949	4.92	9.24	21.8	10.3	28.6	13.6	8.77	6.83	5.17	4.44	4.20	4.30	10.1
1950	5.13	11.4	17.6	29.8	35.4	38.9	14.0	8.25	6.99	5.55	4.50	4.30	15.0

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	-	-	-	-	263	261	259	-
1948	428	353	569	1,060	925	862	588	686	369	280	279	351	6,750
1949	302	550	1,340	632	1,590	836	522	420	308	273	258	256	7,290
1950	315	676	1,080	1,610	1,970	2,390	856	507	416	341	277	256	10,870

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1947	1092	-	-	-	-	-	-	-	-	-	-
1948	1122	59	Mar. 22, 1948	4.1	9.30	1.69	22.98	6,750	10.5	25.85	7,590
1949	1152	115	Feb. 22, 1949	3.9	10.1	1.83	24.62	7,290	9.91	24.41	7,170
1950	1182	286	Jan. 21, 1950	3.6	15.0	2.72	37.03	10,870	-	-	-

DEER CREEK BASIN

93. Deer Creek near Shelton, Wash.

Location.--Lat 47°16'00", long. 123°00'10" (revised), in NW¼ sec. 36, T. 21 N., R. 3 W., on left bank three-quarters of a mile upstream from mouth and 6 miles northeast of Shelton.

Drainage area.--13.6 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map). Dec. 29, 1942, to Sept. 30, 1943, staff gage at same site and datum.

Extremes.--1942-43, 1948-50: Maximum discharge, 386 cfs Feb. 22, 1949 (gage height, 5.13 ft); minimum observed, 16 cfs Sept. 24, 25, 27-29, 1943.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	43.1	94.3	52.0	60.8	33.6	26.5	20.7	20.4	18.3	-
1948	-	-	-	-	-	-	-	-	-	-	22.2	29.2	-
1949	32.9	57.3	106	46.7	110	59.2	37.0	29.7	23.6	20.1	22.0	21.4	46.8
1950	29.0	73.4	73.5	86.8	121	129	65.1	39.4	28.8	23.1	23.1	22.7	59.2

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	2,650	5,240	3,200	3,620	2,070	1,570	1,280	1,250	1,090	-
1948	-	-	-	-	-	-	-	-	-	-	1,360	1,740	-
1949	2,020	3,410	6,520	2,870	6,130	3,640	2,200	1,830	1,400	1,240	1,350	1,270	33,880
1950	1,780	4,370	4,520	5,340	6,720	7,940	3,870	2,420	1,720	1,420	1,420	1,350	42,870

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1943	982	-	-	-	-	-	-	-	-	-	-
1948	1152	-	-	-	-	-	-	-	-	-	-
1949	1152	386	Feb. 22, 1949	18	46.8	3.44	46.71	33,880	45.0	44.94	32,600
1950	1182	281	Mar. 5, 1950	18	59.2	4.35	59.10	42,870	-	-	-

94. Cranberry Creek near Shelton, Wash.

Location.--Lat 47°16'00", long. 123°00'30", in NW¼ sec. 36, T. 21 N., R. 3 W., on left bank half a mile upstream from mouth and 6 miles northeast of Shelton.

Drainage area.--15.2 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 25 ft (from topographic map). Dec. 30, 1942, to Sept. 30, 1943, staff gage at same site and datum.

Extremes.--1942-43, 1948-50: Maximum discharge, 402 cfs Feb. 22, 1949; maximum gage height, 4.88 ft Mar. 4, 1950; minimum discharge, 4.7 cfs Sept. 3, 11, 13, 1949; minimum gage height, 0.74 ft Sept. 23-25, 1943.

Remarks.--Minor diversion for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	36.4	86.5	36.4	56.7	22.2	15.2	9.90	8.55	7.47	-
1948	-	-	-	-	-	-	-	-	-	-	8.81	11.2	-
1949	13.1	*40.0	102	39.3	112	59.5	29.3	20.4	11.2	7.75	6.82	6.68	*36.9
1950	10.5	61.5	91.3	130	126	167	61.7	26.1	15.7	10.7	9.62	9.16	59.7

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	2,240	4,810	2,240	3,380	1,370	902	609	526	445	-
1948	-	-	-	-	-	-	-	-	-	-	542	667	-
1949	804	*2,380	6,270	2,410	6,220	3,660	1,750	1,260	664	476	420	398	*26,710
1950	644	3,660	5,620	8,000	7,030	10,290	3,670	1,600	934	659	604	545	43,260

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982	-	-	-	-	-	-	-	-	-	-
1948	1152	-	-	-	-	-	-	-	-	-	-
1949	1346, 1152	402	Feb. 22, 1949	5.2	*36.9	*2.43	*32.94	*26,710	37.5	33.52	27,180
1950	1182	359	Mar. 5, 1950	6.6	59.7	3.93	53.36	43,260	-	-	-

* Revised.

JOHNS CREEK BASIN

95. Johns Creek near Shelton, Wash.

Location (revised).--Lat 47°15'10", long. 123°05'15", in NE¼ sec. 5, T. 20 N., R. 3 W., on left bank 3 miles upstream from mouth and 3 miles north of Shelton.

Drainage area.--17.7 sq mi.

Gage.--Water-stage recorder and, until Oct. 20, 1949, wooden control. Altitude of gage is 200 ft (from topographic map). Dec. 31, 1942, to Sept. 30, 1943, staff gage at different datum.

Extremes.--1942-43, 1948-50: Maximum discharge, 211 cfs Mar. 5, 1950; maximum gage height, 3.49 ft Feb. 23, 1949; minimum discharge, 4.2 cfs Aug. 31, 1949.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	37.2	70.6	32.9	47.7	24.2	15.3	10.3	8.24	6.73	-
1948	-	-	-	-	-	-	-	-	-	-	8.86	10.9	-
1949	12.2	27.6	69.1	35.5	74.8	55.2	31.6	20.2	11.9	8.15	5.95	6.01	29.6
1950	7.66	26.3	48.9	64.9	90.1	116	59.8	29.6	17.3	12.3	10.8	7.68	40.7

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	2,290	3,920	2,030	2,840	1,490	908	631	507	400	-
1948	-	-	-	-	-	-	-	-	-	-	545	647	-
1949	752	1,640	4,250	2,180	4,150	3,390	1,880	1,240	708	501	366	357	21,410
1950	471	1,570	3,010	3,990	5,000	7,120	3,560	1,820	1,030	754	666	457	29,450

JOHNS CREEK BASIN

Yearly discharge, in cubic feet per second, of Johns Creek near Shelton, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982	-	-	-	-	-	-	-	-	-	-
1946	1152	-	-	-	-	-	-	-	-	-	-
1949	1152	198	Feb. 23, 1949	4.6	29.6	1.67	22.70	21,410	27.4	21.01	19,820
1950	1182	211	Mar. 5, 1950	5.0	40.7	2.30	31.20	29,450	-	-	-

GOLDSBOROUGH CREEK BASIN

96. Goldsborough Creek at Shelton, Wash.

Location (revised).--Lat 47°12'40", long. 122°06'30", in NE¼ sec. 19, T. 20 N., R. 3 W., on right bank on downstream side of railroad bridge in Shelton and 1 mile upstream from mouth.

Drainage area.--55 sq mi (revised), approximately.

Gage.--Staff gage. Altitude of gage is 20 ft (from topographic map).

Extremes.--December 1942 to September 1943: Maximum discharge, 950 cfs Feb. 6 (gage height, 4.00 ft, revised, from graph based on gage readings); minimum observed, 13 cfs several days in August and September (gage height, 1.06 ft).

Remarks.--Diversion above station of as much as 29 cfs for use in lumber and pulp industry below station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	130	287	131	187	68.1	36.3	17.3	14.2	14.0	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	7,980	15,960	8,050	11,130	4,190	2,160	1,060	873	835	-

MILL CREEK BASIN

97. Mill Creek at Shelton, Wash.

Location.--Lat 47°11'40" (revised), long. 123°05'45", in NW¼ sec. 29, T. 20 N., R. 3 W., on left bank a quarter of a mile south of Shelton and 2¼ miles downstream from Lake Isabella.

Drainage area.--19.5 sq mi.

Gage.--Staff gage. Altitude of gage is 110 ft (from topographic map).

Extremes.--December 1942 to September 1943: Maximum discharge, 474 cfs Feb. 7 (gage height, 3.42 ft, revised, from graph based on gage readings); minimum observed, 11 cfs Sept. 15 (gage height, 0.59 ft).

Remarks.--Some diversion for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	79.1	170	68.2	121	47.8	30.7	17.6	12.9	12.2	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	4,870	9,440	4,200	7,180	2,940	1,830	1,080	793	728	-

98. Deschutes River near Rainier, Wash.

Location.--Lat 46°51'10", long. 122°40'00", in SW¼ sec. 22, T. 16 N., R. 1 E., on right bank 75 ft upstream from county road crossing, half a mile downstream from outlet of Reichel Lake, and 2½ miles southeast of Rainier.

Drainage area.--89.8 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 350 ft (from topographic map).

Extremes.--1949-50: Maximum discharge, 3,940 cfs Dec. 28, 1949 (gage height, 11.06 ft); minimum, 28 cfs Sept. 22-24, 1950 (gage height, 2.67 ft).

Remarks.--Probably some small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	\$61.2	43.8	35.6	35.4	-
1950	60.0	325	537	671	855	755	421	193	109	53.3	41.6	36.7	335

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	\$3,640	2,690	2,190	2,110	-
1950	3,690	19,320	33,040	41,230	47,480	46,450	25,080	11,880	6,480	3,270	2,560	2,190	242,600

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1949	115C	-	-	-	-	-	-	-	-	-	-
1950	1182	3,940	Dec. 28, 1949	28	335	3.73	50.65	242,600	-	-	-

99. Spurgeon Creek near Olympia, Wash.

Location.--Lat 46°57'00", long. 122°50'30", on west line sec. 20, T. 17 N., R. 1 W., on right bank a quarter of a mile upstream from mouth and 7.2 miles southeast of Olympia.

Drainage area.--11.0 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 180 ft (from topographic map).

Extremes.--1949-50: Maximum gage height, 6.46 ft Dec. 28, 1949, affected by backwater from Deschutes River (discharge not determined); minimum discharge, 4.8 cfs Aug. 18, 1949 (gage height, 1.62 ft).

Remarks.--Probably some small diversions for domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	-	8.14	6.75	6.83	-
1950	8.32	14.7	33.3	55.5	49.2	55.7	29.3	18.4	13.5	10.4	9.71	8.99	25.5

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	-	500	415	406	-
1950	512	875	2,050	3,410	2,730	3,430	1,750	1,130	802	637	597	535	18,460

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1949	1152	-	-	-	-	-	-	-	-	-	-
1950	1182	-	-	6.4	25.5	2.32	31.46	18,460	-	-	-

Note.--Station discontinued Nov. 9, 1950. October 1950: 13.2 cfs; 810 acre-ft.

DESCHUTES RIVER BASIN

100. Deschutes River near Olympia, Wash.

Location.--Lat 47°00'05" (revised), long. 122°53'40", in NW $\frac{1}{4}$ sec. 35, T. 18 N., R. 2 W., on left bank $1\frac{1}{2}$ miles upstream from mouth and $2\frac{1}{2}$ miles south of Olympia.

Drainage area.--160 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 95 ft (from topographic map). Prior to Oct. 14, 1947, water-stage recorder on right bank at same datum.

Average discharge.--5 years (1945-50), 418 cfs.

Extremes.--1945-50: Maximum discharge, 4,080 cfs Mar. 6, 1950 (gage height, 7.68 ft); maximum gage height, 8.00 ft Feb. 18, 1949; minimum discharge, 66 cfs Oct. 11, 1945 (corrected).

Remarks.--Small diversions for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	327	193	94.8	79.2	91.5	-
1946	82.8	482	626	846	875	636	390	227	197	163	105	98.0	391
1947	144	511	952	616	712	371	337	179	136	106	69.0	90.9	352
1948	315	451	549	834	711	619	527	499	248	146	122	128	428
1949	169	516	1,051	352	1,027	613	359	333	165	119	100	92.7	404
1950	119	392	728	1,002	1,216	1,176	664	346	221	149	127	116	517

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	20,110	8,270	5,830	4,870	5,440	-
1946	5,090	28,660	38,520	52,020	48,590	39,110	23,210	13,980	11,700	10,050	6,430	5,830	283,200
1947	8,830	30,400	58,530	37,870	39,540	22,840	20,040	11,040	8,080	6,500	5,470	5,410	254,600
1948	19,380	26,860	33,730	51,310	40,890	38,060	31,370	30,710	14,810	8,970	7,520	7,640	311,000
1949	10,410	30,710	64,650	21,870	57,010	37,660	21,360	20,470	9,800	7,310	6,150	5,510	292,700
1950	7,310	23,320	44,790	61,630	67,500	72,300	59,500	21,240	13,130	9,140	7,780	6,900	374,500

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square miles	Runoff Inches Acre-feet	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1945	1042	-	-	-	-	-	-	-	-	-	
1946	1062	2,800	Dec. 29, 1945	70	391	2.44	33.18	283,200	426	35.17	308,700
1947	1092	3,560	Jan. 26, 1947	78	352	2.20	29.83	254,600	327	27.74	236,800
1948	1122	2,950	Mar. 22, 1948	78	428	2.68	36.45	311,000	464	39.48	336,800
1949	1152	3,860	Feb. 18, 1949	86	404	2.52	34.31	292,700	362	30.75	266,400
1950	1182	4,080	Mar. 6, 1950	85	517	3.23	43.89	374,500	-	-	-

WOODWARD CREEK BASIN

101. Woodward Creek near Olympia, Wash.

Location.--Lat 47°05'00", long. 122°51'30", on north line sec. 6, T. 18 N., R. 1 W., on left bank at county road crossing, $2\frac{1}{4}$ miles upstream from mouth and 3.3 miles northeast of Olympia.

Drainage area.--3.80 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 120 ft (from topographic map).

Extremes.--June to October 1949: Maximum discharge, 13.5 cfs Oct. 28 (gage height, 1.19 ft); minimum, 2.4 cfs Oct. 2, 3 (gage height, 0.57 ft).

Remarks.--Some diversion for domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1949						-	3.51	3.14	3.03	3.17		

* Not previously published; obtained by computing estimated discharge for Oct. 30, 31.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1949						-	216	193	180	195		

* Not previously published; obtained by computing estimated discharge for Oct. 30, 31.

102. Woodland Creek near Olympia, Wash.

Location.--Lat 47°04'20", long. 122°49'00", in SW $\frac{1}{4}$ sec. 4, T. 18 N., R. 1 W., on left bank $1\frac{1}{2}$ miles (revised) upstream from mouth and 4.4 miles northeast of Olympia.

Drainage area.--24.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 25 ft (from topographic map).

Extremes.--1949-50: Maximum discharge, 120 cfs Dec. 28, 1949, Mar. 5, 1950; maximum gage height, 3.58 ft Mar. 5, 1950; minimum discharge, 10 cfs Sept. 23, 1949 (gage height, 1.39 ft).

Remarks.--Some diversion for domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	-	17.1	15.0	13.0	-
1950	13.1	17.0	24.2	50.8	61.2	84.1	59.9	40.0	30.6	24.7	20.5	17.4	36.8

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	-	1,050	923	771	-
1950	806	1,010	1,490	3,120	3,400	5,170	3,570	2,460	1,820	1,520	1,280	1,030	26,680

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1949	1152	-	-	-	-	-	-	-	-	-	-
1950	1182	120	(a)	12	36.8	1.51	20.58	26,680	-	-	-

a Dec. 28, 1949, Mar. 5, 1950.

NISQUALLY RIVER BASIN

103. Nisqually River near Ashford, Wash.

Location.--Lat 46°44'30", long. 121°55'40", in S $\frac{1}{2}$ sec. 33, T. 15 N., R. 7 E., near left bank on foot bridge half a mile downstream from Mount Rainier National Park boundary and 7 miles east of Ashford.

Drainage area.--68.5 sq mi (revised).

Supplemental records available.--January 1912 to September 1914, gage heights and discharge measurements only.

Gage.--Staff gage. Altitude of gage is 1,950 ft (from topographic map).

Extremes.--1910-11: Maximum discharge observed, 3,400 cfs Nov. 10, 1910 (gage height, 7.3 ft); minimum observed, 92 cfs Feb. 24 to Mar. 6, Mar. 13, 14, 1911.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	838	253	178	116	145	192	335	598	508	268	336	-
1912	209	473	285	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	49,900	15,600	10,900	6,440	8,920	11,400	20,600	35,600	31,200	16,500	20,000	-
1912	12,900	28,100	17,500	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	-	-	-	-	-	-	-	-	-	-
1912	-	3,400	Nov. 10, 1910	92	-	-	-	-	304	80.27	220,000

104. Nisqually River near National, Wash.

Location.--Lat 46°45'10" (revised), long. 122°05'00", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 29, T. 15 N., R. 6 E., on right bank 100 ft downstream from railroad bridge, 1 mile west of National, 2 $\frac{1}{2}$ miles west of Ashford, and 3 miles upstream from Mineral Creek.

Drainage area.--133 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,450 ft (from river-profile map).

Average discharge.--8 years (1942-50), 750 cfs.

Extremes.--1942-50: Maximum discharge, 9,560 cfs (revised) Dec. 11, 1946 (revised) (gage height, 10.34 ft, revised); minimum not determined, probably less than 135 cfs during period of doubtful gage-height record Oct. 2-30, 1942.

Remarks.--No diversion. Slight regulation at low flow by powerplant of Mount Rainier National Park on Paradise River.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	1,039	774	519	357	-
1943	230	915	963	523	683	583	1,128	844	1,003	810	422	378	705
1944	315	343	657	521	500	355	435	766	687	525	381	399	496
1945	297	356	515	940	890	501	632	1,491	931	681	444	446	675
1946	367	868	939	868	578	658	805	1,485	1,364	1,052	536	297	820
1947	547	849	1,491	705	881	639	827	874	773	601	426	418	752
1948	1,333	1,400	904	826	671	568	675	1,373	1,577	732	492	351	909
1949	396	591	471	287	469	776	973	1,681	1,221	911	554	369	726
1950	465	1,002	751	725	867	1,041	789	1,145	1,721	1,277	707	496	915

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	61,810	47,600	31,920	21,240	-
1943	14,140	54,470	59,190	32,170	37,930	35,850	67,150	51,880	59,650	49,820	25,940	22,480	510,700
1944	19,350	20,420	40,410	32,030	28,740	21,830	29,460	47,110	40,900	32,260	23,430	23,770	359,700
1945	18,280	21,150	31,660	57,790	48,860	30,790	37,590	91,680	55,370	41,870	27,270	26,530	488,800
1946	22,580	51,630	57,720	53,370	32,090	40,430	47,890	91,320	81,160	64,690	32,940	17,680	593,500
1947	35,680	50,440	91,680	43,360	48,950	39,280	49,210	53,710	45,990	36,950	26,220	24,890	544,400
1948	91,960	85,290	55,580	50,760	39,610	34,920	40,180	84,450	95,850	45,000	30,280	20,880	859,800
1949	24,330	35,140	28,950	17,630	26,070	47,690	57,900	103,400	72,660	56,030	34,080	21,970	525,800
1950	28,590	59,640	46,150	44,590	48,130	63,990	46,970	70,370	102,400	78,530	43,480	29,530	662,400

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet
1942	962	-	-	-	-	-	-	-	-	-	-
1943	982	6,870	Nov. 23, 1942	135	705	5.30	71.99	510,700	640	65.29	463,000
1944	1012	4,830	Dec. 3, 1943	185	496	3.73	50.72	359,700	483	49.43	350,600
1945	1042	5,280	Jan. 7, Feb. 7, 1945	185	675	5.08	68.92	488,800	759	77.50	549,700
1946	1062	5,000	Dec. 28, 1945	210	820	6.17	83.65	593,500	880	89.84	637,400
1947	1092	*9,560	Dec. 11, 1946	154	752	5.65	76.75	544,400	814	83.09	589,400
1948	1122	5,560	Nov. 8, 1947	240	909	6.83	93.00	659,800	726	74.35	527,400
1949	1152	3,010	May 13, 1949	210	726	5.46	74.12	525,800	790	80.61	571,800
1950	1182	*6,160	Nov. 27, 1949	270	915	6.68	95.39	662,400	-	-	-

* Revised.

105. Mineral Creek near Mineral, Wash.

Location.--Lat 46°44'20" long. 122°08'40" (revised), in SW $\frac{1}{4}$ sec. 35, T. 15 N., R. 5 E., on right bank three-eighths of a mile downstream from railroad bridge, 1 mile upstream from mouth, and 2 $\frac{1}{2}$ miles northeast of Mineral.

Drainage area.--74.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,340 ft (from topographic map).

Average discharge.--8 years (1942-50), 361 cfs.

Extremes.--1942-50: Maximum discharge, 5,240 cfs Dec. 11, 1946 (gage height, 8.25 ft), from rating curve extended above 2,700 cfs; minimum, 23 cfs Sept. 10-13, 1944; minimum gage height, 1.40 ft Sept. 22, 23, 1950.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Mineral Creek near Mineral, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	342	139	56.6	35.7	-
1943	59.5	759	724	349	608	483	723	276	203	85.3	44.5	32.8	360
1944	83.7	143	393	388	325	227	290	208	107	53.0	33.0	48.3	191
1945	65.9	210	216	603	653	466	444	657	164	54.6	35.8	81.4	302
1946	83.7	557	724	862	564	616	644	538	373	177	53.7	43.6	436
1947	149	610	1,289	691	721	362	395	142	109	64.7	46.5	68.2	386
1948	472	581	460	646	564	395	494	696	288	93.4	60.1	74.2	401
1949	161	518	561	172	631	620	611	745	215	74.3	43.7	45.4	364
1950	161	576	627	616	774	838	611	570	429	110	55.1	49.1	449

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	-	-	-	-	-	-	20,380	8,540	3,480	2,120	-
1943	3,660	45,170	44,500	21,460	33,750	29,690	43,020	17,000	12,099	5,240	2,740	1,950	260,300
1944	5,150	8,530	24,150	23,830	18,670	13,970	17,280	12,810	6,380	3,260	2,030	2,870	138,900
1945	4,050	12,480	13,290	37,100	36,290	28,660	26,420	40,410	9,770	3,360	2,200	4,840	218,900
1946	5,150	33,160	44,500	53,010	31,350	37,900	38,320	33,100	22,200	10,880	3,300	2,590	315,500
1947	9,180	36,300	79,230	42,480	40,020	22,230	23,500	8,750	6,510	3,980	2,860	4,060	279,100
1948	29,030	34,580	28,290	39,730	32,440	24,300	28,820	42,770	17,120	5,740	3,700	4,420	290,900
1949	9,890	30,890	34,520	10,570	35,040	38,130	36,360	45,810	12,790	4,570	2,690	2,580	263,600
1950	9,930	34,250	38,540	37,870	42,970	51,500	36,330	35,070	25,510	6,780	3,390	2,860	325,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1942	962	-	-	-	-	-	-	-	-	-	-	
1943	982	4,750	Nov. 23, 1942	26	360	4.85	65.68	260,300	283	51.68	204,800	
1944	1012	2,860	Dec. 3, 1943	23	191	2.57	35.06	138,900	180	33.04	130,900	
1945	1042	4,610	Feb. 7, 1945	30	302	4.06	55.23	218,900	375	68.60	271,900	
1946	1062	4,130	Dec. 28, 1945	33	436	5.87	79.60	315,500	494	90.18	357,400	
1947	1092	5,240	Dec. 11, 1946	31	386	5.20	70.43	279,100	340	62.15	246,300	
1948	1122	2,640	Jan. 1, 1948	46	401	5.40	73.42	290,900	378	69.18	274,100	
1949	1152	3,340	Feb. 17, 1949	32	364	4.90	66.53	263,600	375	68.45	271,300	
1950	1182	4,790	Nov. 27, 1949	31	449	6.04	82.02	325,000	-	-	-	

106. East Creek near Elbe, Wash.

Location (revised).--Lat 46°44'40", long. 122°12'20", in NW $\frac{1}{4}$ sec. 32, T. 15 N., R. 5 E., on right bank $\frac{1}{2}$ miles upstream from mouth and $\frac{1}{2}$ miles south of Elbe.

Drainage area.--11.5 sq mi (revised).

Gage.--Water-stage recorder and wooden control. Datum of gage is 1,225 ft above mean sea level (levels by city of Tacoma). Aug. 12, 1918, to Sept. 30, 1922, staff gage on left bank at same site and datum.

Average discharge.--5 years (1918-22, 1949-50), 61.6 cfs.

Extremes.--1918-22, 1949-50: Maximum discharge, 1,510 cfs (revised) Jan. 22, 1919 (gage height, 8.60 ft, revised, from graph based on gage readings), from rating curve extended above 740 cfs; minimum, 1.6 cfs Sept. 15-29, 1918, Sept. 21, 23, 1950.

Remarks.--Possibly some small diversion for domestic use. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	-	-	-	-	-	-	-	-	-	-	-	1.81	-
1919	13.2	87.1	125	258	95.5	98.8	117	46.0	19.1	5.17	2.60	2.92	72.4
1920	8.06	54.9	119	*80.8	33.5	58.0	56.1	29.8	26.5	7.92	4.93	54.0	*44.5
1921	115	79.1	132	135	127	129	67.1	55.8	26.9	7.81	3.94	7.78	73.8
1922	39.5	113	133	28.4	30.9	48.6	65.7	107	37.0	4.30	3.58	3.64	51.3
1949	-	-	-	-	-	-	-	-	-	5.69	3.47	4.64	-
1950	18.9	108	110	87.8	134	114	92.6	76.5	35.2	7.12	7.08	5.70	65.9

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	-	-	-	-	-	-	-	-	-	-	-	108	-
1919	812	5,180	7,690	15,900	5,300	6,080	6,960	2,830	1,140	318	160	174	52,500
1920	496	3,270	7,320	*4,970	1,930	3,570	3,340	1,850	1,580	487	303	3,210	*32,300
1921	7,070	4,710	8,120	8,300	7,050	7,930	3,990	3,430	1,600	480	242	463	53,400
1922	2,430	6,720	8,180	1,750	1,720	2,990	3,910	6,580	2,200	264	220	217	37,200
1949	-	-	-	-	-	-	-	-	-	350	213	276	-
1950	1,160	6,410	6,760	5,400	7,460	6,980	5,510	4,700	2,090	438	435	339	47,680

* Revised.

NISQUALLY RIVER BASIN

Yearly discharge, in cubic feet per second, of East Creek near Elbe, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1918	512	-	-	-	-	-	-	-	-	-	-
1919	512	*1,510	Jan. 22, 1919	1.7	72.4	6.30	85.48	52,500	68.8	81.27	49,900
1920	1346,512	949	Dec. 24, 1919	3.2	*44.5	5.87	52.61	*32,300	*56.6	66.98	*41,100
1921	532	*792	Mar. 17, 1921	2.6	73.8	6.42	87.06	53,400	70.2	82.87	50,800
1922	552	*736	Dec. 11, 1921	3.0	51.3	4.46	60.56	37,200	-	-	-
1949	1152	-	-	-	-	-	-	-	-	-	-
1950	1182	-	-	1.6	65.9	5.73	77.76	47,680	-	-	-

* Revised.

107. Nisqually River near Alder, Wash.

Location.--Lat 46°46'05", long. 122°16'05", in SW $\frac{1}{4}$ sec. 23, T. 15 N., R. 4 E., on right bank $2\frac{1}{2}$ miles southeast of Alder, $3\frac{1}{2}$ miles upstream from Alder Dam, and 8 miles downstream from Mineral Creek.

Drainage area.--252 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,013.9 ft above mean sea level (stadia traverse).

Average discharge.--13 years (1931-44), 1,158 cfs.

Extremes.--1931-44: Maximum discharge, 25,000 cfs Dec. 22, 1933 (gage height, 13.2 ft, from high-water marks), from rating curve extended above 10,000 cfs; minimum, 142 cfs Nov. 3, 1935 (gage height, 1.31 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	-	-	-	-	-	-	-	-	-	-	-	399	-
1932	756	1,210	1,410	1,430	1,640	2,400	1,980	1,700	1,600	1,050	631	447	1,350
1933	549	3,200	1,860	1,930	643	1,530	1,180	1,640	2,460	1,410	849	731	1,500
1934	1,502	1,546	6,512	3,404	1,052	1,624	1,201	948	634	605	532	393	1,677
1935	1,357	2,678	1,803	2,262	1,511	991	975	1,306	1,203	817	537	462	1,325
1936	297	378	686	2,139	959	1,407	1,526	2,232	1,846	857	574	448	1,114
1937	353	189	1,264	332	774	1,528	2,050	1,872	2,258	1,021	547	502	1,058
1938	486	2,675	2,263	1,999	818	1,200	1,750	1,471	1,041	732	478	393	1,277
1939	353	741	1,462	1,845	1,229	1,241	1,327	1,346	1,062	823	556	413	1,033
1940	406	486	2,180	1,073	2,025	1,755	1,071	1,240	682	*544	460	392	1,025
1941	443	720	1,061	1,129	671	575	675	905	644	576	422	578	701
1942	962	1,121	2,318	800	1,003	729	845	958	1,422	921	576	387	1,004
1943	287	1,946	1,076	1,108	1,728	1,359	2,241	1,215	1,248	912	491	432	1,230
1944	448	557	1,187	1,003	954	688	895	1,027	842	601	439	482	780
1945	378	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	-	-	-	-	-	-	-	-	-	-	-	23,700	-
1932	46,500	72,000	86,700	87,900	94,300	148,000	118,000	105,000	95,200	64,600	38,800	26,600	984,000
1933	33,900	190,000	114,000	119,000	35,700	94,100	70,200	101,000	146,000	86,700	52,200	43,500	1,090,000
1934	92,320	92,000	400,400	209,300	58,440	99,840	71,480	58,190	37,720	37,220	33,960	23,400	1,214,000
1935	83,450	159,400	110,800	140,300	83,940	60,940	57,990	80,310	71,590	50,220	33,050	27,460	959,400
1936	18,240	22,490	42,190	31,500	55,140	86,520	90,780	137,300	109,800	52,720	35,320	26,670	808,700
1937	21,680	11,250	77,740	20,390	42,960	93,960	22,000	115,100	134,300	62,810	33,630	29,880	765,700
1938	29,870	159,200	200,139	200,122	90,000	45,330	73,780	104,100	90,430	61,950	44,990	29,370	924,500
1939	21,680	44,090	89,920	113,400	68,270	76,330	78,950	82,780	63,210	50,630	34,210	24,580	748,000
1940	24,950	26,940	134,100	65,950	118,500	107,900	63,730	76,280	40,610	33,440	28,290	23,350	744,000
1941	27,230	42,830	65,240	69,410	37,280	35,340	40,140	55,680	39,310	35,420	25,980	34,980	507,200
1942	59,160	65,680	142,500	49,220	55,720	44,820	50,300	58,920	84,840	56,650	35,410	23,050	727,100
1943	17,680	15,800	115,300	68,110	95,950	83,530	33,300	74,720	74,240	56,080	30,220	25,720	890,600
1944	27,440	33,120	72,960	61,690	54,650	42,310	53,260	63,170	50,070	36,970	26,990	26,690	551,500
1945	23,220	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1931	737	-	-	-	-	-	-	-	-	-	-
1932	737	14,800	Feb. 26, 1932	285	1,350	5.36	73.12	1,084,000	1,540	83.03	1,120,000
1933	752	12,600	Nov. 13, 1932	285	1,500	5.95	80.87	1,090,000	1,840	99.13	1,330,000
1934	767	25,000	Dec. 22, 1933	200	1,677	6.65	90.25	1,214,000	1,358	75.07	983,200
1935	792	14,400	Oct. 25, 1934	190	1,325	5.26	71.34	959,400	951	51.24	688,700
1936	812	6,230	Jan. 12, 1936	158	1,114	4.42	60.20	808,700	1,152	62.27	836,400
1937	832	8,100	Apr. 14, 1937	150	1,058	4.20	56.98	765,700	1,358	73.14	983,300
1938	938	9,620	Apr. 18, 1938	246	1,277	5.07	68.75	924,500	1,039	55.93	751,900
1939	882	6,660	Jan. 2, 1939	219	1,033	4.10	55.66	748,000	1,078	58.06	780,400
1940	902	9,880	Dec. 15, 1939	254	1,025	4.07	55.35	744,000	952	51.44	691,300

Yearly discharge, in cubic feet per second, of Nisqually River near Alder, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1941	932	5,010	Jan. 18, 1941	203	701	2.78	37.74	507,200	884	47.64	640,300
1942	962	9,520	Dec. 19, 1941	255	1,004	3.98	54.09	727,100	977	52.64	707,500
1943	962	12,900	Nov. 23, 1942	171	1,230	4.88	66.29	890,600	1,071	57.69	775,400
1944	1012	8,500	Dec. 3, 1943	265	760	3.02	41.03	551,500	-	-	-
1945	1012	-	-	-	-	-	-	-	-	-	-

108. Little Nisqually River near Alder, Wash.

Location.--Lat 46°47'20", long. 122°18'45", in NW¼ sec. 16, T. 15 N., R. 4 E., on left bank 1,500 ft upstream from mouth and 1½ miles southwest of N.W.

Drainage area.--28.0 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 977.9 ft above mean sea level (stadia traverse). Prior to Apr. 19, 1921, staff gages at approximately same site at different datums.

Average discharge.--22 years (1920-42), 118 cfs.

Extremes.--1920-43: Maximum discharge, 2,920 cfs (revised) Dec. 20, 21, 1933 (gage height, 6.8 ft), from rating curve extended above 1,300 cfs; minimum, 0.9 cfs July 17, 1926, caused by temporary storage behind splash dam upstream; minimum gage height, 0.52 ft Sept. 22, 23, 1938.

Remarks.--No diversion. Some regulation by splash dam above station, 1925-30.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	-	17.1	124	-
1921	224	187	305	274	308	277	161	130	60.0	22.8	11.3	20.0	164
1922	86.6	260	308	56.7	71.5	99.5	166	255	92.2	17.6	11.8	14.2	120
1923	48.3	41.6	237	502	93.9	102	136	95.8	57.6	20.8	14.7	10.7	114
1924	67.6	60.0	212	170	324	53.8	58.9	28.1	10.6	7.29	7.03	9.25	85.2
1925	146	327	149	358	336	95.0	123	75.9	45.2	13.2	10.9	6.54	135
1926	5.44	56.0	223	135	247	77.7	31.2	50.3	17.9	5.70	6.66	17.1	71.8
1927	103	177	252	320	334	163	141	187	74.9	21.6	10.8	37.5	151
1928	125	381	115	262	63.7	265	217	118	28.1	23.1	9.71	9.43	135
1929	61.3	97.0	163	108	40.0	194	213	153	84.5	22.9	11.7	7.84	96.7
1930	6.51	5.71	187	65.5	326	136	84.8	76.1	51.6	14.1	9.21	8.58	77.7
1931	11.7	37.6	49.2	250	161	228	220	36.7	72.4	23.1	7.27	8.99	91.6
1932	80.1	151	245	236	224	358	231	104	52.4	29.5	12.8	7.56	144
1933	22.8	321	266	248	78.1	293	165	197	183	40.6	16.3	58.9	158
1934	133	120	*879	473	96.2	178	81.4	85.6	20.7	12.2	6.14	10.8	*177
1935	158	375	216	362	191	121	122	100	43.4	18.9	7.74	13.9	144
1936	15.8	60.7	130	379	176	186	141	153	120	30.0	11.9	13.0	118
1937	7.95	5.86	184	25.8	128	259	320	146	181	35.2	16.0	18.6	110
1938	31.6	374	321	244	94.1	176	191	75.2	25.5	11.3	7.72	5.70	130
1939	33.7	109	154	251	174	167	110	55.6	36.5	16.5	9.54	9.27	93.5
1940	25.7	40.8	339	134	323	242	119	95.9	20.5	11.3	8.35	9.55	114
1941	35.6	98.5	145	196	87.7	73.1	51.0	86.6	37.7	15.6	10.9	40.9	73.3
1942	73.7	150	337	93.9	180	88.9	60.2	53.2	102	41.1	17.1	10.4	98.6
1943	24.4	323	256	124	253	180	206	59.2	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	-	1,050	7,380	-
1921	13,900	11,100	18,800	16,800	17,100	17,000	9,580	7,990	3,570	1,400	695	1,190	119,000
1922	5,320	15,500	18,900	3,490	3,970	6,120	9,880	15,700	5,490	1,080	725	845	87,000
1923	2,970	2,480	14,600	30,900	5,210	6,270	8,090	5,890	3,430	1,280	904	637	82,700
1924	4,160	3,570	15,000	10,500	18,600	3,310	3,500	1,730	631	448	432	550	60,400
1925	8,980	19,500	9,160	22,000	18,700	5,230	7,320	4,670	2,690	812	670	389	100,000
1926	334	3,330	13,700	8,300	13,700	4,780	1,860	3,090	1,070	350	410	1,020	51,800
1927	6,330	10,500	15,500	19,700	18,000	10,000	8,390	11,500	4,460	1,530	664	2,230	109,000
1928	7,690	22,700	7,070	16,100	3,660	16,300	12,900	7,280	1,670	1,420	597	561	97,900
1929	3,770	5,770	10,000	8,640	2,220	11,900	12,700	9,410	5,030	1,410	719	467	70,000
1930	400	340	11,500	4,030	18,100	8,360	5,050	4,680	1,880	867	566	499	56,300
1931	719	2,240	3,030	15,400	8,940	14,000	13,100	2,260	4,310	1,420	447	535	66,400
1932	4,930	8,980	15,100	14,500	12,900	22,000	13,700	6,400	3,120	1,810	787	450	105,000
1933	1,400	19,100	16,400	15,200	4,340	18,000	9,820	12,100	10,900	2,500	1,000	3,500	114,000
1934	8,200	7,110	*54,070	29,060	5,540	10,940	4,840	5,280	1,230	747	378	841	*127,800
1935	9,720	22,300	13,290	22,270	10,610	7,440	7,290	6,150	2,580	1,160	476	825	104,100

* Revised.

NISQUALLY RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Little Nisqually River near Alder, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	971	3,610	7,970	23,310	10,130	11,430	8,410	9,420	7,150	1,840	732	775	85,750
1937	469	349	11,330	1,590	7,110	15,940	19,010	8,950	10,760	2,160	982	1,100	79,770
1938	1,940	22,240	19,750	14,990	5,220	10,850	11,340	4,620	1,520	694	474	339	93,980
1939	2,080	6,480	9,500	15,420	9,660	10,280	6,570	3,420	2,170	1,020	586	552	67,740
1940	1,580	2,430	20,830	8,220	18,580	14,850	7,050	5,900	1,220	695	514	568	82,440
1941	2,190	5,860	8,920	12,070	4,870	4,490	3,040	5,320	2,240	962	667	2,440	53,070
1942	4,530	8,930	20,700	5,770	8,870	5,470	3,580	3,270	6,050	2,530	1,050	619	71,370
1943	1,500	19,210	15,760	7,650	14,030	9,850	12,230	3,640	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1920	532	-	-	-	-	-	-	-	-	-	-	
1921	532	*2,390	Dec. 30, 1920	8.2	164	5.86	79.71	119,000	159	77.10	115,000	
1922	552	*2,560	Dec. 11, 1921	9	120	4.29	58.30	87,000	93.0	45.06	67,400	
1923	572	*2,560	Jan. 7, 1923	8	114	4.07	55.32	82,700	115	55.81	83,300	
1924	592	*1,990	Dec. 6, 1923	5.2	83.2	2.97	40.46	60,400	107	51.76	77,300	
1925	612	*1,530	Nov. 19, 1924	3.5	138	4.93	66.99	100,000	110	53.45	79,800	
1926	632	*925	Dec. 23, 1925	3.4	71.8	2.56	34.61	51,900	92.4	44.85	66,900	
1927	652	*1,750	Jan. 2, 1927	9.2	151	5.39	73.12	109,000	158	76.51	114,000	
1928	672	*1,790	Nov. 24, 1927	5	135	4.82	65.57	97,900	110	53.58	80,000	
1929	692	1,210	Dec. 10, 1928	6.2	96.7	3.45	46.87	70,000	86.7	41.97	62,700	
1930	707	1,270	Dec. 14, 1929	3.1	77.7	2.78	37.68	56,300	69.1	33.49	50,000	
1931	722	*1,880	Feb. 18, 1931	5.0	91.6	3.27	44.43	66,400	124	59.85	89,400	
1932	737	*2,740	Feb. 26, 1932	6.2	144	5.14	70.15	105,000	155	75.38	113,000	
1933	752	*1,600	Nov. 13, 1932	5.7	158	5.64	76.47	114,000	*203	*98.28	*147,000	
1934	1346, 767	*2,920	Dec. 20, 1933	3.3	*177	*6.32	*65.57	*127,800	143	69.47	103,700	
1935	792	*2,170	Jan. 22, 1935	4.4	144	5.14	69.71	104,100	98.6	47.78	71,350	
1936	812	*1,510	Jan. 12, 1936	7.0	118	4.21	57.42	85,750	118	57.17	85,360	
1947	832	*2,090	Apr. 14, 1937	4.1	110	3.93	53.42	79,770	154	74.69	111,500	
1938	862	*1,950	Dec. 28, 1937	4.8	130	4.64	62.93	93,980	94.1	45.60	68,110	
1939	882	*1,480	Jan. 2, 1939	6.5	93.5	3.34	45.35	67,740	103	49.89	74,520	
1940	902	*2,250	Dec. 15, 1939	7.0	114	4.07	55.20	82,440	103	49.94	74,570	
1941	932	*1,510	Jan. 18, 1941	7.7	73.3	2.62	35.54	53,070	97.0	47.05	70,260	
1942	962	*1,810	Dec. 19, 1941	7.2	98.6	3.52	47.80	71,370	102	49.34	73,680	
1943	982	*2,250	Nov. 23, 1942	-	-	-	-	-	-	-	-	

* Revised.

109. Alder Reservoir at Alder, Wash.

Location--Lat 46°48'05", long. 122°18'30", in NW¼ sec. 9, T. 15 N., R. 4 E., near left end of Alder Dam on Nisqually River, 1 mile west of Alder, and 4½ miles upstream from Mashel River.

Drainage area--286 sq mi.

Gage--Water-stage recorder. Datum of gage is 7.61 ft below mean sea level, datum of 1929 (levels by city of Tacoma). Prior to July 8, 1946, vertical staff gage which is present reference gage.

Extremes--1944-50: Maximum contents, 220,320 acre-ft July 26, 1950 (elevation, 1,203.23 ft); minimum observed (since reservoir first filled), 93,990 acre-ft Feb. 16, 1949 (elevation, 1,147.61 ft).

Remarks--Reservoir is formed by concrete arch dam; storage began Nov. 7, 1944; dam completed in 1945. Capacity, 179,600 acre-ft between gage height, 1,114 ft (lower limit of operating range), and 1,207 ft (top of spillway gates). Dead storage, 52,100 acre-ft. Water is used by city of Tacoma for power development. Figures given herein represent total contents.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1945	-	17,990	61,090	178,420	203,870	204,160	192,590	159,900	189,700	189,700	193,920	187,360
1946	117,440	157,560	194,180	198,360	202,710	194,180	205,320	204,160	208,810	207,940	206,200	189,180
1947	164,460	187,880	163,010	167,710	166,460	171,780	178,420	198,940	210,260	207,360	205,320	176,630
1948	203,580	200,390	200,680	192,320	192,320	149,900	161,090	193,380	210,260	209,970	205,610	197,780
1949	177,140	205,320	179,700	123,200	144,640	160,610	182,500	198,070	205,320	211,710	205,610	185,060
1950	174,740	190,720	127,580	107,850	163,060	174,220	167,700	198,940	215,780	216,530	211,420	190,740

110. La Grande Reservoir at La Grande, Wash.

Location.--Lat 46°49'20", long. 122°18'10", in SE $\frac{1}{4}$ sec. 33, T. 16 N., R. 4 E., at left end of gate control structure 1 mile southeast of La Grande and $1\frac{1}{2}$ miles downstream from Alder Dam.

Drainage area.--289 sq mi.

Gage.--Water-stage recorder. Datum of gage is 7.61 ft below mean sea level, datum of 1929 (levels by city of Tacoma). Prior to June 12, 1947, staff gages at dam.

Extremes.--1947-50: Maximum contents, 2,760 acre-ft May 14, 1950 (gage height, 936.4 ft); minimum (since reservoir first filled), 1,650 acre-ft Apr. 16, 1950 (gage height, 910.6 ft).

Remarks.--Reservoir is formed by concrete dam completed in 1944; storage began February 1945. Usable storage, 1,050 acre-ft between elevations 910 ft (minimum operating level) and 935 ft (normal reservoir level). Dead storage, 1,630 acre-ft. Water used by city of Tacoma for power development. Figures given herein represent total contents.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1945	-	-	-	-	1,750	1,930	1,880	1,810	1,760	1,480	1,680	2,500
1946	2,280	2,540	2,530	2,320	2,460	2,410	2,430	2,420	2,420	2,500	2,480	2,480
1947	2,260	2,430	2,390	2,420	2,420	2,520	2,310	2,500	2,490	2,520	2,500	2,580
1948	2,500	2,330	2,480	2,390	2,360	2,360	2,340	2,060	2,470	2,480	2,510	2,460
1949	2,230	2,300	2,350	2,270	2,240	2,300	2,250	2,290	2,250	2,260	2,320	2,330
1950	2,290	2,270	2,330	2,310	2,310	2,340	2,450	2,240	2,340	2,250	2,260	2,310

Note.--Contents not previously published.

111. Tacoma power conduit near La Grande, Wash.

Location.--Lat 46°48'00", long. 122°18'30", in NW $\frac{1}{4}$ sec. 9, T. 15 N., R. 4 E., on right bank 750 ft downstream from headworks and diversion dam, and $2\frac{1}{2}$ miles southeast of La Grande.

Gage.--Long-distance water-stage recorder. Altitude of gage is 925 ft (from river-profile map).

Average discharge.--12 years (1919-31), 512 cfs.

Extremes.--1919-31: Maximum discharge, 987 cfs Mar. 27, 1931 (gage height, 11.15 ft); no flow at times when gates are closed.

Remarks.--Conduit diverts from left bank of Nisqually River in NW $\frac{1}{4}$ sec. 9, T. 15 N., R. 4 E., 700 ft upstream from Nisqually River near La Grande gaging station. Water is used by city of Tacoma for power development. Flow regulated.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	18,400	30,200	33,500	33,800	31,000	32,000	32,100	34,100	30,500	29,700	31,400	31,200	368,000
1921	35,300	32,100	36,200	33,900	26,700	28,200	25,200	23,700	20,000	19,400	19,600	21,100	321,000
1922	26,600	30,200	34,600	34,000	29,000	31,500	29,900	27,200	22,200	20,400	22,700	24,600	333,000
1923	23,900	28,100	27,500	36,300	32,400	36,900	34,100	35,500	27,300	30,600	31,700	28,600	373,000
1924	25,600	22,900	36,600	39,100	34,700	32,900	32,700	29,500	25,300	29,500	33,000	24,100	355,000
1925	23,600	35,400	40,300	39,700	38,100	41,500	39,000	36,300	36,500	34,100	29,800	22,300	419,000
1926	18,300	26,700	43,100	44,500	40,700	44,000	39,900	42,400	34,800	33,400	30,200	24,800	423,000
1927	21,400	24,500	27,100	38,800	37,800	39,500	40,200	38,200	33,400	19,100	26,700	28,300	375,000
1928	30,700	12,300	19,300	11,800	21,300	22,600	27,300	10,000	20,100	30,600	32,200	25,900	264,000
1929	29,800	30,300	35,700	34,900	22,900	44,500	44,000	45,800	44,300	41,900	37,200	23,400	435,000
1930	17,500	12,100	39,800	32,100	44,700	38,700	42,800	45,400	40,900	38,600	32,700	23,500	409,000
1931	23,000	26,900	31,300	48,000	37,600	49,700	31,400	17,500	18,900	28,900	34,700	17,000	365,000

Note.--Records for 1929-31 not previously published.

112. Nisqually River at La Grande, Wash.^{1/}

Location.--Lat 46°50'30", long. 122°19'35" (revised), in SE^{1/4} sec. 29, T. 16 N., R. 4 E., on right bank half a mile downstream from city of Tacoma powerplant, half a mile north-west of La Grande, and three-quarters of a mile upstream from Mashel River.

Drainage area.--292 sq mi (revised). At sites 1906-11 and 1919-31, 286 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 490 ft (from river-profile map). Prior to Mar. 9, 1945, staff gages or water-stage recorders at several sites within 4 miles of present site, at different datums.

Average discharge.--24 years (1906-11, 1919-31, 1943-50), 1,307 cfs.

Extremes.--1906-11, 1919-31, 1943-50: Maximum discharge, 19,500 cfs Dec. 12, 1921; practically no flow at times as result of regulation.

Remarks.--Records in this report for October 1919 to September 1931 include flow of Tacoma power conduit (see preceding page) which, for this period, diverted above the station and was returned to river below station. Flow regulated by Alder Reservoir at Alder since November 1944 and by La Grande Reservoir at La Grande since February 1945.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	1,150	*3,500	2,570	1,550	2,880	954	1,810	1,510	1,080	1,000	718	662	*1,600
1908	520	1,370	1,800	1,740	1,230	1,920	1,990	1,870	1,750	1,770	967	551	1,440
1909	568	1,230	1,210	*1,430	*880	*501	*915	*1,570	1,940	1,180	738	560	*1,050
1910	386	3,550	1,920	1,530	1,640	3,210	2,100	1,660	982	761	642	483	1,570
1911	1,310	2,870	1,820	1,320	680	1,020	1,130	2,690	*2,170	*1,590	*755	751	*1,510
1912	1,150	-	-	-	-	-	-	-	-	-	-	-	-
1920	418	1,290	1,800	1,950	1,050	904	1,300	1,360	1,310	889	661	1,280	1,180
1921	2,160	1,610	2,220	2,650	3,100	2,500	1,700	1,880	1,830	1,020	650	456	1,810
1922	729	1,700	3,250	598	575	739	1,170	2,150	1,740	780	636	547	1,220
1923	514	514	1,720	3,870	835	984	1,470	1,560	1,330	998	732	497	1,260
1924	602	654	1,670	1,470	3,150	734	823	1,120	752	691	565	445	1,050
1925	812	2,180	1,860	2,470	3,040	993	1,530	1,620	1,010	794	556	383	1,430
1926	311	467	2,010	1,340	1,910	1,060	762	898	699	650	543	446	920
1927	1,130	1,370	1,830	2,170	2,090	1,390	1,210	1,860	1,770	1,000	588	716	1,420
1928	1,590	3,220	1,520	2,440	757	1,900	1,720	1,790	860	861	553	450	1,470
1929	742	747	963	738	440	1,290	1,420	2,080	1,720	874	633	404	1,010
1930	290	207	1,270	656	2,400	1,240	1,280	1,080	785	677	544	404	893
1931	427	469	547	1,890	1,390	1,750	2,050	1,200	1,160	865	646	502	1,070
1944	*465	*620	1,405	1,338	1,082	761	1,032	1,124	896	632	453	491	*858
1945	370	435	154	90	1,706	1,366	1,233	2,708	638	730	387	638	866
1946	1,615	1,318	1,769	2,177	1,561	1,813	1,544	2,169	1,741	1,233	655	681	1,525
1947	1,214	1,590	3,956	1,618	2,203	1,146	1,355	779	742	741	482	921	1,392
1948	1,453	2,398	1,763	2,384	1,997	2,015	1,339	1,973	1,606	1,047	771	689	1,619
1949	1,050	1,217	2,054	1,431	1,620	1,746	1,685	*2,599	*1,370	*921	*684	*815	*1,433
1950	*925	1,754	2,831	2,467	1,746	2,658	1,722	1,846	2,117	1,361	969	906	*1,778

* Revised.

* Not previously published; estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	70,700	208,000	158,000	95,300	160,000	58,700	108,000	92,800	64,300	61,500	44,100	39,400	*1,160,000
1908	32,000	81,500	111,000	107,000	70,800	118,000	118,000	103,000	104,000	109,000	59,500	32,800	1,050,000
1909	34,900	73,200	74,400	*87,900	*37,800	*30,800	*54,400	*96,500	*15,000	72,600	45,400	33,300	*756,000
1910	23,700	11,000	18,000	94,100	91,100	197,000	125,000	102,000	58,400	46,700	39,500	*29,000	1,140,000
1911	80,600	71,000	112,000	81,200	37,800	62,700	67,200	165,000	*128,000	*97,800	*46,400	44,700	*1,100,000
1912	70,700	-	-	-	-	-	-	-	-	-	-	-	-
1920	25,700	76,800	111,000	120,000	60,400	55,600	77,400	83,600	78,000	54,700	40,600	76,200	860,000
1921	133,000	95,800	136,000	163,000	172,000	154,000	101,000	116,000	109,000	62,700	40,000	27,200	1,310,000
1922	44,800	101,000	200,000	36,800	31,900	45,400	69,600	32,000	104,000	48,000	39,100	32,500	885,000
1923	31,600	30,600	106,000	238,000	46,400	60,500	87,500	95,900	79,100	61,400	45,000	29,600	912,000
1924	37,000	38,900	108,000	90,400	181,000	45,100	49,000	68,900	44,700	62,500	34,700	28,500	762,000
1925	49,900	30,000	114,000	152,000	169,000	61,100	91,000	99,600	60,100	48,800	34,200	22,800	1,030,000

† Corrected.

* Not previously published; estimated on the basis of records for nearby streams.

^{1/} Published as "below Little Nisqually River, near La Grande", 1906, 1910, and as "near La Grande", 1912, 1919-31.

Monthly and yearly runoff, in acre-feet, of Nisqually River at LaGrande, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	19,100	27,800	24,000	82,400	106,000	85,200	45,300	55,200	41,600	40,000	33,400	26,500	666,000
1927	69,500	81,500	113,000	133,000	116,000	85,500	72,000	114,000	105,000	61,500	36,200	42,600	1,030,000
1928	97,800	92,000	93,500	150,000	43,500	117,000	102,000	110,000	51,200	52,900	34,000	26,800	1,070,000
1929	45,600	44,400	59,200	45,400	24,400	79,300	84,500	128,000	102,000	53,700	38,900	24,000	729,000
1930	17,800	12,300	78,100	40,500	133,000	76,200	76,200	66,400	46,700	41,600	33,400	24,000	646,000
1931	26,300	27,900	33,600	116,000	77,200	108,000	122,000	73,800	69,000	53,200	39,700	29,900	777,000
1944	*28,590	*36,890	86,380	82,260	62,220	46,820	61,400	69,130	53,340	38,830	27,840	29,220	*622,900
1945	22,720	25,670	9,480	5,500	94,750	84,010	73,350	166,500	37,990	44,860	23,790	37,940	626,800
1946	99,330	78,450	108,800	133,800	86,720	111,500	91,890	133,300	103,600	75,830	40,290	40,540	1,104,000
1947	74,640	94,590	243,200	99,470	122,400	70,470	80,650	47,890	44,150	45,540	29,660	54,790	1,007,000
1948	89,320	142,700	108,400	146,600	114,900	123,900	79,650	121,300	95,560	64,390	47,400	41,020	1,175,000
1949	64,560	72,440	126,300	87,990	89,950	107,300	100,200	159,800	81,500	*56,660	*42,050	*48,470	*1,037,000
1950	*56,730	104,300	174,100	151,700	96,950	163,500	102,400	113,500	26,000	84,910	59,600	53,880	*1,286,000

* Revised.

† Corrected.

‡ Not previously published; estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1906	292	-	-	-	-	-	-	-	-	-	-
1907	a492,292	b16,600	Nov. 15, 1906	380	*1,600	*5.59	*76.06	*1,160,000	1,310	62.12	949,000
1908	492,292	b7,020	Apr. 19, 1908	380	1,440	5.03	68.62	1,050,000	1,380	65.86	1,000,000
1909	292	-	-	-	*1,050	*3.67	*49.63	*756,000	*1,260	*60.80	*926,000
1910	292	b10,600	Mar. 2, 1910	305	1,570	5.49	74.46	1,140,000	1,560	75.13	1,150,000
1911	512	b10,500	Nov. 21, 1910	-	*1,510	*5.28	*71.79	*1,100,000	-	-	-
1912	-	-	-	-	-	-	-	-	-	-	-
1920	512	c11,500	Dec. 24, 1919	-	1,180	4.13	56.24	860,000	1,390	66.15	1,010,000
1921	532	c12,500	Dec. 30, 1920	-	1,610	6.33	85.93	1,310,000	1,780	84.43	1,290,000
1922	552	c19,500	Dec. 12, 1921	-	1,220	4.27	57.96	885,000	977	46.42	708,000
1923	572	c16,800	Jan. 7, 1923	-	1,260	4.41	59.66	912,000	1,270	60.27	922,000
1924	592	c13,100	Feb. 12, 1924	-	1,050	3.67	49.95	762,000	1,210	57.58	877,000
1925	612	c9,410	Feb. 3, 1925	-	1,430	5.00	67.87	1,030,000	1,260	59.86	910,000
1926	632	c6,700	Dec. 23, 1925	184	920	3.22	43.66	666,000	1,050	49.76	780,000
1927	652	*9,200	Jan. 2, 1927	403	1,420	4.97	67.56	1,030,000	1,590	75.35	1,150,000
1928	672	*13,900	Nov. 25, 1927	322	1,470	5.14	70.18	1,070,000	1,150	54.90	837,000
1929	692	4,590	Dec. 10, 1928	186	1,010	3.53	47.67	729,000	951	45.20	688,000
1930	707	6,070	Dec. 14, 1929	115	893	3.12	42.36	646,000	864	41.02	626,000
1931	722	10,700	Mar. 31, 1931	249	1,070	3.74	50.89	777,000	-	-	-

* Revised.

† Not previously published.

a See also Water-Supply Paper 1286 for 1907 records.

b Maximum observed.

c Revised to include flow of Tacoma power conduit.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Observed			Adjusted			Observed			Adjusted		
		Momentary maximum	Minimum day	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches	Runoff in inches
1944	1042	-	-	319	858	*622,900	-	-	729	529,100	813	37.84	
1945	1042	12,000	Feb. 8, 1945	4	866	626,600	1,128	3.66	52.40	1,161	855,300	1,369	63.66
1946	1062	10,600	Dec. 31, 1945	206	1,525	1,104,000	1,527	5.23	70.99	1,230,000	1,656	76.97	
1947	1092	11,600	Dec. 14, 1946	364	1,392	1,007,000	1,375	4.71	63.94	1,292	935,400	1,344	62.44
1948	1122	8,360	Jan. 2, 1948	170	1,619	1,175,000	1,647	5.64	76.77	1,512	1,098,000	1,484	69.16
1949	1152	*6,840	May 13, 1949	*315	*1,433	*1,037,000	*1,415	*4.85	*65.78	*1,532	*1,109,000	*1,460	*71.86
1950	1182	15,000	May 14, 1950	389	1,778	*1,286,000	*1,786	*6.12	*93.04	-	-	-	-

* Revised.

† Not previously published.

a See also Water-Supply Paper 1286 for revised 1949-50 records.

113. Mashel River near La Grande, Wash.

Location (revised).--Lat 46°51'25", long. 122°18'05", in SE $\frac{1}{4}$ sec. 21, T. 16 N., R. 4 E., on right bank at highway bridge, 1 $\frac{1}{4}$ miles northeast of La Grande, and 3 $\frac{1}{4}$ miles upstream from mouth.

Drainage area.--80.7 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 619.53 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--10 years (1940-50), 220 cfs.

Extremes.--1940-50: Maximum discharge, 7,980 cfs Dec. 11, 1946 (gage height, 9.30 ft), from rating curve extended above 3,200 cfs; minimum, 7.2 cfs July 6, 7, 1945.

Remarks.--Small diversion for city of Eatonville water supply. Some regulation by mill-pond in Eatonville.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	65.4	201	242	222	98.8	88.2	162	157	114	26.2	20.9	108	125
1942	194	244	575	178	253	163	132	208	294	98.1	25.3	13.2	198
1943	22.0	339	484	243	421	245	342	145	159	42.2	19.2	16.2	205
1944	74.1	98.4	250	234	207	154	203	141	83.3	20.6	14.1	53.3	127
1945	36.1	105	142	322	350	411	409	441	101	20.3	14.1	67.2	201
1946	73.0	476	431	503	441	414	258	204	329	135	26.0	32.1	276
1947	148	450	890	478	409	182	232	67.2	90.7	42.9	19.4	30.9	253
1948	198	584	445	521	471	295	341	422	193	63.5	58.8	*83.3	*305
1949	126	471	494	149	489	423	337	285	72	32	16	18	242
1950	96.5	224	379	334	670	567	332	267	191	61.3	28.2	31.3	263

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	3,900	11,970	14,860	13,650	5,480	5,420	9,660	9,660	6,760	1,610	1,290	6,420	90,680
1942	11,960	14,530	35,330	10,970	14,070	10,010	7,860	12,640	17,520	6,030	1,560	787	143,300
1943	1,350	20,150	29,780	14,960	23,380	15,050	20,350	8,920	9,480	2,590	1,180	966	148,200
1944	4,550	5,860	15,380	14,370	11,900	9,480	12,070	8,690	4,960	1,270	864	3,170	92,560
1945	2,220	6,260	8,750	19,810	19,460	25,240	24,360	27,140	6,020	1,250	865	4,000	145,400
1946	4,490	28,340	26,490	30,960	24,500	25,460	15,330	12,530	19,580	8,280	1,600	1,910	199,500
1947	9,100	26,750	54,720	29,400	22,720	11,190	13,780	4,130	5,400	2,640	1,190	1,840	182,900
1948	12,180	34,780	27,330	32,030	27,110	18,140	20,260	25,950	11,470	3,900	5,620	*4,960	*221,700
1949	7,740	28,040	30,360	9,170	27,700	26,030	20,050	17,550	4,290	1,970	1,010	1,060	175,000
1950	5,940	13,340	23,310	20,520	37,220	34,860	19,780	16,430	11,350	3,770	1,730	1,860	†190,100

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1941	932	1,320	Jan. 18, 1941	13	125	1.55	21.07	90,680	168	28.29	121,800	
1942	962	4,040	Dec. 19, 1941	10	198	2.45	33.29	143,300	183	30.84	132,700	
1943	982	2,660	Mar. 28, 1943	11	205	2.54	34.42	148,200	169	28.50	122,700	
1944	1012	1,720	Dec. 3, 1943	9.2	127	1.57	21.50	92,560	116	19.52	84,000	
1945	1042	1,910	Feb. 7, 1945	9.2	201	2.49	33.78	145,400	259	43.56	187,500	
1946	1062	2,460	Nov. 26, 1945	17	276	3.42	46.35	199,500	319	53.61	230,700	
1947	1092	7,980	Dec. 11, 1946	13	253	3.14	42.49	182,900	230	38.70	166,800	
1948	1266, 1122	3,800	Nov. 7, 1947	17	*305	*3.78	*51.52	*221,700	*294	*49.62	*213,600	
1949	1152	2,660	Feb. 17, 1949	10	242	3.00	40.65	175,000	209	35.18	151,400	
1950	1182	2,770	(a)	11.5	263	3.26	44.17	†190,100	-	-	-	

* Revised.

† Corrected.

a Feb. 24, Mar. 5, 1950.

114. Lynch Creek near Eatonville, Wash.

Location.--Lat 46°52'50", long. 122°16'30", in SW $\frac{1}{4}$ sec. 11, T. 16 N., R. 4 E., on left bank a quarter of a mile upstream from mouth and 1 mile northwest of Eatonville.

Drainage area.--16.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 550 ft (from topographic map).

Extremes.--June to October 1949: Maximum discharge, 76 cfs Oct. 28 (gage height, 2.41 ft); minimum, 4.2 cfs Sept. 13, 14 (gage height, 0.36 ft).

Remarks.--Some diversion for irrigation above station. No known regulation.

Monthly mean discharge, in cubic feet per second, of Lynch Creek near Eatonville, Wash.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1949						-	8.16	6.22	6.12	13.1			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1949						-	502	382	364	807			

115. Ohop Creek near Eatonville, Wash.

Location.--Lat 46°52'50", long. 122°16'45" (revised), in SE $\frac{1}{4}$ sec. 10, T. 16 N., R. 4 E., on left bank 400 ft downstream from Lynch Creek, 600 ft downstream from outlet of Ohop Lake, and 1 mile northwest of Eatonville.

Drainage area.--35.5 sq mi (revised).

Gage.--Water-stage recorder and, after July 20, 1948, concrete control. Datum of gage is 519.8 ft above mean sea level (stadia traverse). June 3, 1927, to Sept. 30, 1932, water-stage recorder at same site at datum 2.79 ft higher; Sept. 6, 1941, to Mar. 17, 1942, staff gage at present datum.

Average discharge.--14 years (1927-32, 1941-50), 64.0 cfs.

Extremes.--1927-32, 1941-50: Maximum discharge, 1,600 cfs Dec. 11, 1946 (gage height, 5.97 ft); minimum, 2.3 cfs Aug. 22, 23, 1944.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1927	-	-	-	-	-	-	-	-	32.7	11.3	8.13	35.4	-
1928	90.8	191	99.7	169	39.9	135	141	59.9	22.2	18.1	8.25	8.51	82.1
1929	30.6	24.8	52.7	58.7	52.0	127	104	81.5	53.6	14.6	7.49	6.67	50.1
1930	7.69	11.0	69.4	39.4	153	85.7	44.3	36.0	22.7	8.52	5.31	6.08	41.2
1931	12.4	41.3	27.4	87.4	64.2	70.3	121	29.9	61.3	21.3	7.51	10.3	45.9
1932	49.0	75.7	56.5	86.4	111	191	98.6	32.4	12.2	20.1	5.86	9.69	62.0
1941	-	-	-	-	-	-	-	-	-	-	-	36.7	-
1942	49.4	72.5	174	66.9	71.0	54.9	41.9	66.4	114	47.2	13.8	7.8	65.0
1943	8.3	111	131	78.5	122	58.4	95.9	43.7	47.5	15.3	8.1	11.9	60.2
1944	28.3	28.2	68.4	63.8	67.9	58.2	55.5	35.1	23.7	6.04	5.90	18.0	37.8
1945	12.8	23.9	37.8	93.3	101	113	125	101	28.1	6.99	4.97	12.8	54.7
1946	*18.7	120	118	162	151	133	60.6	26.8	79.9	53.0	8.51	19.0	*78.7
1947	48.1	148	268	155	96.7	59.0	92.1	19.4	29.1	17.3	10.2	9.74	79.3
1948	57.2	132	117	128	121	121	123	115	68.7	29.4	23.7	29.3	88.5
1949	49.9	112	237	53.8	144	104	67.5	51.2	15.1	12.2	9.07	9.43	71.7
1950	28.4	67.9	114	139	200	172	108	85.2	22.2	12.3	13.9	12.7	78.9

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1927	-	-	-	-	-	-	-	-	1,950	695	500	2,110	-
1928	5,590	11,400	6,130	10,400	2,300	9,300	8,390	3,680	1,320	1,110	507	506	59,600
1929	1,880	1,480	3,240	3,610	2,890	7,810	6,190	5,010	3,190	898	461	397	37,100
1930	473	655	4,270	2,420	8,500	5,270	2,640	2,210	1,350	524	326	362	29,000
1931	762	2,480	1,680	5,370	3,570	4,320	7,200	1,840	3,650	1,310	462	613	33,200
1932	3,010	4,590	3,470	5,310	6,380	11,700	5,870	1,990	726	1,240	360	577	45,000
1941	-	-	-	-	-	-	-	-	-	-	-	2,180	-
1942	3,030	4,310	10,700	4,110	3,950	3,370	2,490	4,080	6,750	2,900	849	466	47,000
1943	508	6,580	8,030	4,710	6,770	3,590	5,710	2,690	2,830	938	498	710	43,560
1944	1,620	1,680	4,210	3,920	3,910	3,580	3,300	2,160	1,410	372	363	953	27,480
1945	788	1,420	2,330	5,740	5,620	6,920	7,440	6,210	1,670	430	306	759	39,630
1946	*1,180	7,150	7,280	9,950	8,400	8,160	3,600	1,650	4,750	3,260	523	1,130	*57,000
1947	2,980	16,480	9,510	5,370	3,630	5,490	1,190	1,730	1,060	626	580	580	57,420
1948	3,520	7,870	7,190	7,850	6,960	7,420	7,310	7,060	4,090	1,810	1,460	1,740	64,270
1949	3,050	6,650	14,570	3,310	8,010	6,410	4,020	3,150	900	751	558	561	51,940
1950	1,750	4,040	7,000	8,560	11,130	10,550	6,410	4,010	1,320	756	658	755	57,140

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1927	652	-	-	-	-	-	-	-	-	-	-
1928	672	511	Jan. 3, 1928	7.0	82.1	2.31	31.46	59,600	59.4	22.77	43,100
1929	692	288	Dec. 10, 1928	5.5	51.2	1.44	19.57	37,100	49.5	18.93	35,900
1930	707	416	Mar. 24, 1930	4.0	40.1	1.13	15.32	29,000	39.4	15.07	28,500
1931	722	666	Apr. 1, 1931	5.6	45.9	1.29	17.57	33,200	54.2	20.72	39,200
1932	737	732	Mar. 5, 1932	4.3	62.0	1.75	23.79	45,000	-	-	-

NISQUALLY RIVER BASIN

Yearly discharge, in cubic feet per second, of Ohop Creek near Eatonville, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1941	962	-	-	-	-	-	-	-	-	-	-
1942	962	640	Dec. 20, 1941	5	65.0	1.83	24.84	47,000	60.9	23.29	44,080
1943	962	485	Nov. 23, 1942	5	60.2	1.70	23.00	43,560	49.6	18.98	35,960
1944	1012	286	Dec. 3, 1943	2.5	37.8	1.06	14.51	27,480	33.7	12.94	24,510
1945	1042	344	Apr. 12, 1945	3.2	54.7	1.54	20.93	39,630	*70.0	*26.76	*50,680
1946	1286,1062	1659	Jan. 5, 1946	4.3	*78.7	*2.22	*30.11	*57,000	98.2	36.80	69,660
1947	1092	1,600	Dec. 11, 1946	6.0	79.3	2.23	30.32	57,420	68.0	25.22	47,750
1948	1122	429	Feb. 26, 1948	6.0	88.5	2.49	33.94	64,270	96.4	36.95	69,970
1949	1152	892	Dec. 9, 1948	6.5	71.7	2.02	27.44	51,940	55.9	21.36	40,460
1950	1182	615	Feb. 25, 1950	4.3	78.9	2.22	30.17	57,140	-	-	-

* Revised.

† Corrected.

116. Nisqually River near McKenna, Wash.

Location.--Lat 46°51'20", long. 122°27'10", in SE¹ sec. 20, T. 16 N., R. 3 E., on right bank 800 ft downstream from Elbow Creek, three-quarters of a mile upstream from Tanwax Creek, and 7.4 miles southeast of McKenna.

Drainage area.--445 sq mi.

Gage.--Water-stage recorder. Datum of gage is 373.6 ft above mean sea level (stadia traverse). Prior to Sept. 30, 1941, staff gage at same site and datum.

Average discharge.--9 years (1941-50), 1,688 cfs.

Extremes.--1941-50: Maximum discharge, 17,000 cfs Dec. 11, 1946 (gage height, 11.45 ft); minimum, 85 cfs Oct. 19, 1945 (gage height, 2.57 ft); minimum daily, 176 cfs Jan. 30, 1945.

Remarks.--Flow regulated by Alder and La Grande Reservoirs (see elsewhere in this report). Yelm Irrigation District Canal diverts up to 70 cfs during summer season, 3.6 miles above station for irrigation below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	-	-	-	-	-	-	-	-	-	-	-	461	828
1942	1,295	1,761	3,577	1,278	1,635	1,117	1,128	1,363	2,080	1,142	595	367	1,444
1943	313	2,721	2,914	1,907	2,629	1,889	3,065	1,621	1,561	1,014	508	436	1,705
1944	594	777	1,727	1,601	1,451	1,070	1,342	1,303	1,004	620	428	521	1,036
1945	458	601	370	592	2,296	2,214	2,261	3,954	770	741	365	703	1,271
1946	1,759	1,983	2,461	3,214	2,272	2,428	1,859	2,549	2,204	1,468	659	710	1,949
1947	1,487	2,252	5,370	2,465	2,972	1,570	1,938	920	908	795	*1,096		*1,847
1948	1,922	3,260	2,585	3,031	2,519	2,477	1,943	2,647	2,028	1,023	814	807	2,085
1949	1,328	1,904	2,908	1,681	2,329	2,188	2,110	2,864	1,365	890	677	804	1,750
1950	928	2,008	3,399	3,060	2,658	3,346	2,177	2,159	2,214	1,435	955	931	2,104

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	-	-	-	-	-	-	-	-	-	-	-	28,350	49,260
1942	79,620	104,800	219,900	78,290	90,780	68,670	67,100	83,790	123,800	70,220	36,600	21,650	1,045,000
1943	19,220	46,260	79,200	130,440	100,116	100,116	100,116	99,690	92,910	62,320	31,270	25,920	1,234,000
1944	36,510	46,260	68,200	96,460	83,450	65,780	79,650	89,130	59,720	36,120	26,340	31,020	751,800
1945	28,040	35,780	22,730	38,370	127,800	136,100	134,500	243,100	45,640	45,550	22,460	41,820	919,900
1946	108,200	118,000	151,300	197,600	126,200	149,300	110,600	144,400	131,100	91,500	40,540	42,240	1,411,000
1947	90,210	134,000	330,200	151,600	185,000	96,530	115,300	56,570	54,040	48,890	29,860	*65,220	*1,337,000
1948	118,200	194,000	157,700	186,400	144,900	152,300	115,600	162,800	120,700	62,890	50,070	48,020	1,514,000
1949	81,530	113,300	178,700	103,400	129,500	134,800	125,500	178,100	81,230	54,100	41,650	47,850	1,267,000
1950	57,040	119,500	209,000	186,100	147,500	205,800	129,500	132,800	131,700	88,220	56,730	55,420	1,523,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1941	962	-	-	-	-	-	-	-
1942	962	16,000	Dec. 19, 1941	241	1,444	1,045,000	1,363	1,001,000
1943	962	16,400	Nov. 23, 1942	196	1,705	1,234,000	1,468	1,063,000
1944	1012	10,800	Dec. 3, 1943	300	1,036	751,800	895	649,400
1945	1042	14,400	Feb. 8, 1945	176	1,271	919,900	1,673	1,211,000
1946	1062	10,500	Dec. 31, 1945	248	1,949	1,411,000	2,193	1,588,000
1947	1286,1092	17,000	Dec. 11, 1946	314	*1,847	*1,337,000	*1,731	*1,253,000
1948	1122	10,300	Jan. 2, 1948	336	2,085	1,514,000	1,952	1,417,000
1949	1152	8,460	Dec. 9, 1948	312	1,750	1,267,000	1,767	1,279,000
1950	1182	11,100	Nov. 27, 1949	350	2,104	1,523,000	-	-

* Revised.

117. Tanwax Creek near McKenna, Wash.

Location (revised).--Lat 46°51'55", long. 122°27'05", in NW¹/₄ sec. 20, T. 16 N., R. 3 E., on left bank a quarter of a mile upstream from mouth and 7 miles southeast of McKenna.

Drainage area.--26.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 390 ft (from topographic map).

Average discharge.--5 years (1945-50), 33.6 cfs.

Extremes.--1944-50: Maximum discharge (revised), 328 cfs Dec. 15, 1946 (gage height, 3.20 ft); minimum, 0.7 cfs Sept. 9, 1949, Sept. 16, 1950.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	5.06	30.1	53.5	44.5	61.0	42.4	15.5	3.70	1.60	2.50	-
1946	2.67	22.0	44.0	70.8	79.5	70.6	32.2	12.2	13.4	13.4	2.57	1.92	30.2
1947	4.64	49.2	120	59.1	53.0	37.1	39.2	13.0	6.67	2.60	1.49	1.55	32.2
1948	4.25	29.0	53.2	81.3	70.0	68.9	50.8	46.4	16.6	6.90	3.87	5.65	36.3
1949	9.09	40.2	127	31.3	78.4	51.5	26.0	16.6	4.15	1.84	1.35	1.44	32.1
1950	1.92	17.4	51.1	*101	*108	*101	42.7	17.5	4.78	1.84	1.63	1.47	*37.2

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	311	1,850	2,970	2,740	3,630	2,610	925	227	98	149	-
1946	164	1,310	2,700	4,350	4,410	4,340	1,920	749	800	823	158	114	21,840
1947	285	2,930	7,400	3,640	2,940	2,280	2,330	800	397	160	92	92	23,350
1948	261	1,720	3,270	5,000	4,020	4,230	3,020	2,850	1991	424	238	356	26,360
1949	559	2,390	7,790	1,920	4,350	3,180	1,550	1,020	247	113	85	86	23,270
1950	118	1,030	3,140	*6,210	*5,980	*6,200	2,540	1,090	284	113	113	67	*26,900

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	181	Apr. 11, 1945	-	-	-	-	-	26.8	13.67	19,370
1946	1062	282	About Dec. 29, 1945	1.2	30.2	1.14	15.40	21,840	39.1	19.93	28,280
1947	1092	328	Dec. 15, 1946	1.2	32.2	1.21	16.43	23,350	24.8	12.64	17,980
1948	1122	206	Feb. 26, 1948	1.5	35.3	1.36	18.58	26,360	43.9	22.46	31,850
1949	1152	310	Dec. 10, 1948	.8	32.1	1.21	16.40	23,270	23.3	11.86	16,820
1950	1346, 1182	*288	Jan. 23, 1950	.8	*37.2	*1.40	*18.97	*26,900	-	-	-

* Revised.

Note.--Station discontinued Nov. 2, 1950. October 1950: 7.32 cfs; 450 acre-ft.

118. Nisqually River at McKenna, Wash.

Location (revised).--Lat 46°56'00", long. 122°33'35", in SE¹/₄ sec. 28, T. 17 N., R. 2 E., on left bank 100 ft downstream from highway bridge at McKenna and 9.0 miles downstream from Tanwax Creek.

Drainage area.--51.7 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 275 ft (from river-profile map).

Extremes.--1947-50: Maximum discharge, 12,200 cfs Nov. 28, 1949 (gage height, 8.41 ft); minimum, 42 cfs Sept. 19, 1948 (gage height, 0.98 ft).

Remarks.--Flow regulated by Alder Reservoir at Alder and La Grande Reservoir at La Grande (see elsewhere in this report). Yelm Irrigation District Canal diverts up to 70 cfs during summer months 12.9 miles above station, and Centralia power canal diverts an average of 360 cfs 4.4 miles above station for irrigation and power below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	*1,582	2,867	2,126	2,861	2,279	2,330	1,666	2,351	1,854	686	493	449	*1,795
1949	971	1,621	2,990	1,449	2,269	2,096	1,796	2,859	1,174	629	447	508	1,548
1950	672	1,872	3,336	3,132	2,741	3,398	1,910	1,837	1,694	1,135	648	635	1,931

* Not previously published; partly estimated on the basis of records for Nisqually River near McKenna and Centralia power canal.

NISQUALLY RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Nisqually River at McKenna, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	97,260	171,800	130,700	175,900	151,100	143,300	99,160	144,600	110,300	42,200	30,310	26,720	*1,303,000
1949	59,690	96,430	133,900	89,110	126,000	128,900	107,000	163,500	69,830	38,670	27,460	30,240	1,121,000
1950	41,330	111,400	205,100	192,600	152,200	208,900	113,700	112,900	112,700	69,780	39,820	37,770	1,398,000

* Not previously published; see preceding footnote.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet		
		Discharge	Date							
1948	1122	11,500	Jan. 2, 1948	*128	*1,795	*1,303,000	1,713	1,244,000		
1949	1152	9,170	Dec. 9, 1948	109	1,548	1,121,000	1,573	1,139,000		
1950	1182	12,200	Nov. 28, 1949	135	1,931	1,398,000	-	-		

* Not previously published.

119. Muck Creek near Loveland, Wash.

Location.--Lat 47°00'55", long. 122°25'15", on west line sec. 27, T. 18 N., R. 3 E., on right bank at county road crossing, 1 mile upstream from South Creek, and 3½ miles south of Loveland.

Drainage area.--16.9 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 410 ft (from topographic map).

Extremes.--July to October 1949: Maximum discharge, 8.0 cfs Sept. 4 (gage height, 1.09 ft); minimum, 1.6 cfs July 23 (gage height, 0.68 ft).

Remarks.--Small diversion for domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1949							2.98	3.17	3.84	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1949							183	195	229	-			

CHAMBERS CREEK BASIN

120. Clover Creek near Tillicum, Wash.

Location.--Lat 47°08'40", long. 122°30'10", on west line sec. 12, T. 19 N., R. 2 E., on right bank 1½ miles upstream from mouth and 2½ miles northeast of Tillicum.

Drainage area.--70.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 270 ft (from topographic map).

Extremes.--1949-50: Maximum discharge recorded, 290 cfs Mar. 6, 1950 (gage height, 4.20 ft); no flow Oct. 20-26, 29, Nov. 1-9, 1949.

Remarks.--Some diversion for domestic use and by Air Force base above station. No known regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	-	8.53	3.05	1.07	-
1950	0.23	4.01	27.4	124	128	192	121	65.7	37.5	19.9	11.4	6.37	61.1

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	-	525	187	63	-
1950	14	239	1,680	7,600	7,110	11,800	7,180	4,040	2,230	1,220	702	379	44,190

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1949	1152	-	-	0.3	-	-	-	-	-	-	-
1950	1182	290	Mar. 6, 1950	0	61.1	0.87	11.80	44,190	-	-	-

121. Chambers Creek at Steilacoom Lake, near Steilacoom, Wash.

Location.--Lat 47°10'45" (revised), long. 122°32'00", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 34, T. 20 N., R. 2 E., on right bank 450 ft downstream from outlet of Steilacoom Lake and 3 miles northeast of Steilacoom.

Drainage area.--78.4 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 190 ft (from topographic map).

Extremes.--1938-40: Maximum discharge, 120 cfs sometime during period Mar. 8-12, 1940 (gage height, 2.13 ft, from recorded range in stage); minimum recorded, 0.7 cfs Nov. 26-28, 1938; minimum gage height recorded, 0.43 ft Oct. 23-29, 1938.

Remarks.--Some small diversions for domestic use and irrigation above station. Flow regulated by gates at outlet of Steilacoom Lake.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	14.7	10.1	15.2	44.5	88.8	111	76.6	47.9	18.9	15.2	10.2	5.77	38.0
1940	16.7	10.8	12.0	41.8	86.8	104	78.0	71.6	42.6	23.7	13.1	14.5	41.2

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	904	602	932	2,740	4,930	6,840	4,560	2,950	1,130	936	630	344	27,500
1940	1,020	632	738	2,570	3,930	5,390	4,640	4,400	2,540	1,480	805	861	29,890

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1939	882	118	Mar. 2-4, 1939	0.7	38.0	27,500	37.9	27,450	
1940	902	120	(a)	1.3	41.2	29,890	-	-	

* Not previously published.

a During period Mar. 8-12, 1940.

122. Chambers Creek below Leach Creek, near Steilacoom, Wash.

Location.--Lat 47°11'55", long. 122°31'40", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 27, T. 20 N., R. 2 E., on left bank a quarter of a mile downstream from Leach Creek, $\frac{1}{2}$ miles downstream from outlet of Steilacoom Lake, and 4 miles (revised) northeast of Steilacoom.

Drainage area.--104 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Average discharge.--9 years (1938-40, 1943-50), 109 cfs.

Extremes.--1937-40, 1943-50: Maximum discharge, 611 cfs Mar. 4, 1950; maximum gage height, 3.32 ft Dec. 29, 1937 (from recorded range in stage); minimum discharge, 34 cfs Aug. 16, 1940, Aug. 30, Oct. 25, 1944.

Remarks.--Some diversions from tributaries for domestic use and for use at Air Force above station. Partly regulated at outlet of Steilacoom Lake.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	343	289	224	220	178	108	80.9	67.1	77.6	-
1939	57.3	65.6	76.3	109	182	193	137	101	87.9	52.5	45.5	44.9	93.8
1940	55.0	47.6	63.0	86.5	123	186	135	130	85.5	60.5	47.0	56.2	89.5
1943	-	-	-	-	-	-	-	-	-	-	48.4	46.4	-
1944	57.3	49.5	52.9	67.9	98.7	88.4	63.1	60.4	51.5	40.9	40.0	42.4	59.3
1945	38.6	43.5	40.5	43.7	93.4	124	134	95.1	83.0	56.1	42.0	48.6	69.9
1946	49.5	61.1	82.6	217	257	256	201	127	101	75.0	54.9	50.1	127
1947	49.4	66.3	159	166	245	181	158	110	88.1	67.8	56.9	55.4	116
1948	66.9	71.5	89.2	204	186	237	213	201	126	101	94.6	79.7	139
1949	75.8	80.9	212	180	200	211	169	110	81.0	58.4	45.6	51.5	123
1950	46.1	53.7	94.7	265	278	448	270	175	113	79.9	66.0	59.7	162

CHAMBERS CREEK BASIN

Monthly and yearly runoff, in acre-feet, of Chambers Creek below Leach Creek, near Steilacoom, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	21,110	14,980	13,790	13,090	10,850	6,430	4,970	4,130	4,620	-
1939	3,520	3,900	4,690	6,680	10,130	11,900	8,140	6,230	4,040	3,230	2,790	2,670	67,920
1940	3,380	2,830	3,890	5,320	7,050	11,450	8,010	8,010	5,090	3,720	2,890	3,340	64,970
1943	-	-	-	-	-	-	-	-	-	-	2,980	2,760	-
1944	3,520	2,950	3,250	4,170	5,680	6,440	3,750	3,710	3,070	2,510	2,460	2,520	43,030
1945	2,380	2,590	2,490	2,690	5,190	7,610	7,960	5,850	4,940	3,450	2,580	2,890	50,620
1946	3,040	3,640	5,080	13,340	14,280	15,730	11,990	7,800	5,990	4,610	3,380	2,980	91,860
1947	3,040	3,940	9,780	10,220	13,630	11,100	9,370	6,790	5,240	4,170	3,500	3,290	84,070
1948	4,110	4,260	5,490	12,550	10,690	14,590	12,660	12,340	7,500	6,220	5,820	4,740	101,000
1949	4,680	4,810	13,060	11,090	11,110	12,970	10,030	6,770	4,820	3,590	2,800	3,070	89,780
1950	2,830	3,200	5,830	16,270	15,440	27,550	16,070	10,780	6,740	4,910	4,060	3,550	117,200

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1938	882	#461	Dec. 29, 1937	#62	-	-	146	106,100
1939	882	#278	(a)	41	93.8	67,920	91.0	65,900
1940	902	#263	(b)	37	89.5	64,970	-	-
1943	1012	-	-	-	-	-	-	-
1944	1012	128	Feb. 6, 1944	38	59.3	43,030	56.2	40,770
1945	1042	166	Apr. 8, 1945	35	69.9	50,620	75.9	54,920
1946	1062	348	Jan. 7, 1946	42	127	91,860	134	96,860
1947	1092	323	Feb. 2, 1947	46	116	84,070	112	81,170
1948	1122	281	Jan. 14, 1948	52	139	101,000	151	109,600
1949	1152	321	Feb. 17 or 18, 1949	43	123	88,780	108	78,110
1950	1182	611	Mar. 4, 1950	37	162	117,200	-	-

* Not previously published.

a Between Mar. 2 and 4, 1939.

b Between Mar. 8 and 12, 1940.

PUYALLUP RIVER BASIN

123. Puyallup River near Electron, Wash.

Location.--Lat 46°54'10", long. 122°02'00", in NW¹/₄ sec. 3, T. 16 N., R. 6 E., on left bank 1,000 ft upstream from Puget Sound Power and Light Co.'s flume headworks, a quarter of a mile downstream from Mowich River, and 10 miles southeast of Electron.

Drainage area.--92.8 sq mi (revised).

Supplemental records available.--Monthly discharge only for October 1926 to September 1933 published in State of Washington Water-Supply Bulletin No. 5.

Gage.--Water-stage recorder. Altitude of gage is 1,640 ft (from river-profile map). Jan. 1, 1909, to Dec. 31, 1912, staff gage and Jan. 1, 1913, to Sept. 30, 1926, water-stage recorder at different datums.

Average discharge.--23 years (1908-26, 1944-49), 516 cfs (revised).

Extremes.--1909-26, 1944-49: Maximum discharge, 9,160 cfs Dec. 11, 1946 (gage height, 8.75 ft); minimum not determined, probably occurred during period of ice effect December 1914 or December 1922.

Remarks.--No diversion or regulation above station.

Cooperation.--Records for October 1923 to September 1926 furnished by Puget Sound Power and Light Co.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	280	350	260	418	273	205	217	380	724	542	451	361	372
1910	224	944	368	264	251	671	477	533	413	554	437	296	453
1911	615	873	426	319	163	230	254	448	821	766	483	390	484
1912	214	660	352	694	515	183	264	632	950	762	723	516	538
1913	331	654	396	442	262	168	261	522	*1,030	916	701	548	*520
1914	446	408	253	624	280	449	508	517	548	681	574	370	474
1915	399	715	174	215	201	243	451	385	452	635	727	300	409
1916	476	592	598	241	660	753	436	505	882	962	693	413	601
1917	224	364	338	328	418	198	395	590	1,170	1,260	746	461	541
1918	290	236	*1,880	*1,070	498	295	359	462	842	738	655	537	*659
1919	419	312	*618	*837	324	248	504	*634	*619	*761	*612	552	*529
1920	205	*600	*523	*594	269	254	316	451	637	665	567	589	*473

* Revised.

PUYALLUP RIVER BASIN

109

Monthly and yearly mean discharge, in cubic feet per second, of Puyallup River near Electron, Wash.—
Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	*645	391	*511	*614	*756	504	421	559	*1,000	661	548	325	*577
1922	341	478	*951	*203	154	146	265	625	953	653	574	438	*484
1923	290	233	431	*920	230	248	394	593	759	830	586	417	*497
1924	361	275	421	450	709	221	272	646	487	593	536	373	445
1925	347	596	707	489	576	299	488	789	658	775	580	386	558
1926	280	291	843	468	488	431	386	465	508	639	556	340	474
1945	325	326	368	733	534	298	357	909	664	626	541	503	518
1946	359	591	600	530	382	419	452	868	902	822	595	338	573
1947	503	636	1,028	559	523	346	520	588	673	512	368	376	553
1948	844	956	600	503	443	297	365	838	1,157	634	512	379	627
1949	384	579	431	213	407	418	535	995	797	664	472	369	523

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	17,200	20,800	16,000	25,700	15,200	12,600	12,900	23,400	43,100	33,300	27,700	21,500	269,000
1910	13,800	56,200	22,600	16,200	13,900	41,300	26,400	32,800	24,600	34,100	26,900	17,600	328,000
1911	37,800	51,900	26,200	19,600	9,050	14,100	15,100	27,500	48,900	47,100	29,700	23,200	350,000
1912	13,200	39,300	21,600	42,700	29,600	11,300	15,700	36,900	56,500	46,900	44,500	30,700	391,000
1913	20,400	38,900	24,300	27,200	14,600	10,300	15,500	32,100	*61,300	56,300	43,100	32,600	*377,000
1914	27,400	24,300	15,600	38,400	16,100	27,600	30,200	31,800	32,600	41,900	35,300	22,000	343,000
1915	24,500	42,500	10,700	13,200	11,200	14,900	26,800	23,700	26,900	39,000	44,700	17,900	296,000
1916	29,300	35,200	36,800	14,800	38,000	46,300	25,900	31,100	52,500	59,200	42,600	24,600	436,000
1917	17,800	21,700	20,800	20,200	23,200	12,200	23,500	36,300	69,600	77,500	45,900	27,400	392,000
1918	17,800	14,000	*16,000	*65,800	27,700	18,100	21,400	28,400	50,100	45,400	40,300	32,000	*477,000
1919	25,800	18,600	*36,000	*51,500	18,000	15,200	30,000	*39,000	*36,800	*46,800	*37,600	20,900	*378,000
1920	12,600	*35,700	*32,200	*36,500	15,500	15,600	18,800	27,700	37,900	40,900	34,900	35,000	*343,000
1921	*39,700	23,500	*31,400	*37,800	*42,000	31,000	25,100	34,400	*59,500	40,600	33,700	19,300	*418,000
1922	21,000	28,400	*58,500	12,500	8,550	9,980	15,800	38,400	56,700	40,200	35,300	26,100	*350,000
1923	17,800	15,900	28,500	*56,600	12,800	15,200	23,400	36,500	45,200	51,000	36,000	24,800	*360,000
1924	22,200	16,400	25,900	27,700	40,800	13,600	16,200	39,700	29,000	36,500	33,000	22,200	*323,000
1925	21,300	35,500	43,500	30,100	32,000	18,400	29,000	48,500	39,200	47,700	35,700	23,000	404,000
1926	16,000	17,300	51,800	28,800	27,100	26,500	23,000	28,600	30,200	39,300	34,200	20,200	343,000
1945	19,990	19,420	23,870	45,080	29,630	18,320	21,260	55,890	39,530	36,490	33,250	29,950	374,700
1946	22,060	37,180	36,910	32,560	21,190	25,730	26,890	53,370	53,680	50,520	36,570	20,110	414,800
1947	30,910	35,830	63,230	34,360	29,020	21,260	30,960	36,150	40,030	31,490	22,630	22,390	400,300
1948	51,900	56,860	36,890	30,960	25,490	18,280	21,730	51,510	68,850	38,990	31,460	22,560	455,500
1949	23,580	34,480	26,490	13,100	22,620	25,720	31,860	61,190	47,420	40,840	29,040	21,980	378,500

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

Year	W. S. P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-foot		Inches	Acres-foot
1909	312,492	-	-	165	372	4.01	54.43	269,000	425	62.23	308,000
1910	312	a2,490	Nov. 23, 29, 1909	120	453	4.88	66.24	328,000	486	71.06	352,000
1911	312	a3,200	Nov. 10, 1910	130	484	5.22	70.86	350,000	426	62.31	308,000
1912	332	a4,300	Nov. 19, 1911	147	538	5.80	78.93	391,000	*551	80.87	400,000
1913	1346,362	*2,390	Dec. 29, 1912	125	*520	*5.60	*76.12	*377,000	*498	*72.60	*360,000
1914	392	2,610	Jan. 4, 1914	174	474	5.11	69.33	343,000	488	71.40	354,000
1915	412	2,070	Nov. 2, 1914	112	409	4.41	59.83	296,000	441	64.48	320,000
1916	442	*3,440	Dec. 21, 1915	173	601	6.48	88.12	436,000	539	79.08	391,000
1917	462	*2,080	July 16, 1917	157	541	5.83	79.13	392,000	*667	*97.61	*484,000
1918	1346,482	*7,700	Dec. 18, 1917	158	*659	*7.10	*96.34	*477,000	*568	*83.14	*412,000
1919	1346,512	*6,540	Jan. 23, 1919	164	*522	*5.62	*76.40	*378,000	*520	*76.04	*376,000
1920	1346,512	*2,720	Dec. 24, 1919	136	*473	*5.10	*69.36	*343,000	*492	*72.16	*357,000
1921	1346,532	*3,750	Dec. 30, 1920	180	*577	*6.22	*84.41	*418,000	*596	*87.14	*431,000
1922	1346,552	*6,980	Dec. 12, 1921	120	*484	*5.22	*70.78	*350,000	415	60.75	301,000
1923	1346,572	*5,810	Jan. 6, 1923	-	*497	*5.36	*72.69	*350,000	*506	*73.85	*366,000
1924	592	3,350	Jan. 31, 1924	158	445	4.80	65.28	*323,000	*535	*72.55	359,000
1925	612	2,830	Dec. 11, 1924	176	558	6.01	81.58	404,000	537	78.60	389,000
1926	632	2,740	Dec. 23, 1925	169	474	5.11	69.29	343,000	-	-	-
1945	1042	4,590	Feb. 7, 1945	184	518	5.58	75.70	374,700	560	81.94	405,600
1946	1082	3,630	Dec. 28, 1945	220	573	6.17	83.81	414,800	625	91.45	452,600
1947	1092	9,160	Dec. 11, 1946	162	553	5.96	80.87	400,300	572	83.64	413,900
1948	1122	6,580	(b)	194	627	6.76	92.02	455,500	543	79.68	394,400
1949	1152	3,320	Nov. 23, 1948	150	523	5.64	76.44	378,300	-	-	-

* Revised.

† Corrected.

* Not previously published.

a Maximum observed.

b Probably occurred Nov. 7, 1947.

PUYALLUP RIVER BASIN

124. Puyallup River at Electron, Wash.

Location (revised).--Lat 46°59'45" N, long. 122°10'30" W, in NE¼ sec. 4, T. 17 N., R. 5 E., on left bank a quarter of a mile downstream from Electron powerplant, three-quarters of a mile east of Electron, and 1½ miles upstream from Fox Creek.

Drainage area.--131 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 630 ft (from river-profile map).

Extremes.--July to October 1946: Maximum discharge, 1,410 cfs Oct. 20 (gage height, 4.19 ft); minimum, 58 cfs Oct. 16, 19 (gage height, 1.48 ft).

Remarks.--Flow regulated by powerplant a quarter of a mile above station; all water diverted upstream returned to river above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1946							-	583	344	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1946							-	35,820	20,460	-			

125. Kapowsin Creek near Kapowsin, Wash.

Location (revised).--Lat 46°59'30" N, long. 122°11'30" W, in NE¼ sec. 5, T. 17 N., R. 5 E., on right bank half a mile downstream from Kapowsin Lake and 1½ miles east of Kapowsin.

Drainage area.--23 sq mi, approximately.

Gage.--Water-stage recorder and wooden control. Datum of gage is 561 ft above mean sea level (stadia traverse). June 10, 1927, to Oct. 7, 1932, water-stage recorder at datum 3.23 ft higher. Oct. 1, 1941, to Mar. 31, 1942, staff gage at present datum.

Average discharge.--14 years (1927-32, 1941-50), 48.2 cfs.

Extremes.--1927-32, 1941-50: Maximum discharge, 605 cfs Dec. 12, 1946 (gage height, 5.69 ft); maximum gage height, 5.83 ft Dec. 12, 1946 (backwater from debris); minimum discharge, 1.2 cfs part of each day July 30 to Aug. 3, 1945.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1927	-	-	-	-	-	-	-	-	*31.5	11.3	5.47	13.9	-
1928	62.4	137	96.6	136	45.6	106	129	62.1	18.4	14.8	5.08	3.36	68.2
1929	20.9	22.8	43.4	52.6	41.0	86.0	77.4	67.6	45.3	13.3	4.55	4.39	39.9
1930	5.88	7.76	46.0	36.4	125	69.0	44.4	32.2	22.3	6.85	2.33	2.30	32.8
1931	5.92	20.4	22.6	61.8	50.0	51.2	102	22.9	31.5	18.1	4.62	8.02	33.1
1932	19.9	61.2	54.2	76.2	94.5	166	95.1	40.1	13.7	8.30	5.45	3.80	53.1
1942	27.7	73.6	135	59.0	58.6	45.3	32.4	41.3	69.4	22.5	6.45	3.34	47.8
1943	5.02	83.0	96.7	65.1	95.2	43.0	79.3	34.4	35.7	11.7	5.12	5.01	46.1
1944	15.3	14.6	43.9	45.9	48.6	41.4	34.9	23.8	15.4	5.68	3.80	5.16	24.8
1945	7.56	19.9	26.8	65.5	71.3	74.0	80.8	58.0	25.3	4.54	2.30	7.19	36.7
1946	10.2	74.2	86.0	133	120	112	55.3	26.4	47.8	34.2	6.87	12.1	59.5
1947	25.8	102	181	101	77.2	44.5	64.0	21.8	20.4	12.7	4.80	4.84	54.8
1948	27.0	82.3	77.5	96.1	98.1	95.9	86.9	85.4	41.1	17.3	12.2	16.0	61.2
1949	33.1	85.5	169	43.7	115	71.4	49.2	43.4	10.1	6.24	4.95	6.03	52.7
1950	11.2	49.9	106	140	151	149	85.2	43.7	16.5	6.93	5.24	4.38	63.9

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1927	-	-	-	-	-	-	-	-	*1,870	695	336	827	-
1928	3,840	8,150	5,940	8,360	2,620	6,520	7,680	3,820	1,090	919	312	200	49,400
1929	1,290	1,360	2,670	3,230	2,280	5,290	4,610	4,160	2,700	818	280	261	28,900
1930	362	462	2,630	2,240	6,940	4,240	2,640	1,980	1,330	421	143	137	23,700
1931	364	1,210	1,390	3,800	2,780	3,150	6,070	1,410	1,870	1,110	284	477	23,900
1932	1,220	3,640	3,330	4,690	5,440	10,200	5,660	2,470	815	510	335	226	38,500
1942	1,700	4,380	8,280	3,630	3,250	2,790	1,930	2,540	4,130	1,380	396	199	34,600
1943	309	4,940	5,940	4,000	5,290	2,640	4,720	2,110	1,240	718	315	298	33,400
1944	939	867	2,700	2,820	2,790	2,550	2,080	1,470	914	349	233	307	18,020
1945	465	1,190	1,650	4,030	3,960	4,550	4,610	3,560	1,510	279	141	428	26,570
1946	627	4,420	5,290	8,170	6,690	6,860	3,290	1,620	2,840	2,100	422	718	43,050
1947	1,580	6,080	11,100	6,210	4,290	2,740	3,610	1,340	1,210	781	295	288	39,700
1948	1,850	4,900	4,770	5,910	5,640	5,900	5,170	5,250	2,440	1,060	750	949	44,400
1949	2,030	4,970	10,420	2,690	6,390	4,390	2,930	2,670	803	383	304	359	38,140
1950	687	2,970	6,650	8,640	8,370	9,180	5,070	2,690	982	426	322	280	46,250

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second, of Kapowsin Creek near Kapowsin, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Runoff		Mean	Runoff Acres-foot
		Discharge	Date								
1927	652	-	-	-	-	-	-	-	-	-	-
1928	672	302	Jan. 4, 1928	2.5	68.2	2.97	40.36	49,400	50.7	30.05	36,800
1929	692	149	Mar. 29, 1929	3.5	39.9	1.73	23.57	28,900	37.7	22.22	27,300
1930	707	189	Feb. 15, 1930	1.6	32.8	1.43	19.35	23,700	31.8	18.79	23,000
1931	722	283	Apr. 2, 1931	2.3	33.1	1.44	19.52	23,900	40.3	23.78	29,100
1932	737	393	Mar. 6, 1932	2.7	53.1	2.31	31.41	38,500	-	-	-
1942	962	546	Dec. 19, 1941	2.3	47.8	2.08	28.21	34,600	43.4	25.62	31,430
1943	982	324	Nov. 24, 1942	-	46.1	2.00	27.24	33,400	36.9	21.80	26,720
1944	1012	168	Dec. 4, 1943	2.9	24.8	1.08	14.68	18,020	23.2	13.70	16,820
1945	1042	160	Apr. 11, 1945	1.2	36.7	1.60	21.68	26,570	46.4	27.40	33,600
1946	1062	397	Jan. 5, 1946	5.6	59.5	2.59	35.08	43,050	71.1	41.94	51,450
1947	1092	605	Dec. 12, 1946	3.0	54.8	2.38	32.36	39,700	44.6	26.31	32,290
1948	1122	260	Feb. 26, 1948	4.7	61.2	2.66	36.20	44,400	69.6	41.17	50,490
1949	1152	417	Dec. 10, 1948	4.3	52.7	2.29	31.08	38,140	42.8	25.28	31,030
1950	1182	430	Feb. 26, 1950	2.9	63.9	2.78	37.68	46,250	-	-	-

† Corrected.

126. Puyallup River near Orting, Wash.

Location (revised).--Lat 47°02'20", long. 122°12'25", in SW¹/₄SW¹/₄ sec. 17, T. 18 N., R. 5 E., on right bank 600 ft downstream from highway bridge, 4 miles south of Orting, and 9 miles upstream from Carbon River.

Drainage area.--172 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 357.5 ft above mean sea level, unadjusted. Prior to Feb. 6, 1946, water-stage recorder 600 ft upstream at datum 3.93 ft higher. March 1942 to February 1946, auxiliary water-stage recorder 200 ft upstream at datum 2.1 ft higher than present base gage datum, used to supplement base gage at times of doubtful record.

Average discharge.--19 years (1931-50), 699 cfs (revised).

Extremes.--1931-50: Maximum discharge, 12,800 cfs Dec. 10, 1933 (gage height, 11.87 ft, from recorded range in stage), from rating curve extended above 3,300 cfs; minimum, 53 cfs Mar. 16, 1941; minimum daily, 123 cfs Dec. 4, 1936.

Remarks.--Water diverted for Electron powerplant is returned to river above station. Some regulation by Electron powerplant.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	-	-	-	-	-	-	-	-	-	-	-	303	-
1932	471	588	494	696	893	1,270	858	743	965	745	504	362	715
1933	462	1,850	1,000	1,060	354	644	540	790	1,270	1,240	724	439	866
1934	1,038	1,046	3,015	2,314	635	794	645	530	311	546	532	330	985
1935	752	1,346	1,002	1,170	649	556	453	556	833	693	483	371	739
1936	270	256	303	927	470	697	791	1,282	1,275	615	449	283	636
1937	235	153	685	205	481	674	936	815	1,373	913	474	446	607
1938	373	1,299	1,041	880	397	477	866	772	698	708	495	443	705
1939	332	596	826	777	753	659	571	744	828	774	595	369	652
1940	242	323	1,040	463	905	749	586	719	515	515	509	466	587
1941	461	545	577	439	285	266	378	494	512	566	533	511	465
1942	599	816	1,138	455	436	353	454	700	1,120	925	670	409	675
1943	318	973	946	475	685	530	761	537	711	686	455	498	630
1944	411	354	767	470	480	417	399	601	701	608	497	527	528
1945	364	396	468	956	819	581	620	1,131	770	690	597	532	660
1946	378	838	898	925	743	755	614	892	1,075	910	603	381	751
1947	617	941	1,663	974	752	501	701	675	715	529	410	445	744
1948	1,056	1,365	887	885	780	576	572	1,057	1,263	673	562	439	843
1949	496	874	944	331	772	591	657	1,092	790	620	468	387	668
1950	485	831	799	890	1,167	1,151	722	730	1,176	960	586	403	923

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	-	-	-	-	-	-	-	-	-	-	-	18,000	-
1932	29,000	35,000	30,400	42,800	51,400	78,100	51,100	45,700	57,400	45,800	31,000	21,500	519,000
1933	28,400	10,000	61,500	65,200	19,700	39,600	32,100	48,600	75,600	76,200	44,500	26,100	628,000
1934	63,800	62,240	85,400	42,300	35,250	48,840	38,380	32,590	18,490	33,560	32,690	19,650	713,200
1935	46,250	80,120	61,640	71,950	36,050	34,190	26,980	34,210	49,570	42,630	29,730	22,680	535,400
1936	16,620	15,210	18,640	56,980	27,050	42,830	47,040	78,850	75,890	37,800	27,590	16,860	461,400
1937	14,470	9,120	42,020	12,620	26,730	41,430	55,670	50,140	81,730	50,010	29,160	26,570	743,900
1938	22,960	77,300	63,980	54,130	22,040	29,340	51,550	47,440	41,510	43,520	30,440	26,350	510,600
1939	20,420	35,470	50,790	47,800	41,840	40,520	33,980	45,770	49,280	47,590	36,590	21,980	472,000
1940	14,910	19,190	63,950	28,450	52,060	46,050	34,840	44,190	30,620	31,660	31,270	28,900	426,100

† Corrected.

Monthly and yearly runoff, in acre-feet, of Puyallup River near Orting, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	28,370	32,420	35,490	26,970	15,830	16,340	22,460	30,360	30,460	34,780	32,780	30,430	336,700
1942	36,840	48,570	69,950	27,980	24,190	21,690	27,000	45,040	66,630	56,870	41,230	24,360	488,400
1943	19,540	57,870	58,140	29,200	38,060	32,580	45,280	33,020	42,290	42,170	27,990	29,650	455,800
1944	25,290	21,090	47,190	28,910	27,610	25,640	23,730	36,970	41,720	37,390	30,560	37,300	383,400
1945	22,370	23,540	28,760	58,760	45,480	35,700	36,900	69,550	45,840	42,400	36,720	31,650	477,700
1946	23,250	49,850	55,220	56,870	41,250	46,420	36,520	54,850	63,970	55,960	37,080	22,660	543,900
1947	37,930	55,980	102,300	59,880	41,750	30,820	41,740	41,530	42,530	32,540	25,190	26,450	538,600
1948	64,950	81,200	54,550	54,420	44,860	35,440	34,040	64,960	75,150	41,380	34,590	26,100	611,600
1949	30,510	52,020	58,020	20,360	42,860	36,350	39,100	67,130	47,030	38,140	28,780	23,050	493,400
1950	29,850	49,450	49,120	54,730	64,790	70,750	42,980	44,910	70,000	59,000	36,040	24,000	596,600

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1931	737	-	-	-	-	-	-	-	-	-	-
1932	737	6,950	Feb. 28, 1932	164	715	4.16	56.61	519,000	861	68.10	625,000
1933	752	11,800	Nov. 13, 1932	182	866	5.03	68.35	628,000	1,020	80.53	739,000
1934	767,962	*12,800	Dec. 10, 1933	188	985	5.73	77.74	713,200	815	64.29	589,800
1935	792	8,900	Nov. 5, 1934	171	739	4.30	58.36	535,400	550	43.37	397,800
1936	812	4,850	June 7, 1936	147	636	3.70	50.29	461,400	656	51.95	476,500
1937	932	4,640	Apr. 14, 1937	123	607	3.53	47.93	7439,700	744	58.68	538,300
1938	932	8,680	Apr. 18, 1938	192	705	4.10	55.66	510,600	626	49.38	455,000
1939	932	5,110	Feb. 15, 1939	192	652	3.79	51.46	472,000	640	50.51	463,400
1940	932	5,600	Dec. 15, 1939	134	587	3.41	46.45	426,100	585	46.26	424,300
1941	932	5,600	Nov. 29, 1940	207	465	2.70	36.70	336,700	547	43.14	395,800
1942	962	6,700	Dec. 19, 1941	214	675	3.92	53.24	488,400	647	51.08	468,500
1943	962	7,450	Nov. 23, 1942	162	630	3.66	49.69	455,800	572	45.11	413,800
1944	1012	5,800	Dec. 3, 1943	206	528	3.07	41.80	383,400	502	39.73	364,500
1945	1042	5,240	Jan. 7, 1945	224	660	3.84	52.07	477,700	734	57.92	531,300
1946	1062	5,530	Dec. 28, 1945	178	751	4.37	59.29	543,900	845	66.69	611,800
1947	1092	11,200	Dec. 11, 1946	165	744	4.33	58.72	538,600	750	59.21	543,100
1948	1122	8,300	Nov. 7, 1947	256	843	4.90	66.68	611,600	760	60.12	551,500
1949	1152	4,720	Feb. 17, 1949	240	668	3.88	52.69	483,400	651	51.37	471,200
1950	1182	9,720	Nov. 27, 1949	234	823	4.78	64.93	595,600	-	-	-

* Corrected.

† Not previously published

127. Carbon River near Fairfax, Wash. 1/

Location (revised).--Lat 47°01'40", long. 122°01'50", in SW 1/4 sec. 22, T. 18 N., R. 6 E., on left bank $1\frac{1}{2}$ miles upstream from highway bridge, $1\frac{1}{2}$ miles northwest of Fairfax, and $2\frac{1}{2}$ miles downstream from Evans Creek.

Drainage area.--78.9 sq mi (revised). At site prior to August 1912, 76.2 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 1.212.6 ft above mean sea level (river-profile survey). Nov. 23, 1910, to July 12, 1912, staff gage 1.7 miles upstream at different datum.

Average discharge.--21 years (1929-50), 412 cfs (revised).

Extremes.--1910-12, 1929-50: Maximum discharge, 11,000 cfs (revised) Dec. 9, 1933 (gage height, 10.2 ft), from rating curve extended above 700 cfs; minimum (revised), 46 cfs Nov. 21, 22, 1929.

Remarks.--Divisions by lumber industry returned to river above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	392	260	120	191	202	356	628	567	400	287	-
1912	121	668	264	650	586	153	264	778	950	-	-	-	-
1929	-	-	-	-	-	-	256	599	668	533	416	229	-
1930	201	59.0	270	*142	680	322	401	395	454	347	239	158	304
1931	182	167	129	380	212	298	437	474	559	368	251	185	304
1932	316	405	321	348	410	684	534	546	676	510	283	162	433
1933	371	1,138	512	519	151	296	324	529	867	702	406	309	*512
1934	629	549	*1,952	*948	336	570	522	505	360	338	267	183	*601
1935	*495	624	4,960	630	369	309	270	417	572	491	284	211	*431
1936	134	163	205	525	185	336	507	854	834	450	273	196	389
1937	140	80.3	416	110	194	348	468	619	957	547	292	265	370
1938	237	1,074	554	540	171	248	577	543	506	355	227	181	435
1939	190	409	545	454	301	377	418	603	638	514	298	191	412
1940	192	256	620	250	511	441	357	537	310	264	241	200	348

* Revised.

1/ Published as "at Fairfax", 1910-12.

PUYALLUP RIVER BASIN

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Monthly and yearly mean discharge, in cubic feet per second, of Carbon River near Fairfax, Wash.--

Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	244	362	351	247	141	143	241	346	336	332	235	323	276
1942	395	361	543	259	205	176	308	511	789	576	436	184	397
1943	171	614	572	310	408	244	523	431	683	582	270	205	417
1944	147	185	487	230	229	237	253	443	460	327	243	310	296
1945	188	188	327	652	417	242	359	853	569	413	262	333	401
1946	282	522	494	484	378	374	412	682	707	564	285	166	445
1947	358	502	802	488	400	307	453	553	588	417	220	247	445
1948	676	707	421	354	363	229	309	645	900	455	338	236	469
1949	275	410	414	212	362	329	463	846	651	550	361	262	428
1950	404	754	516	415	461	566	471	565	882	734	447	247	539

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	24,100	16,000	6,660	11,700	12,000	21,900	37,400	34,900	24,600	17,100	-
1912	7,440	39,700	16,200	40,000	33,700	9,410	15,700	47,800	56,500	-	-	-	-
1929	-	-	-	-	-	-	15,200	36,800	39,700	32,800	25,600	13,600	-
1930	12,400	3,510	16,600	*8,750	37,800	19,800	23,900	24,300	27,600	21,300	14,700	9,400	220,000
1931	11,200	9,940	7,930	23,400	11,800	18,300	26,000	29,100	33,300	22,600	15,400	11,000	220,000
1932	19,400	24,100	19,700	21,400	23,600	42,100	31,800	33,600	40,200	31,400	17,400	9,640	314,000
1933	22,800	*67,700	31,500	31,900	8,390	18,200	19,300	32,500	51,600	43,200	25,000	18,400	*370,000
1934	38,650	32,690	*120,000	*58,260	18,640	35,050	31,060	31,030	21,430	20,770	16,420	10,870	*434,900
1935	*30,450	37,110	30,150	38,730	20,470	19,030	16,090	25,610	34,050	30,160	17,450	12,540	*311,800
1936	8,210	9,700	12,580	32,300	10,620	20,660	30,140	52,480	49,640	27,640	16,790	11,680	282,400
1937	8,610	4,780	25,550	6,760	10,770	21,420	27,860	38,060	56,960	33,660	17,930	15,770	268,100
1938	14,560	63,910	34,090	33,210	9,520	15,270	34,310	33,370	30,080	21,830	13,970	10,790	*314,900
1939	11,660	24,320	33,530	27,900	16,710	23,190	24,870	37,080	37,970	31,580	18,340	11,350	298,500
1940	11,830	15,210	38,120	15,360	29,370	27,140	21,250	33,010	18,470	16,210	14,840	11,910	252,700
1941	15,000	21,540	21,580	15,190	7,830	8,760	14,310	21,280	19,980	20,440	14,430	19,220	199,600
1942	24,320	21,500	33,420	15,910	11,400	10,800	19,340	31,450	46,970	35,440	26,800	19,930	287,300
1943	10,490	36,560	35,190	19,090	22,680	14,990	31,130	26,520	40,610	35,760	16,580	12,180	301,800
1944	9,030	11,010	29,920	14,120	13,150	14,580	15,050	27,240	27,400	20,110	14,960	18,440	215,000
1945	11,560	11,200	20,130	40,100	23,180	14,880	21,380	52,440	33,840	25,390	16,140	19,820	290,100
1946	17,310	31,040	30,360	28,550	21,010	22,990	24,520	41,960	42,080	34,680	17,520	9,890	321,900
1947	22,000	29,860	49,330	29,980	22,190	18,890	26,950	33,980	34,990	25,630	13,560	14,690	322,000
1948	41,580	42,070	25,890	21,760	20,980	14,070	19,360	39,660	53,540	27,960	20,770	14,070	340,600
1949	16,900	24,380	25,470	13,040	20,100	20,200	27,570	51,990	38,740	33,800	22,210	15,580	310,000
1950	24,820	44,860	31,710	25,550	25,610	34,820	28,030	34,740	52,460	45,120	27,460	14,690	389,900

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	-	-	-	-	-	-	-	-	60.46	-
1912	332	-	-	-	-	-	-	-	-	-	-
1929	692	-	-	-	-	-	-	-	-	-	-
1930	1286,707	1,770	Feb. 5, 1930	*46	304	3.85	52.27	220,000	299	51.45	217,000
1931	722	*2,950	Mar. 31, 1931	92	304	3.85	52.26	220,000	351	60.40	254,000
1932	737	*5,500	Feb. 26, 1932	94	433	5.49	74.69	314,000	*514	*88.66	*373,000
1933	1286,752	*7,100	Nov. 13, 1932	91	*512	*6.49	*68.02	*370,000	*608	*104.52	*440,000
1934	1286,767	*11,000	Dec. 9, 1933	106	*601	*7.62	*103.34	*434,900	*471	*81.08	*341,200
1935	1286,792	*6,500	Oct. 25, 1934	103	*431	*5.46	*74.11	*311,800	338	58.14	244,600
1936	812	2,550	June 7, 1936	83	389	4.93	67.12	282,400	401	69.13	290,900
1937	832	1,810	Apr. 14, 1937	68	370	4.69	63.72	268,100	472	81.22	341,800
1938	862	5,560	Apr. 18, 1938	79	435	5.51	74.84	*314,900	376	64.60	271,900
1939	892	2,640	Dec. 7, 1938	117	412	5.22	70.94	298,500	406	69.90	294,200
1940	902	1,810	May 1, 1940	106	348	4.41	60.06	252,700	338	58.39	245,700
1941	932	4,040	Nov. 29, 1940	100	276	3.50	47.42	199,600	305	52.44	220,700
1942	962	2,580	Dec. 19, 1941	100	397	5.03	68.27	287,300	401	68.98	290,300
1943	982	4,760	Nov. 23, 1942	84	417	5.29	71.72	301,800	372	64.04	269,500
1944	1012	5,020	Dec. 3, 1943	90	296	3.75	51.09	215,000	286	49.41	207,900
1945	1042	4,370	Jan. 7, 1945	83	401	5.08	68.93	290,100	450	77.44	325,900
1946	1062	4,500	Dec. 28, 1945	122	445	5.64	76.50	321,900	476	81.84	344,400
1947	1092	5,960	Dec. 11, 1946	119	445	5.64	76.53	322,000	456	78.52	330,400
1948	1122	4,330	Nov. 7, 1947	108	469	5.94	80.95	340,600	410	70.78	297,800
1949	1152	2,440	Nov. 23, 1948	130	428	5.42	73.67	310,000	476	81.90	344,600
1950	1182	3,750	Nov. 27, 1949	153	539	6.83	92.63	369,900	-	-	-

* Revised.

† Corrected.

128. Gale Creek at Wilkeson, Wash.

Location.--Lat 47°06'20", long. 122°02'45", near center of sec. 28, T. 19 N., R. 6 E., on right bank 75 ft upstream from highway bridge in Wilkeson and 4½ miles upstream from mouth.

Drainage area.--25.0 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 800 ft (from topographic map).

Extremes.--July to October 1949: Maximum discharge, 478 cfs Oct. 28 (gage height, 3.16 ft); minimum, 6.3 cfs Sept. 13 (gage height, 0.90 ft).

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1949							13.6	12.0	9.19	41.8		

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1949							838	739	547	2,570		

* Not previously published; partly estimated on the basis of records for nearby streams.

129. South Prairie Creek at South Prairie, Wash.

Location.--Lat 47°08'30", long. 122°05'30", in NE¼NW¼ sec. 18, T. 19 N., R. 6 E., on right bank 0.3 mile northeast (revised) of South Prairie and 5 miles upstream from mouth.

Drainage area.--78.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 430 ft (from topographic map).

Extremes.--1949-50: Maximum discharge, 2,930 cfs Dec. 28, 1949, Mar. 4, 1950; maximum gage height, 6.64 ft Mar. 4, 1950; minimum discharge, 35 cfs Sept. 22, 23, 1950 (gage height, 1.37 ft).

Remarks.--Minor diversion for domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	162	108	70.6	56.6	-
1950	171	343	449	390	507	527	371	243	263	130	67.5	55.2	292

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	9,660	6,630	4,340	3,370	-
1950	10,510	20,420	27,600	23,960	28,140	32,430	22,070	14,940	15,670	7,990	4,150	3,280	211,200

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1949	1152	-	-	-	-	-	-	-	-	-	-
1950	1182	2,930	(a)	35	292	3.72	50.37	211,200	-	-	-

a Dec. 28, 1949, Mar. 4, 1950.

130. Voight Creek near Crocker, Wash.

Location (revised).--Lat 47°04'10", long. 122°07'00", in SW $\frac{1}{4}$ sec. 1, T. 18 N., R. 5 E., on right bank $2\frac{1}{2}$ miles southeast of Crocker and $4\frac{1}{4}$ miles upstream from mouth.

Drainage area.--22.9 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 820 ft (from topographic map).

Extremes.--July to October 1949: Maximum discharge, 230 cfs Oct. 28 (gage height, 2.93 ft), from rating curve extended above 40 cfs; minimum, 7.2 cfs Sept. 7 (gage height, 0.97 ft).

Remarks.--Some diversions for domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1949							11.4	9.75	9.80	34.1			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1949							698	599	583	2,100			

131. Fennel Creek near McMillin, Wash.

Location.--Lat 47°09'10", long. 122°12'55", in NE $\frac{1}{4}$ sec. 7, T. 19 N., R. 5 E., on left bank a third of a mile upstream from mouth and 1.3 miles northeast of McMillin.

Drainage area.--12.5 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Extremes.--June to October 1949: Maximum discharge recorded, 29 cfs Oct. 28 (gage height, 1.58 ft); minimum, 8.7 cfs Sept. 20, 21, Oct. 2, 16, 17, 18.

Remarks.--Some diversion for domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1949						-	11.5	10.1	9.49	10.5			

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1949						-	706	624	564	1646			

* Not previously published; partly estimated on the basis of records for nearby streams.

132. Puyallup River at Alderton, Wash.

Location.--Lat 47°11'05", long. 123°13'45", on line between sec. 25, T. 20 N., R. 4 E., and sec. 30, T. 20 N., R. 5 E., on right bank at downstream side of bridge on State Highway 5E, 1 mile north of Alderton, 1 mile south of Sumner, and 2 miles upstream from Stuck River.

Drainage area.--438 sq mi.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, unadjusted. Prior to Aug. 5, 1918, staff gage at datum 50 ft higher. Aug. 5, 1918, to Feb. 1, 1927, staff or chain gages at datum 49 ft higher.

Average discharge.--19 years (1914-26, 1943-50), 1,586 cfs.

Extremes.--1914-27, 1943-50: Maximum discharge, 22,600 cfs Dec. 11, 1946 (gage height, 56.80 ft); minimum observed, 228 cfs Sept. 23, 1924.
Flood of 1906 reached a stage of 66.5 ft, from floodmarks (discharge not determined).

Remarks.--Minor diversions above station for irrigation and lumber industry. Slight regulation by powerplant at Electron.

Monthly and yearly mean discharge, in cubic feet per second, of Puyallup River at Alderton, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1915	1,190	2,980	657	1,040	671	865	1,330	1,090	1,210	1,380	1,310	607	1,190
1916	1,150	2,280	2,920	919	2,930	3,060	1,660	1,700	2,180	2,530	1,350	884	1,960
1917	519	1,020	1,640	1,670	1,810	1,110	2,180	1,920	3,280	2,880	1,380	998	1,700
1918	694	620	5,880	4,300	2,180	1,300	1,240	1,350	1,860	1,480	1,140	888	1,920
1919	941	1,080	2,180	2,250	1,500	1,440	2,040	1,860	1,520	1,400	1,030	781	1,500
1920	562	1,740	1,420	2,390	1,100	1,110	1,530	1,200	1,810	1,640	1,120	1,510	1,430
1921	2,230	1,320	2,930	2,790	2,710	2,040	1,340	1,710	2,210	1,590	1,140	794	1,830
1922	737	1,630	3,710	824	831	813	1,210	2,050	2,180	1,260	1,000	847	1,430
1923	741	869	1,660	4,240	1,490	1,510	1,610	1,920	2,030	1,790	1,080	807	1,650
1924	988	857	1,830	1,800	3,130	817	1,010	1,430	1,040	1,070	919	636	1,270
1925	830	2,010	2,750	2,000	2,030	1,070	1,400	1,790	1,370	1,310	893	640	1,510
1926	550	626	2,680	1,560	1,650	1,130	974	1,260	1,100	1,120	1,010	854	1,210
1927	1,420	1,310	1,770	1,810	-	-	-	-	-	-	-	-	-
1944	750	819	1,813	1,114	1,203	1,096	1,022	1,468	1,441	1,116	878	1,164	1,157
1945	678	799	993	2,299	1,875	1,367	1,634	2,547	1,425	1,158	975	1,153	1,407
1946	880	2,076	2,134	2,472	1,963	1,961	1,703	2,304	2,653	2,095	1,136	751	1,842
1947	1,686	2,085	3,936	2,232	1,869	1,249	1,738	1,569	1,686	1,186	721	808	1,695
1948	1,994	2,910	2,004	1,889	1,873	1,432	1,674	2,611	2,840	1,519	1,260	1,025	1,917
1949	1,209	2,005	2,335	874	1,969	1,562	1,670	2,534	1,766	1,431	924	776	1,585
1950	1,166	1,958	2,124	2,264	2,686	2,777	1,932	1,802	2,613	1,995	1,159	732	1,929

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1915	73,200	177,000	40,400	64,000	37,300	53,200	79,100	67,000	72,000	84,800	80,600	36,100	865,000
1916	70,700	136,000	180,000	56,500	169,000	88,000	95,800	105,000	130,000	156,000	83,000	52,600	1,430,000
1917	31,900	60,700	101,000	103,000	101,000	68,200	130,000	118,000	195,000	177,000	84,800	59,400	1,230,000
1918	42,700	36,900	82,000	264,000	121,000	79,900	73,800	83,000	111,000	91,000	70,100	52,800	1,390,000
1919	57,900	64,300	134,000	138,000	83,300	88,500	121,000	114,000	90,400	86,100	63,500	46,500	1,080,000
1920	34,600	104,000	87,300	147,000	63,300	68,200	91,000	73,800	108,000	101,000	88,900	59,800	1,040,000
1921	143,000	78,600	125,000	72,000	151,000	25,000	79,700	105,000	132,000	97,800	70,100	47,200	1,330,000
1922	45,300	97,000	228,000	50,700	46,200	50,000	72,000	126,000	130,000	77,500	61,500	50,400	1,030,000
1923	45,600	51,700	102,000	261,000	82,800	92,800	95,800	118,000	121,000	100,000	66,400	49,000	1,200,000
1924	60,800	51,000	113,000	98,400	80,000	50,200	60,100	87,900	61,900	65,800	56,500	37,800	923,000
1925	51,000	20,000	169,000	123,000	113,000	65,600	83,300	110,000	81,500	80,600	54,900	38,100	1,090,000
1926	33,800	37,200	155,000	95,900	91,600	69,500	58,000	77,500	65,500	68,900	62,100	50,800	876,000
1927	87,300	78,000	109,000	111,000	-	-	-	-	-	-	-	-	-
1944	46,120	46,750	111,500	68,520	69,180	67,380	60,790	90,270	85,750	68,630	53,960	69,280	840,100
1945	41,670	47,570	61,080	141,400	104,200	84,080	97,210	156,600	84,810	71,210	59,980	68,630	1,018,000
1946	54,120	23,500	131,200	52,000	109,000	120,600	101,300	141,700	157,900	128,800	69,840	43,470	1,333,000
1947	77,850	124,100	242,000	37,500	103,800	76,620	103,400	96,460	106,300	72,930	44,330	47,950	1,227,000
1948	122,600	173,200	123,200	161,100	107,800	88,050	99,590	160,500	169,000	93,360	77,490	61,000	1,342,000
1949	74,330	119,300	143,600	53,760	109,400	96,040	99,350	155,800	100,100	87,990	56,810	46,150	1,198,000
1950	71,670	116,500	130,300	103,190	149,200	170,800	115,000	110,800	155,500	122,700	71,290	43,590	1,397,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1915	412	-	-	390	1,190	2.72	37.02	865,000	1,330	41.09	961,000
1916	442	12,800	Dec. 22, 1915	390	1,960	4.47	60.95	1,430,000	1,700	52.69	1,230,000
1917	462	*9,970	Dec. 13, 1916	436	1,700	3.88	52.61	1,230,000	2,040	63.19	1,480,000
1918	482	19,300	Dec. 18, 1917	450	1,920	4.58	59.39	1,390,000	1,660	51.52	1,200,000
1919	512	*17,200	Jan. 23, 1919	407	1,500	3.42	46.62	1,090,000	1,460	45.29	1,060,000
1920	512	*9,440	Jan. 28, 1920	342	1,430	3.26	44.35	1,040,000	1,590	49.53	1,160,000
1921	532	*12,900	Dec. 30, 1920	460	1,830	4.18	56.73	1,330,000	1,860	57.75	1,350,000
1922	552	*20,000	Dec. 12, 1921	495	1,430	3.26	44.28	1,030,000	1,190	36.96	864,000
1923	572	*16,800	Jan. 6, 1923	362	1,650	3.77	51.16	1,200,000	1,690	52.25	1,220,000
1924	592	*11,700	Feb. 12, 1924	228	1,270	2.90	39.51	923,000	1,430	44.43	1,040,000
1925	612	*11,500	Dec. 11, 1924	415	1,510	3.45	46.65	1,090,000	1,360	42.22	986,000
1926	632	*8,820	Dec. 23, 1925*	270	1,210	2.76	37.50	876,000	1,260	39.13	914,000
1927	652	*8,600	Oct. 16, 1926*	-	-	-	-	-	-	-	-
1944	1012	14,800	Dec. 3, 1943	-	1,157	2.64	35.95	840,100	1,080	33.55	784,100
1945	1042	12,700	Jan. 7, 1945	352	1,407	3.21	43.59	1,018,000	1,626	50.39	1,177,000
1946	1062	13,900	Dec. 29, 1945	465	1,842	4.21	57.10	†1,333,000	2,028	62.87	1,469,000
1947	1092	22,600	Dec. 11, 1946	364	1,695	3.67	52.53	1,227,000	1,661	51.46	1,202,000
1948	1122	14,600	Nov. 8, 1947	594	1,917	4.38	59.57	1,592,000	1,805	56.08	1,310,000
1949	1152	10,600	Feb. 17, 1949	545	1,585	3.62	49.13	1,148,000	1,560	48.34	1,129,000
1950	1182	12,400	Nov. 27, 1949	498	1,929	4.40	59.80	1,397,000	-	-	-

* Revised.

† Corrected.

133. White River at Greenwater, Wash. 1/

Location (revised).--Lat 47°08'50", long. 121°38'50", in SE $\frac{1}{4}$ sec. 10, T. 19 N., R. 9 E., on right bank three-quarters of a mile southeast of Greenwater, three-quarters of a mile upstream from Greenwater River, 18 $\frac{1}{2}$ miles east of, and 25 miles upstream from Buckley.

Drainage area.--216 sq mi.

Supplemental records available.--December 1911 to May 1912, fragmentary gage heights and discharge.

Gage.--Water-stage recorder. Altitude of gage is 1,725 ft (from river-profile map). Dec. 16, 1911, to May 5, 1912, staff gage 2 miles upstream at different datum.

Average discharge.--21 years (1929-50), 819 cfs (revised).

Extremes.--1929-50: Maximum discharge, 18,100 cfs (revised) Dec. 21, 1933 (gage height 9.38 ft), from rating curve extended above 3,600 cfs by logarithmic plotting; minimum, 120 cfs Nov. 2, 1935 (gage height, 1.69 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	490	1,220	1,360	979	707	376	-
1930	238	173	341	230	877	605	923	847	922	762	615	401	575
1931	321	252	234	605	545	537	819	1,390	1,020	788	559	365	619
1932	326	503	576	699	811	1,150	1,040	1,350	1,720	1,160	822	379	861
1933	364	1,750	815	853	318	458	749	1,230	2,380	1,900	990	556	1,040
1934	946	1,009	*3,648	1,693	889	1,177	1,334	1,130	898	761	671	431	*1,222
1935	656	1,359	926	1,305	897	633	646	1,111	1,396	988	646	509	922
1936	299	220	269	618	292	579	1,012	1,704	1,548	881	663	451	713
1937	324	188	388	162	256	537	819	1,358	2,187	1,242	637	485	717
1938	394	1,195	992	828	396	488	1,108	1,531	1,812	1,116	608	502	916
1939	325	427	585	604	417	641	1,009	1,325	1,163	916	645	406	707
1940	286	299	730	564	679	693	746	1,267	1,006	753	593	483	675
1941	433	420	631	447	368	398	566	834	890	793	615	426	570
1942	478	603	1,060	456	454	352	655	950	1,448	1,116	710	424	727
1943	303	786	872	584	704	539	1,227	1,007	1,447	1,314	673	486	828
1944	357	325	568	349	446	380	542	943	1,066	740	543	437	558
1945	309	329	436	869	778	456	632	1,625	1,427	991	555	410	735
1946	374	644	787	779	516	737	1,031	1,855	1,692	1,354	802	469	923
1947	468	710	1,462	841	899	735	971	1,538	1,247	839	576	481	898
1948	1,114	1,140	800	739	581	499	690	1,592	2,652	1,088	691	467	1,004
1949	466	643	649	432	581	762	1,121	2,280	1,762	1,128	666	473	915
1950	414	960	769	655	694	924	892	1,570	2,660	1,874	862	552	1,070

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	29,200	75,000	80,900	60,200	43,500	22,400	-
1930	14,600	10,300	21,000	14,100	48,700	37,200	54,900	52,100	54,900	46,900	37,800	23,900	416,000
1931	19,700	15,000	14,400	37,200	30,300	33,000	48,700	85,500	60,700	47,200	34,400	21,700	448,000
1932	20,000	29,900	35,400	43,000	46,800	70,700	61,900	83,000	102,000	71,300	38,200	22,600	625,000
1933	22,400	104,000	56,300	52,400	17,600	28,200	44,800	75,600	142,000	170,000	60,900	33,100	754,000
1934	58,140	60,070	224,300	104,100	49,590	72,370	79,380	69,500	53,410	46,790	41,250	25,640	*884,500
1935	40,350	80,870	56,920	60,250	49,840	38,900	38,410	68,330	63,070	60,770	39,710	30,300	667,700
1936	18,390	13,100	16,540	37,990	16,800	35,580	60,210	104,700	92,110	54,190	40,780	26,830	517,200
1937	19,910	11,180	23,850	9,970	14,240	33,040	48,740	83,490	30,100	76,350	39,150	28,860	518,900
1938	24,240	71,090	61,000	50,930	21,980	30,010	65,800	94,160	107,800	68,590	37,360	29,850	662,800
1939	19,980	25,390	35,860	37,130	23,140	39,410	60,060	81,490	69,230	56,330	39,630	24,150	511,800
1940	17,570	17,770	44,860	34,670	39,060	42,610	44,410	77,890	59,850	46,290	36,430	28,170	490,100
1941	26,610	24,970	38,800	27,490	20,410	24,450	33,700	51,260	52,960	48,730	37,800	25,370	412,600
1942	29,420	35,890	65,170	28,040	25,220	21,620	38,990	58,440	86,180	68,610	43,680	25,250	526,500
1943	18,640	46,750	53,640	35,900	39,080	33,150	73,000	61,900	66,120	80,790	41,360	28,910	599,200
1944	21,960	19,360	34,900	21,470	25,640	23,350	32,230	57,950	63,450	45,500	33,780	26,020	409,200
1945	18,980	19,580	26,820	53,460	43,200	28,050	37,580	99,890	84,930	60,910	34,140	24,370	551,900
1946	22,980	38,320	48,380	47,880	28,640	45,320	61,320	14,000	100,700	83,240	49,310	27,890	668,000
1947	28,780	42,270	89,870	51,700	49,930	45,170	57,780	94,550	74,200	51,560	35,440	28,610	649,900
1948	68,530	67,850	49,160	45,410	33,430	30,650	41,080	97,890	57,800	66,920	42,460	27,820	729,000
1949	28,670	38,260	39,930	26,580	32,260	46,860	66,690	140,200	104,800	69,370	40,980	28,170	662,800
1950	25,480	57,130	47,290	40,280	38,550	56,820	53,060	96,510	158,300	115,200	52,980	32,860	774,500

* Revised.

1/ Published as White River near Enumelaw, 1911-12.

Yearly discharge, in cubic feet per second, of White River at Greenwater, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	-	-	-	575	2.66	36.14	416,000	580	36.42	420,000
1931	722	2,740	Mar. 31, 1931	201	619	2.87	38.88	448,000	669	42.04	494,000
1932	737	*6,500	Feb. 26, 1932	216	861	3.99	54.25	625,000	995	62.71	722,000
1933	752	*6,460	Nov. 13, 1932	262	1,040	4.81	65.39	754,000	*1,262	*79.25	*914,000
1934	1286,767	*18,100	Dec. 21, 1933	229	*1,222	*5.66	*76.79	*884,300	894	62.52	720,000
1935	792	5,440	Nov. 5, 1934	176	922	4.27	57.96	667,700	743	46.66	537,600
1936	812	2,470	(a)	160	713	3.30	44.92	517,200	722	45.53	524,100
1937	832	4,210	June 21, 1937	140	717	3.32	45.04	518,900	857	53.82	620,300
1938	862	5,440	Apr. 18, 1938	252	916	4.24	57.53	662,800	812	51.02	587,700
1939	892	2,470	May 29, 1939	242	707	3.27	44.43	511,800	706	44.34	510,800
1940	902	1,780	Dec. 16, 1939	242	675	3.12	42.53	490,100	689	43.42	500,300
1941	932	2,690	Nov. 29, 1940	247	570	2.64	35.82	412,600	625	39.30	452,600
1942	962	2,500	Dec. 2, 1941	287	727	3.37	45.70	526,500	711	44.71	515,100
1943	982	*4,770	Nov. 23, 1942	241	828	3.83	52.03	599,200	769	48.31	556,400
1944	1012	2,600	Dec. 3, 1943	241	558	2.58	35.19	405,200	543	34.25	394,400
1945	1042	4,080	Jan. 7, 1945	248	735	3.40	46.18	531,900	796	50.02	576,200
1946	1062	5,620	(b)	283	923	4.27	57.99	668,000	993	62.44	719,200
1947	1092	7,460	Dec. 11, 1946	271	898	4.16	56.42	649,900	932	58.56	674,500
1948	1122	5,000	May 28, 1948	355	1,004	4.65	63.29	729,000	896	56.46	650,300
1949	1152	4,220	May 13, 1949	298	915	4.24	57.54	662,800	947	59.54	685,800
1950	1182	8,270	Nov. 27, 1949	286	1,070	4.95	67.24	774,500	-	-	-

* Revised.

a May 14, June 7, 1936.

b Discharge from recorded range in stage; probably occurred Dec. 29, 1945.

134. Greenwater River at Greenwater, Wash. 1/

Location.--Lat 47°09'15", long. 121°38'00", in NW 1/4 sec. 11, T. 19 N., R. 9 E., on left bank 1 mile upstream from mouth, 1 mile east of Greenwater, and 19 miles (revised) east of Buckley.

Drainage area.--73.9 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,725 ft (from topographic map). Sept. 6, 1911, to Aug. 9, 1912, staff gages at approximately same site at different datums. May 1, 1929, to Aug. 14, 1934, water-stage recorder 900 ft upstream at different datum.

Average discharge.--21 years (1929-50), 203 cfs.

Extremes.--1911-12, 1929-50: Maximum discharge (revised), 4,280 cfs Dec. 11, 1946 (gage height, 7.50 ft), from rating curve extended above 2,000 cfs; minimum, 23 cfs Oct. 7, 1934 (gage height, 2.06 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	46.6	*419	*179	372	314	79.5	-	-	-	-	-	-	-
1929	-	-	-	-	-	-	-	486	368	129	57.8	40.4	-
1930	33.6	30.3	64.4	46.3	216	214	313	256	200	78.5	41.2	31.5	126
1931	38.8	54.5	54.0	119	130	162	263	323	142	79.6	45.3	41.7	121
1932	71.6	125	125	171	212	411	410	501	430	120	58.1	38.2	222
1933	51.9	569	272	129	87.7	140	275	458	711	302	95.9	68.7	279
1934	170	287	1,116	597	312	376	407	237	101	51.6	36.5	31.4	311
1935	126	315	276	440	318	189	199	371	353	123	65.1	40.5	234
1936	38.7	47.9	61.1	196	70.3	203	422	611	368	111	55.8	42.4	186
1937	36.2	29.7	108	45.3	72.4	178	260	469	500	155	68.8	52.8	165
1938	69.9	322	337	296	116	145	364	506	304	89.7	47.5	34.5	220
1939	36.7	85.4	226	255	129	273	404	451	271	123	54.1	45.3	187
1940	39.3	60.9	163	120	205	189	194	310	127	62.5	38.2	33.1	128
1941	36.3	78.9	139	106	80.7	77.5	136	158	135	62.1	41.3	57.9	92.4
1942	137	166	289	120	130	105	245	307	415	156	70.3	43.6	182
1943	40.5	157	276	189	217	165	420	345	417	193	69.6	42.8	210
1944	41.8	50.1	124	88.2	110	104	182	285	205	82.0	46.2	47.5	112
1945	39.4	42.0	88.5	282	204	140	227	548	300	99.8	46.6	70.0	174
1946	62.8	192	249	241	178	251	352	643	416	177	70.0	49.7	241
1947	77.2	163	533	263	245	270	341	408	255	111	58.1	47.1	231
1948	181	504	320	225	177	135	241	605	747	184	92.3	72.1	290
1949	86.3	156	159	102	171	282	433	833	425	160	67.3	45.3	244
1950	64.7	180	226	203	240	286	291	575	900	371	102	57.2	291

* Not previously published; partly estimated on the basis of records for nearby streams.

1/ Published as Greenwater River near Enumclaw, 1911-12.

Monthly and yearly runoff, in acre-feet, of Greenwater River at Greenwater, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	2,870	4,900	11,000	22,900	18,100	4,890	-	-	-	-	-	-	-
1929	-	-	-	-	-	-	-	29,900	21,900	7,930	3,550	2,400	-
1930	2,070	1,800	3,960	2,850	12,000	13,200	18,600	15,700	11,900	4,830	2,530	1,870	91,300
1931	2,390	3,240	3,320	7,320	7,220	9,960	15,600	19,900	8,450	4,890	2,790	2,480	87,600
1932	4,400	7,440	7,690	10,500	12,200	25,300	24,400	30,800	25,600	7,380	3,570	2,270	162,000
1933	3,190	33,900	16,700	19,100	4,870	8,610	18,400	28,200	42,300	18,600	5,900	4,090	202,000
1934	10,450	17,100	68,640	36,730	17,310	23,100	24,240	14,560	6,010	3,170	2,240	1,870	225,400
1935	7,750	18,760	16,970	27,070	17,530	11,610	11,860	22,810	20,980	7,590	4,000	2,410	169,300
1936	2,380	2,850	3,760	12,070	4,040	12,500	25,110	37,590	21,870	6,820	3,430	2,520	134,900
1937	2,230	1,770	6,610	12,780	4,020	10,920	15,480	28,850	29,780	9,550	4,230	3,140	119,400
1938	4,300	19,180	20,700	18,170	6,450	8,900	21,680	31,120	18,080	5,520	2,920	2,050	159,100
1939	2,260	4,960	13,890	15,700	7,450	16,770	24,070	27,740	18,150	7,890	3,320	2,700	142,300
1940	2,410	3,620	9,990	7,350	11,810	11,630	11,560	19,090	7,550	3,840	2,350	1,970	93,170
1941	2,230	4,690	8,520	6,520	4,480	4,770	8,110	9,720	8,030	3,820	2,540	3,450	66,880
1942	8,420	9,900	17,770	7,350	7,200	6,460	14,590	18,900	24,670	9,580	4,320	2,590	131,800
1943	2,490	9,340	16,960	11,630	12,050	10,140	25,020	21,220	24,840	11,840	4,280	2,540	152,400
1944	2,570	2,980	7,630	4,190	6,310	6,420	10,840	17,500	12,220	5,040	2,840	2,830	81,370
1945	2,200	2,600	5,440	17,310	11,320	8,590	13,490	33,680	17,840	6,130	2,870	4,170	125,800
1946	3,860	11,400	15,290	14,840	9,890	15,410	20,960	39,530	24,780	10,900	4,300	2,960	174,100
1947	4,750	9,680	32,800	16,160	13,600	16,590	20,290	25,090	15,160	6,850	3,570	2,800	167,300
1948	11,140	30,000	19,650	13,810	10,160	8,330	14,340	37,170	44,450	11,300	5,670	4,290	210,300
1949	5,300	9,280	9,750	6,280	9,520	17,330	25,770	51,220	25,300	9,810	4,140	2,700	176,400
1950	3,980	10,690	13,920	12,460	13,320	17,560	17,310	35,380	53,570	22,810	6,250	3,400	210,600

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean
		Discharge	Date				Inches	Acre-feet	
1912	332	-	-	-	-	-	-	-	-
1929	692	-	-	-	-	-	-	-	-
1930	707	753	Mar. 25, 1930	-	126	1.71	23.15	91,300	128
1931	722	850	Apr. 1, 1931	27	121	1.64	22.24	87,600	136
1932	737	1,490	Feb. 26, 1932	29	222	3.00	40.98	162,000	270
1933	752	2,200	Nov. 16, 1932	30	279	3.78	51.17	202,000	337
1934	767	4,140	Dec. 9, 1933	26	311	4.21	57.19	225,400	239
1935	792	1,320	Jan. 23, 1935	24	234	3.17	42.96	169,300	186
1936	812	840	May 5, 1936	31	186	2.52	34.24	134,900	186
1937	832	748	May 4, 1937	24	165	2.23	30.28	119,400	211
1938	862	1,410	Apr. 18, 1938	32	220	2.98	40.36	159,100	188
1939	882	1,110	Dec. 8, 1938	30	197	2.67	36.11	142,300	190
1940	902	567	Feb. 10, 1940	28	128	1.73	23.64	93,170	128
1941	932	773	Nov. 29, 1940	29	92.4	1.25	16.97	66,880	121
1942	962	924	June 11, 1942	37	182	2.46	33.43	131,800	172
1943	982	920	Nov. 23, 1942	31	210	2.84	38.65	152,400	169
1944	1012	575	Dec. 3, 1943	32	112	1.52	20.85	81,370	108
1945	1042	990	Jan. 7, 1945	28	174	2.35	31.91	125,800	202
1946	1062	1,760	Dec. 28, 1945	38	241	3.26	44.18	174,100	264
1947	1092	*4,280	Dec. 11, 1946	38	231	3.13	42.46	167,300	250
1948	1122	1,890	May 28, 1948	37	290	3.92	53.36	210,300	239
1949	1152	1,540	May 13, 1949	39	244	3.50	44.76	176,400	250
1950	1182	1,210	June 17, 20, 1950	37	291	3.94	53.44	210,600	-

* Revised.

135. Mud Mountain Reservoir near Buckley, Wash.

Location (revised).--Lat 47°08'30", long. 121°55'50", in NE $\frac{1}{4}$ sec. 17, T. 19 N., R. 7 E., on left bank of reservoir just upstream from Mud Mountain Dam on White River, 5 miles southeast of Buckley, and 6 miles downstream from Clearwater River.

Drainage area.--400 sq mi.

Gage.--Staff gage. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--1943-50: Maximum contents observed, 17,640 acre-ft June 18, 1950 (elevation, 1,070.8 ft); no pool at times most years.

Remarks.--Reservoir is formed by earth-fill dam, and is used for flood control. Dam was completed and storage began in 1942. Capacity, 106,000 acre-ft between elevation 895 ft (invert of outlet tunnel), and elevation 1,215 ft (spillway crest). Storage is released after each flood without creating damaging flows downstream.

Cooperation.--Records collected and prepared in cooperation with Corps of Engineers.

Contents, in acre-feet, on last day of month, of Mud Mountain Reservoir near Buckley, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1944	43	43	1,790	52	31	35	62	95	1,220	1,380	39	39
1945	39	1,670	1,340	1,930	1,670	288	522	1,790	155	151	110	1,800
1946	20	71	1,760	1,820	1,020	89	126	1,670	261	103	101	20
1947	1,830	1,470	2,110	1,160	334	708	1,570	1,670	348	348	411	107
1948	475	252	164	86	279	89	72	13,860	3,290	154	86	1,810
1949	42	116	52	39	168	52	1,370	2,950	191	268	95	95
1950	72	14,320	1,980	149	14,960	651	178	13,510	16,540	200	148	95

Note.--Contents for 1944 not previously published.

136. White River near Buckley, Wash.

Location.--Lat 47°09'05", long. 121°57'00", in SW 1/4 sec. 8, T. 19 N., R. 7 E., on right bank 0.7 mile upstream from Red Creek, 1 mile downstream from Mud Mountain Dam, and 4 miles (revised) east of Buckley.

Drainage area.--401 sq mi (revised). At site prior to 1934, 400 sq mi.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of Engineers benchmark). Oct. 26, 1928, to Nov. 30, 1933, water-stage recorder 3 miles upstream at different datum. Nov. 26, 1938, to Feb. 14, 1939, staff gage at present site and datum.

Average discharge.--17 years (1928-33, 1938-50), 1,362 cfs.

Extremes.--1928-33, 1938-50: Maximum discharge, 17,000 cfs Feb. 26, 1932 (gage height, 17.5 ft, site and datum then in use), from rating curve extended above 4,000 cfs; minimum, 10 cfs Sept. 26, 1948 (elevation, 796.92 ft); minimum daily, 72 cfs Oct. 13, 1942. Maximum stage known, 23.4 ft in December 1933, from floodmarks, at former site (discharge, 28,000 cfs, from rating curve extended above 3,000 cfs).

Remarks.--No diversion. Flow regulated by Mud Mountain Reservoir for flood control since 1942 (see above). Storage is not retained and observed annual runoff closely represents natural runoff of basin.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	660	487	495	449	338	1,060	2,480	2,300	1,220	815	528		9994
1930	368	284	747	528	1,700	1,350	1,520	1,410	1,390	983	756	492	952
1931	476	538	481	1,290	956	1,250	1,670	1,930	1,460	964	716	555	1,020
1932	755	1,090	1,210	1,420	1,930	2,840	2,140	2,320	2,620	1,500	884	578	1,600
1933	729	4,070	1,790	2,200	657	1,190	1,570	2,320	4,140	2,480	1,280	891	1,940
1934	1,670	2,120	-	-	-	-	-	-	-	-	-	-	-
1939	550	817	1,345	1,542	1,022	1,565	1,867	2,123	1,804	1,265	810	586	1,277
1940	491	634	1,362	969	1,460	1,409	1,284	2,005	1,327	920	720	597	1,099
1941	640	926	1,295	910	657	648	952	1,240	1,252	952	718	689	908
1942	1,030	1,116	2,035	896	922	759	1,205	1,635	2,530	1,494	874	549	1,255
1943	456	1,522	1,839	1,118	1,523	1,085	2,186	1,708	2,304	1,734	895	634	1,413
1944	611	588	1,180	768	920	788	1,029	1,496	1,368	937	620	617	1,910
1945	467	565	808	2,026	1,537	1,027	1,424	2,718	2,021	1,232	772	813	1,283
1946	663	1,359	1,688	1,871	1,284	1,551	1,941	3,104	2,640	1,852	962	629	1,631
1947	843	1,497	3,506	1,927	1,581	1,330	1,876	2,325	1,840	1,081	743	702	1,589
1948	1,820	2,601	1,687	1,582	1,413	1,060	1,445	2,901	3,916	1,538	991	692	1,802
1949	825	1,338	1,543	799	1,464	1,813	2,301	3,706	2,541	1,495	886	645	1,613
1950	779	1,552	1,921	1,348	1,570	2,313	1,853	2,652	3,868	2,670	1,148	728	1,868

* Not previously published; partly estimated on the basis of comparison with Puget Sound Power and Light Co. records at Buckley.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	40,600	29,000	30,400	27,600	18,700	65,200	63,100	52,000	137,000	75,000	50,100	31,300	720,000
1930	22,600	15,700	45,900	32,500	94,400	81,800	90,400	86,700	82,700	60,400	46,500	29,300	689,000
1931	29,300	32,000	29,600	79,300	53,100	76,900	99,400	119,000	86,900	59,300	44,000	33,000	742,000
1932	46,400	64,900	74,400	87,300	111,000	75,000	143,000	158,000	92,200	54,400	34,400	34,400	1,170,000
1933	44,800	242,000	10,000	35,000	36,500	73,200	93,400	43,000	246,000	152,000	77,500	53,000	1,410,000
1934	103,000	26,000	-	-	-	-	-	-	-	-	-	-	-
1939	33,820	48,580	82,720	94,820	56,780	96,240	111,000	130,500	107,300	77,780	49,780	34,860	924,300
1940	30,220	37,730	83,730	59,570	55,140	86,680	76,400	23,300	78,980	56,580	44,260	35,500	798,100
1941	39,370	55,120	79,620	55,980	36,510	39,840	56,670	76,220	74,520	58,540	44,170	41,010	657,600
1942	63,510	66,430	25,100	55,100	51,200	46,650	71,720	100,500	50,150	91,870	53,750	32,670	908,800
1943	28,020	90,540	13,100	68,730	64,590	66,720	130,100	100,050	137,100	106,600	55,000	37,710	1,023,000
1944	37,580	34,970	72,570	47,190	62,890	48,430	61,250	91,970	81,380	57,580	39,120	36,720	860,700
1945	28,700	33,650	49,670	24,500	85,380	63,150	84,720	167,100	120,200	75,780	47,490	48,400	928,700
1946	40,750	80,880	103,800	115,000	71,320	95,400	115,500	190,500	170,113	90,059	59,130	37,450	1,181,000
1947	51,860	89,100	203,300	118,500	87,810	81,750	111,600	43,000	109,500	66,450	45,660	41,780	1,150,000
1948	111,900	54,800	103,700	97,280	81,270	65,190	85,990	178,400	233,000	94,590	60,920	41,160	1,308,000
1949	50,780	79,620	94,860	49,110	81,300	111,500	136,900	27,900	91,930	54,500	38,390		1,168,000
1950	47,910	92,320	118,100	82,860	87,200	42,400	101,300	167,300	200,640	200,700	70,610	45,350	1,353,000

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of White River near Buckley, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1929	692	4,350	May 24, 1929	-	#994	#2.48	#33.78	#720,000	973	33.05	704,000
1930	707	4,870	Mar. 25, 1930	221	952	2.38	32.31	689,000	961	32.60	696,000
1931	722	9,850	Mar. 31, 1931	270	1,020	2.55	34.73	742,000	1,160	39.18	837,000
1932	737	17,000	Feb. 26, 1932	292	1,600	4.00	54.63	1,170,000	1,900	64.57	1,380,000
1933	752	16,500	Nov. 13, 1932	367	1,940	4.85	66.06	1,410,000	-	-	-
1939	882	4,270	Mar. 24, 1939	-	1,277	3.18	43.22	924,300	1,258	42.59	910,800
1940	902	4,060	Feb. 10, 1940	415	1,099	2.74	37.31	798,100	1,130	38.36	820,500
1941	932	7,600	Nov. 29, 1940	391	908	2.26	30.75	657,600	1,020	34.52	738,300
1942	962	7,550	Dec. 19, 1941	442	1,255	3.13	42.50	908,800	1,223	41.41	885,600
1943	982	9,950	Nov. 23, 1942	72	1,413	3.52	47.64	1,023,000	1,294	43.80	936,700
1944	1012	7,320	Dec. 3, 1943	379	910	2.27	30.89	660,700	864	29.34	627,600
1945	1042	8,820	Jan. 7, 1945	295	1,283	3.20	43.43	928,700	1,440	48.73	1,042,600
1946	1062	10,600	Dec. 29, 1945	374	1,631	4.07	55.22	1,181,000	1,795	60.78	1,300,000
1947	1092	12,300	Dec. 11, 1946	235	1,589	3.96	53.78	1,150,000	1,825	55.01	1,176,000
1948	1122	7,580	Nov. 8, 1947	249	1,802	4.49	61.16	1,308,000	1,602	54.38	1,163,000
1949	1152	6,950	Nov. 12, 1948	504	1,613	4.02	54.61	1,168,000	1,659	56.16	1,201,000
1950	1182	7,580	Nov. 28, 1949	455	1,868	4.66	63.24	1,353,000			

* Not previously published.

137. White River flume near Buckley, Wash.

Location (revised).--Lat 47°10'10", long. 122°00'20", in NW $\frac{1}{4}$ sec. 2, T. 19 N., R. 6 E., on right bank 800 ft downstream from intake, half a mile upstream from Northern Pacific Railway bridge, and 1 mile northeast of Buckley.

Gage.--Water-stage recorder. Datum of gage is 660.78 ft above mean sea level (levels by Puget Sound Power & Light Co.).

Average discharge.--25 years (1913-38), 780 cfs.

Extremes.--1913-38: Maximum discharge not determined; no flow in flume when headgates are closed.

Remarks.--Flume diverts water from left bank of White River in NE $\frac{1}{4}$ sec. 2, T. 19 N., R. 5 E. (revised). Flow is stored in Lake Tapps until returned to Stuck River (lower White River) after being used for power development at Dieringer.

Cooperation.--Records for 1925-38, not previously published by Geological Survey, furnished by Puget Sound Power & Light Co.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	-	-	-	-	46,700	35,800	46,000	7,380	67,200	45,100	42,700	37,300	-
1914	37,900	34,800	34,400	36,500	32,400	36,600	35,000	37,100	22,700	43,100	47,600	32,700	431,000
1915	35,000	27,400	36,200	39,500	34,100	44,300	33,000	36,800	33,900	37,800	40,600	32,300	431,000
1916	34,400	39,600	43,500	32,600	40,800	35,000	37,800	36,800	37,100	37,100	47,100	40,200	462,000
1917	28,400	43,100	46,200	40,300	34,200	37,900	33,700	37,800	35,700	34,100	21,000	34,000	426,000
1918	31,200	25,500	52,700	42,800	37,400	42,100	37,800	27,400	37,600	55,700	52,900	40,000	483,000
1919	52,100	43,600	61,500	52,800	39,800	53,100	42,500	53,700	46,700	49,800	50,500	36,500	583,000
1920	29,800	61,300	52,000	42,900	58,400	49,700	30,500	41,500	42,100	45,900	48,100	37,500	520,000
1921	44,200	38,900	44,300	32,600	20,000	40,000	38,400	26,100	32,800	39,800	44,300	36,100	438,000
1922	38,600	37,000	40,000	36,200	29,500	30,300	68,400	40,800	38,800	45,600	51,800	40,000	497,000
1923	33,400	37,800	52,700	50,200	40,500	60,100	45,400	48,000	45,600	49,900	64,000	39,900	568,000
1924	44,600	40,900	59,500	55,500	53,400	46,200	66,800	57,200	48,900	53,800	47,800	32,700	607,000
1925	32,710	66,940	69,930	68,440	48,020	63,390	58,730	53,110	65,080	59,930	47,820	30,330	664,400
1926	25,190	26,660	71,760	53,270	38,490	38,330	66,660	57,950	53,950	52,190	44,920	31,330	560,700
1927	51,270	48,050	44,800	49,300	53,990	54,360	63,990	56,760	45,280	49,820	48,790	51,740	617,200
1928	51,370	46,680	62,800	74,300	53,660	55,510	53,450	64,610	55,790	62,860	51,750	34,400	667,200
1929	43,750	30,990	33,220	29,290	21,170	59,750	66,160	85,120	50,680	70,530	61,060	30,970	574,700
1930	23,700	17,080	45,310	29,110	78,130	63,150	52,160	61,070	60,100	55,320	44,480	30,640	560,200
1931	28,530	32,450	28,850	69,900	47,920	54,670	54,480	62,370	57,980	56,590	44,470	32,190	570,400
1932	36,110	66,690	59,780	53,210	35,160	76,650	58,170	55,480	52,600	53,580	51,540	36,360	631,500
1933	46,830	68,400	52,850	52,550	36,680	62,870	50,880	58,310	55,670	54,800	48,680	48,780	637,500
1934	50,660	56,060	39,290	53,650	59,110	55,920	56,140	62,680	60,940	52,820	47,230	33,630	628,500
1935	39,110	46,480	72,680	50,990	61,370	57,100	50,280	66,810	60,000	54,830	42,680	39,100	621,800
1936	28,620	29,280	37,220	78,420	37,060	73,930	68,750	62,380	69,060	71,770	52,220	33,550	642,300
1937	27,070	18,230	62,100	17,600	35,680	73,120	74,300	68,360	84,960	78,620	50,930	39,010	630,200
1938	34,990	64,320	49,340	64,080	44,800	62,150	53,760	69,280	63,440	75,500	46,860	35,740	674,500

* Not previously published; computed from gage heights furnished by power company.

Note.--Records 1925-38 not previously published; furnished by Puget Sound Power & Light Co.

138. Boise Creek near Enumclaw, Wash.

Location (revised).--Lat 47°11'20", long. 121°58'20", in SW $\frac{1}{4}$ sec. 30, T. 20 N., R. 7 E., on right bank $1\frac{1}{2}$ miles southeast of Enumclaw and $\frac{3}{4}$ miles upstream from mouth.

Drainage area.--9.58 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 740 ft (from topographic map).

Extremes.--1945-46: Maximum discharge, 306 cfs Dec. 28, 1945 (gage height, 3.68 ft); minimum, 1.6 cfs July 29, Aug. 30, 1945 (gage height, 0.59 ft).

Remarks.--Diversions for industrial and domestic use above station. Flow supplemented by water diverted from Scatter Creek during low-water periods. Partly regulated by millpond 3 miles above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	-	3.72	16.4	-
1946	15.3	50.0	45.1	61.3	57.7	62.8	34.8	18.2	30.4	21.6	7.85	7.30	34.2

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	-	229	978	-
1946	941	2,970	2,770	3,770	3,200	3,860	2,070	1,120	1,810	1,330	481	434	24,760

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1945	1042	-	-	-	-	-	-	-
1946	1062	306	Dec. 28, 1945	3.6	34.2	24,760	-	-

139. White River at Buckley, Wash.

Location (revised).--Lat 47°10'30", long. 122°01'10", in SE $\frac{1}{4}$ sec. 34, T. 20 N., R. 6 E., on left bank 40 ft downstream from Northern Pacific Railway bridge and 1 mile northeast of Buckley.

Drainage area.--427 sq mi (revised). At site 1899-1903, 415 sq mi (revised), excluding Boise Creek.

Supplemental records available.--January 1902 to August 1903, gage heights only.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Puget Sound Power & Light Co.). Apr. 22, 1899, to Aug. 31, 1903, wire-weight gage 550 ft upstream at different datum. June 8, 1910, to Nov. 30, 1911, staff gage 50 ft upstream at datum 624.92 ft above mean sea level (Stone & Webster Engineering Corp. benchmark); record supplemented by staff-gage readings at site 5 miles upstream.

Average discharge.--23 years (1899-1901, 1910-11, 1913-28, 1933-38), 1,591 cfs.

Extremes.--1899-1901, 1910-11, 1913-28, 1933-38: Not determined.

Remarks.--Records since February 1913 include flow of White River flume (see preceding page) which diverts from left bank in NE $\frac{1}{4}$ sec. 2, T. 19 N., R. 5 E., half a mile upstream and carries an average flow of 780 cfs.

Cooperation.--Records collected by Puget Sound Power & Light Co. under general supervision of the Geological Survey, 1913-23. Complete record furnished by power company thereafter.

Monthly and yearly mean discharge, in cubic feet per second, of White River at Buckley, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1899	-	-	-	-	-	-	-	2,560	4,080	3,030	1,650	1,150	-
1900	1,560	2,680	4,400	3,020	1,670	2,240	1,860	2,240	2,210	1,510	1,140	856	2,100
1901	1,270	1,510	2,660	1,820	1,950	1,850	1,270	2,360	2,140	1,650	1,060	620	1,680
1902	584	1,930	1,850	-	-	-	-	-	-	-	-	-	-
1910	-	-	-	-	-	-	-	-	-	1,340	949	673	-
1911	1,580	2,680	1,710	1,380	669	1,060	1,160	1,840	2,500	1,550	702	634	1,460
1912	429	2,010	-	-	-	-	-	-	-	-	-	-	-
1913	-	-	-	-	\$1,360	1,030	1,710	2,260	3,280	2,110	1,070	770	-
1914	919	1,959	679	1,750	1,110	1,620	1,790	2,040	1,700	1,320	866	588	1,280
1915	667	1,800	602	659	626	873	1,540	1,230	1,400	1,150	931	553	1,000
1916	659	1,850	1,930	744	1,920	2,820	2,030	2,360	3,450	3,160	1,500	833	1,940
1917	472	781	1,160	1,260	1,660	732	1,730	2,680	4,110	3,020	1,220	734	1,630
1918	511	443	5,010	3,720	1,740	1,150	1,560	1,710	2,360	1,520	910	682	1,770
1919	927	948	2,330	2,910	1,190	1,220	2,050	2,310	2,210	1,690	985	637	1,620
1920	498	1,230	1,350	2,100	1,470	928	1,480	1,720	1,890	1,380	932	938	1,330
1921	1,440	1,130	*1,490	2,180	2,570	2,100	1,740	2,680	3,210	2,020	1,120	672	*1,860
1922	652	1,190	2,800	670	553	508	1,220	3,080	3,140	1,270	907	687	1,400
1923	561	670	1,230	2,880	819	1,130	1,940	2,300	2,260	1,830	1,090	696	1,460
1924	792	763	1,630	1,440	2,800	955	1,180	2,220	1,320	1,040	812	581	1,290
1925	562	1,300	2,070	1,720	1,730	1,120	1,760	2,570	1,730	1,210	817	541	1,430
1926	431	468	1,950	1,280	1,330	1,170	1,210	1,200	1,080	943	757	558	1,030
1927	997	1,130	1,460	1,340	1,320	1,020	1,380	2,350	3,270	1,560	903	933	1,470
1928	1,650	3,400	2,030	2,990	995	1,780	1,800	3,110	1,700	1,410	877	606	1,870
1934	1,802	2,137	6,676	4,317	2,048	2,329	2,247	1,964	1,212	957	802	604	2,267
1935	1,840	3,816	2,518	3,012	1,940	1,871	1,454	2,209	2,419	1,858	974	699	2,051
1936	502	525	641	2,516	783	1,799	2,701	3,517	3,244	1,295	871	580	1,584
1937	452	315	1,182	301	695	1,239	1,871	2,358	3,356	1,619	860	685	1,244
1938	613	3,457	2,738	2,334	881	1,148	2,369	2,824	2,665	1,331	795	623	1,817

* Revised.

† Corrected.

‡ Not previously published; computed from gage heights furnished by power company.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1899	-	-	-	-	-	-	-	157,000	243,000	186,000	101,000	68,400	-
1900	85,600	159,000	271,000	186,000	92,800	138,000	110,000	158,000	132,000	92,800	70,100	49,700	1,520,000
1901	78,100	89,800	164,000	112,000	108,000	114,000	75,600	145,000	127,000	101,000	65,200	36,900	1,220,000
1902	35,900	115,000	114,000	-	-	-	-	-	-	-	-	-	-
1910	-	-	-	-	-	-	-	-	-	82,400	58,400	40,000	-
1911	97,200	159,000	105,000	84,800	37,200	65,200	69,000	113,000	149,000	95,300	43,200	37,700	1,060,000
1912	26,400	120,000	-	-	-	-	-	-	-	-	-	-	-
1913	-	-	-	-	*75,500	63,300	102,000	139,000	195,000	130,000	65,800	45,800	-
1914	56,500	57,100	41,800	108,000	61,600	99,800	107,000	125,000	101,000	81,200	53,200	35,000	927,000
1915	41,000	107,000	37,000	40,500	34,800	53,700	91,600	75,600	83,300	70,700	57,200	32,900	725,000
1916	40,500	110,000	119,000	45,700	110,000	173,000	121,000	145,000	205,000	194,000	92,200	49,600	1,400,000
1917	29,000	46,500	71,300	77,500	82,200	45,000	103,000	165,000	245,000	186,000	75,000	43,700	1,180,000
1918	31,400	26,400	308,000	229,000	96,600	70,700	92,800	105,000	140,000	81,200	56,000	40,600	1,280,000
1919	57,000	56,400	43,000	179,000	66,100	75,000	122,000	142,000	132,000	104,000	60,600	37,900	1,180,000
1920	30,600	73,200	83,000	129,000	84,600	57,100	88,700	106,000	112,000	84,800	57,300	55,800	962,000
1921	98,500	67,200	*91,700	34,000	143,000	29,000	104,000	165,000	191,000	124,000	68,900	40,000	1,350,000
1922	40,100	70,800	172,000	41,200	30,700	31,200	72,600	180,000	187,000	78,100	55,800	40,900	1,010,000
1923	34,500	39,900	75,600	177,000	45,500	69,500	115,000	141,000	134,000	13,000	67,000	41,400	1,050,000
1924	48,700	45,400	100,000	88,500	161,000	58,700	70,200	136,000	78,600	64,000	49,900	34,600	936,000
1925	34,600	77,400	127,000	106,000	96,100	68,900	105,000	158,000	103,000	74,400	50,200	32,200	1,030,000
1926	26,500	27,800	120,000	78,700	73,900	71,900	72,000	73,800	64,300	58,000	46,500	33,200	747,000
1927	61,500	67,500	89,900	82,100	73,200	62,900	82,500	144,000	95,900	95,900	55,600	55,500	1,070,000
1928	101,000	202,000	125,000	184,000	57,200	110,000	107,000	181,000	101,000	86,700	53,900	36,100	1,350,000
1934	110,800	127,200	410,500	265,400	113,700	143,200	133,700	20,700	72,110	58,830	49,310	35,960	1,641,000
1935	113,100	227,100	154,800	185,200	107,800	115,000	86,520	135,800	144,000	14,200	59,920	41,620	1,485,000
1936	30,900	31,220	39,390	154,700	45,060	110,800	160,700	162,300	193,100	79,630	53,550	34,520	1,150,000
1937	27,780	18,770	72,700	18,520	38,580	76,200	111,400	143,700	199,700	99,540	52,870	40,760	900,500
1938	37,680	205,700	168,400	143,500	48,920	70,610	141,000	173,700	58,500	81,830	48,900	37,060	1,316,000

* Revised.

‡ Not previously published; computed from gage heights furnished by power company.

Yearly discharge, in cubic feet per second, of White River at Buckley, Wash.

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Discharge	Date	Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
1899	492	-	-	-	-	-	-	-
1900	492	a14,200	Dec. 1, 1899	650	2,100	1,520,000	1,850	1,340,000
1901	492	a11,200	Jan. 13, 1901	490	1,690	1,220,000	1,590	1,150,000
1902	492	a14,600	Nov. 22, 1901	-	-	-	-	-
1910	492	-	-	-	-	-	-	-
1911	312	*a12,600	Nov. 10, 1910	425	1,460	1,060,000	-	-
1912	492	*a13,000	Nov. 19, 1911	-	-	-	-	-
1913	362	-	-	-	-	-	-	-
1914	392	*6,050	Jan. 6, 1914	405	1,280	927,000	1,320	957,000
1915	412	*4,160	Nov. 3, 1914	429	1,000	725,000	1,120	810,000
1916	442	*9,330	July 2, 1916	418	1,940	1,400,000	1,770	1,280,000
1917	462	*6,760	June 17, 1917	393	1,630	1,180,000	1,930	1,400,000
1918	482	*23,100	Dec. 18, 1917	348	1,770	1,280,000	1,610	1,170,000
1919	512	*b19,000	Jan. 22, 1919	417	1,620	1,180,000	1,530	1,110,000
1920	512	-	-	-	1,330	962,000	*1,410	*1,020,000
1921	1346,532	*b12,400	Dec. 30, 1920	456	*1,860	1,350,000	1,910	1,380,000
1922	552	*b16,600	Dec. 13, 1921	410	1,400	1,010,000	1,210	878,000
1923	572	*b13,300	Jan. 6, 1923	-	1,480	1,050,000	1,520	1,100,000
1924	592	-	-	375	1,290	936,000	1,350	980,000
1925	612	-	-	358	1,430	1,030,000	1,340	968,000
1926	632	-	-	342	1,030	747,000	1,090	791,000
1927	-	-	-	-	1,470	1,070,000	1,760	1,270,000
1928	-	-	-	-	1,870	1,350,000	-	-
1934	-	-	-	-	2,267	1,641,000	2,055	1,488,000
1935	-	14,300	Oct. 25, 1934	-	2,051	1,485,000	1,508	1,092,000
1936	-	8,990	Jan. 4, 1936	-	1,584	1,150,000	1,608	1,167,000
1937	-	7,170	Apr. 14, 1937	-	1,244	900,500	1,648	1,193,000
1938	-	12,400	Apr. 18, 1938	-	1,617	1,316,000	-	-

* Revised.

a Maximum observed.

* Not previously published.

b Flow in bypass channel estimated.

Note.--Records after Sept. 30, 1926, not previously published by Geological Survey; furnished by Puget Sound Power & Light Co.

140. Stuck River near Sumner, Wash.

Location.--Lat 47°14'55" (revised), long. 122°14'35", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 1, T. 20 N., R. 4 E., on right bank 300 ft downstream from county bridge, 3 miles north of Sumner, and $4\frac{1}{2}$ miles upstream from mouth.

Drainage area.--470 sq mi, excludes that of Lake Tapps.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (Inter-County River Improvement Commission benchmark).

Average discharge.--5 years (1945-50), 574 cfs.

Extremes.--1945-50: Maximum discharge, 13,100 cfs Dec. 14, 1946 (gage height, 59.74 ft); minimum, 43 cfs Oct. 19, 1946.

Remarks.--White River flume (see p. 121) diverts 22 miles upstream for storage in Lake Tapps (see p. 125) and for power development at Dieringer powerplant below this station. Flood flow regulated by Mud Mountain Reservoir (see p. 119).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	765	211	441	1,364	347	174	96.2	113	-
1946	117	272	1,064	1,068	544	744	1,116	2,169	1,384	608	188	71.0	781
1947	227	626	2,565	1,187	630	338	561	1,102	595	127	73.9	68.5	676
1948	981	1,358	603	563	693	323	352	1,519	2,742	271	119	90.5	798
1949	115	378	501	159	448	246	980	2,920	950	171	155	71.8	583
1950	144	486	895	610	641	1,550	605	1,287	2,456	1,273	189	89.4	853

Monthly and yearly runoff, in acre-feet, of Stuck River near Sumner, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	42,480	12,980	26,220	83,850	20,660	10,700	5,910	6,720	-
1946	7,170	16,160	65,410	65,670	30,230	45,730	66,410	133,300	82,350	37,360	11,560	4,230	565,600
1947	13,980	37,240	157,700	71,750	34,880	20,770	33,400	67,770	35,410	7,800	4,540	4,080	489,400
1948	60,330	80,680	37,050	34,610	39,880	19,890	20,950	93,370	163,200	16,640	7,320	5,390	579,300
1949	7,050	22,520	30,820	10,420	24,750	15,110	58,350	179,600	56,560	10,510	9,560	4,270	429,500
1950	6,840	28,940	55,010	37,520	35,580	95,310	35,990	79,140	146,100	78,260	11,630	5,320	617,600

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1945	1042	-	-	-	-	-	-	-	-
1946	1062	11,400	Dec. 29, 1945	57	781	565,600	947	685,800	
1947	1092	13,100	Dec. 14, 1946	46	676	489,400	636	489,400	
1948	1122	7,950	Oct. 19, 1947	61	798	579,300	633	461,600	
1949	1152	7,190	May 14, 1948	53	593	429,500	659	429,500	
1950	1162	6,010	Mar. 6, 1950	62	853	617,600	-	-	-

141. Lake Tapps near Sumner, Wash.

Location.--Lat 47°14'30", long. 122°11'30", in NE 1/4 sec. 8, T. 20 N., R. 5 E., 1 1/2 miles east of Dieringer and 3 miles northeast of Sumner.

Gage.--Staff gage. Datum of gage is 0.70 ft above mean sea level (levels by Puget Sound Power and Light Co.).

Extremes.--1911-50: Maximum contents observed, 48,100 acre-ft July 16, 1941, July 14, 21, 28, Aug. 4, 1947, July 12, 1948, Apr. 25, June 24, 25, July 3, 1949, Dec. 1, 7, 1950 (gage height, 540.0 ft); minimum observed, 458 acre-ft June 24, 1912 (gage height, 505.70 ft).

Remarks.--Reservoir is formed by diked natural lake. Lake fed by White River flume (see p. 121) which diverts from White River 10 miles southeast of Buckley. Usable capacity, 50,400 acre-ft between elevations 505 and 541 ft. Dead storage unknown. Contents given herein are usable contents. Water used for power development at Dieringer by Puget Sound Power and Light Co.

Cooperation.--Gage height record and capacity curve furnished by Puget Sound Power and Light Co.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1912	-	17,340	11,800	18,040	17,200	14,340	20,900	14,460	3,380	15,660	27,380	27,190
1913	27,000	20,280	29,900	31,500	34,160	32,100	37,540	5,260	29,880	33,840	36,580	36,830
1914	37,280	37,540	33,800	37,500	36,160	36,490	37,450	39,460	38,310	33,740	35,880	32,120
1915	31,200	25,020	24,840	30,200	29,560	37,630	36,720	37,580	36,090	36,890	36,300	28,480
1916	27,530	26,960	32,360	26,330	36,720	36,890	37,350	37,630	37,720	34,940	36,260	34,830
1917	17,940	25,330	36,390	37,450	37,740	35,630	39,090	38,680	37,190	44,070	43,700	41,170
1918	25,830	15,900	41,940	42,490	43,410	43,830	43,500	34,580	34,680	47,020	46,410	39,320
1919	46,050	43,080	44,490	41,370	44,400	44,710	44,250	43,940	41,350	46,930	46,230	35,550
1920	19,600	44,690	45,040	44,800	41,720	44,430	39,390	45,240	41,030	47,310	46,580	47,240
1921	47,220	44,470	46,850	46,180	40,550	46,250	45,460	43,040	42,930	46,760	47,510	44,950
1922	45,970	46,140	45,260	32,500	10,850	7,690	41,980	46,710	46,650	47,150	44,400	37,250
1923	24,160	24,680	40,110	45,970	38,930	45,610	47,040	46,580	46,450	46,740	45,240	45,090
1924	30,580	32,020	45,550	46,050	45,090	31,600	41,630	46,210	46,800	42,360	39,960	33,680
1925	29,760	36,790	39,630	46,120	44,010	45,240	45,830	42,640	45,750	41,390	36,280	27,650
1926	20,500	22,380	43,610	46,780	45,790	40,730	45,790	43,740	45,750	43,240	38,180	31,620
1927	43,990	46,190	45,790	39,190	43,080	43,830	38,550	45,570	45,500	47,840	43,680	47,620
1928	47,880	44,560	41,720	47,350	36,070	40,600	40,730	47,440	46,960	46,820	36,640	26,800
1929	17,620	16,430	26,770	17,020	12,350	23,890	46,360	46,960	45,220	46,450	36,510	17,890
1930	12,900	14,750	40,800	22,750	44,800	41,570	42,360	44,650	46,120	39,540	34,770	43,830
1931	18,690	22,980	23,250	43,260	43,300	44,690	44,540	47,770	47,150	41,520	26,280	16,520
1932	24,620	34,350	39,760	43,150	26,480	46,820	46,870	46,960	46,850	45,480	45,240	26,910
1933	21,140	46,650	45,590	45,090	34,390	46,320	43,700	46,800	47,070	47,000	41,630	47,020
1934	46,800	46,910	37,320	39,000	47,400	47,370	47,130	46,740	47,090	47,090	42,090	40,090
1935	39,040	44,870	45,550	41,940	44,650	42,780	37,830	39,600	46,910	46,650	37,940	24,640
1936	11,590	16,040	19,680	41,830	14,520	24,430	40,880	42,860	42,620	44,400	31,860	15,240
1937	13,220	15,050	31,160	25,880	28,960	37,690	44,880	42,730	47,020	44,580	30,440	29,160
1938	36,300	45,240	45,000	46,380	40,530	45,590	41,940	46,250	42,360	47,220	44,600	33,610
1939	27,020	38,820	46,470	43,570	44,380	45,020	44,890	44,760	46,120	46,910	43,740	36,910
1940	27,110	24,010	46,120	41,590	46,380	46,340	43,880	45,810	47,660	44,760	45,220	44,380
1941	42,840	40,660	45,260	43,810	28,290	29,080	39,080	44,250	46,470	45,680	44,210	46,560
1942	46,650	45,170	46,300	45,020	43,610	43,520	44,490	47,040	47,310	46,450	46,340	46,740
1943	45,420	46,360	46,080	44,050	46,490	43,740	43,700	44,270	46,740	45,770	44,160	45,990
1944	44,010	44,270	45,460	42,910	42,510	43,700	44,360	44,930	45,720	46,300	45,460	43,350
1945	43,040	45,640	41,520	45,060	44,010	43,520	45,500	44,730	46,210	45,240	43,190	45,680
1946	46,210	45,550	45,280	45,700	46,160	46,710	45,550	43,220	46,820	45,240	44,050	44,930
1947	46,160	46,690	46,900	45,900	45,020	45,770	46,250	44,670	46,410	47,130	47,530	46,520
1948	47,660	47,070	43,960	45,810	46,430	28,710	37,320	47,730	46,430	47,200	45,650	46,600
1949	45,550	47,130	44,230	40,050	46,780	39,080	33,170	35,230	47,090	47,440	44,230	46,820
1950	47,700	46,710	47,130	37,800	40,310	36,320	46,140	45,740	45,920	47,180	46,740	45,460

Note.--Contents not previously published.

142. Puyallup River at Puyallup, Wash.

Location (revised).--Lat 47°12'30", long. 122°19'35", in NW¼ sec. 20, T. 20 N., R. 4 E., on left bank 0.8 mile upstream from highway bridge and Clark Creek, 1 mile northwest of Puyallup, and 7 miles upstream from mouth.

Drainage area.--948 sq mi.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to Dec. 3, 1919, at sites 1½ miles upstream and 900 ft upstream at different datums. Dec. 3, 1919, to Nov. 9, 1935, at site 500 ft upstream at datum 9.61 ft higher.

Average discharge.--36 years (1914-50), 3,254 cfs (unadjusted).

Extremes.--1914-50: Maximum discharge, 57,000 cfs Dec. 10, 1933 (gage height, 31.0 ft, present datum); minimum, probably less than 350 cfs Nov. 24, 28, Dec. 1, 3-5, 1929.

Remarks.--All diverted water returned to river above station. Large part of flow of White River diverted by White River flume into Lake Tapps (see p. 121) and returned via Stuck River above station. Flood flow on White River regulated since 1942 by Mud Mountain Reservoir (see p. 119). Minor pondage on tributaries and upper Puyallup River.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	-	-	-	-	3,500	3,270	2,560	1,970	1,630	-
1915	1,870	4,820	1,590	2,060	1,480	1,640	3,020	2,320	2,700	2,590	2,330	1,410	2,320
1916	2,040	3,830	4,800	1,810	5,010	6,520	3,880	4,510	5,810	5,950	2,900	1,930	4,080
1917	1,310	2,000	2,970	2,970	3,580	1,900	4,670	5,050	6,280	6,370	2,730	1,850	3,630
1918	1,450	1,290	11,200	7,630	4,150	2,620	2,960	3,060	4,340	2,700	2,230	1,940	3,830
1919	1,990	2,350	4,800	5,820	2,840	2,860	4,370	4,010	3,580	3,190	2,240	1,640	3,350
1920	1,540	2,790	3,010	4,880	2,900	2,160	3,450	3,260	3,920	2,970	2,230	2,460	2,960
1921	3,830	2,980	4,000	5,560	6,870	4,940	3,500	4,530	6,150	3,860	2,320	1,750	4,180
1922	1,730	3,330	7,580	2,200	2,340	1,760	2,130	5,060	6,120	3,060	1,790	1,440	3,200
1923	1,290	1,980	3,100	7,180	2,500	2,570	3,690	4,340	4,270	3,570	2,480	2,120	3,870
1924	2,160	1,720	3,100	3,320	5,910	2,310	2,120	3,350	2,570	2,390	1,960	1,640	2,720
1925	1,630	2,660	4,420	4,120	4,440	2,590	3,610	4,350	5,150	2,760	2,150	1,550	3,110
1926	1,230	1,230	4,230	3,580	3,630	2,630	2,220	2,570	2,040	2,040	2,020	1,690	2,420
1927	2,250	2,380	3,530	3,720	3,560	2,600	2,700	3,580	5,500	3,000	2,230	2,350	3,110
1928	3,770	7,550	3,950	5,450	2,170	4,160	4,240	5,160	5,010	3,080	2,080	1,720	2,560
1929	2,100	1,510	1,590	1,710	1,620	2,820	3,900	4,960	5,130	2,690	2,130	1,600	2,560
1930	1,160	678	1,770	1,730	4,030	3,080	3,020	2,720	2,740	2,170	1,780	1,440	2,180
1931	1,620	1,130	1,040	2,550	2,120	2,660	4,300	3,360	3,610	2,430	1,900	1,500	2,350
1932	1,780	2,910	2,860	3,390	4,490	6,430	4,650	4,410	5,350	3,480	2,080	1,840	3,630
1933	2,290	8,120	4,520	5,390	2,020	3,240	3,360	4,360	6,230	4,480	2,580	2,120	4,080
1934	4,516	4,634	15,790	8,024	4,163	5,060	4,236	4,751	2,663	2,066	1,797	1,330	4,927
1935	3,719	5,902	4,414	6,261	3,521	3,135	2,985	3,215	4,116	3,189	2,018	1,626	3,676
1936	1,193	1,238	1,499	4,496	2,734	3,540	4,115	6,647	6,061	3,191	2,438	1,909	3,249
1937	1,358	792	3,140	1,416	2,352	2,996	4,103	4,165	6,222	3,360	2,089	1,661	2,812
1938	1,427	6,280	5,222	4,203	2,324	2,572	4,992	4,430	4,155	2,855	1,918	1,805	3,516
1939	1,700	2,264	3,344	3,796	3,098	3,497	3,380	3,784	3,978	3,050	2,093	1,565	2,963
1940	1,423	1,727	3,392	3,135	4,486	3,964	3,098	3,518	2,447	2,097	1,706	1,561	2,717
1941	1,591	2,217	2,515	2,324	1,801	1,585	1,977	2,587	2,666	2,218	1,737	1,818	2,087
1942	2,513	2,670	4,850	2,325	2,483	1,942	2,487	3,505	5,167	3,682	2,183	1,560	2,917
1943	1,139	4,206	4,638	2,940	4,094	2,763	4,601	3,339	4,448	3,389	1,796	1,502	3,226
1944	1,540	1,480	3,037	2,074	2,305	2,054	2,196	3,027	2,955	2,069	1,628	1,869	2,186
1945	1,315	1,477	2,189	4,693	3,977	2,755	3,395	4,951	3,616	2,375	1,798	2,086	2,879
1946	1,829	4,335	4,594	5,034	4,059	4,289	4,053	5,334	5,290	3,910	2,104	1,383	3,867
1947	2,141	3,907	7,523	4,411	4,110	3,156	3,903	3,962	5,808	2,479	1,505	1,642	3,535
1948	3,928	5,641	4,513	4,084	3,762	3,304	3,153	5,095	6,963	3,447	2,454	1,824	4,011
1949	2,186	3,495	4,358	1,869	3,640	3,904	4,399	6,407	4,399	3,226	2,171	1,488	3,461
1950	2,192	4,067	4,630	4,509	5,600	5,969	4,145	4,692	6,928	5,160	2,643	1,737	4,301

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	-	-	-	-	215,000	195,000	157,000	121,000	97,000	-
1915	115,000	287,000	97,800	127,000	82,200	101,000	180,000	143,000	161,000	159,000	143,000	83,900	1,680,000
1916	125,000	228,000	295,000	111,000	288,000	401,000	231,000	277,000	346,000	366,000	178,000	115,000	2,960,000
1917	80,600	119,000	183,000	183,000	199,000	117,000	278,000	311,000	492,000	592,000	168,000	10,000	2,630,000
1918	89,200	76,800	89,000	469,000	202,000	161,000	176,000	207,000	288,000	66,000	37,000	15,000	2,770,000
1919	122,000	40,000	295,000	358,000	158,000	176,000	260,000	247,000	225,000	191,000	138,000	109,000	2,420,000
1920	94,700	66,000	165,000	500,000	167,000	133,000	205,000	200,000	226,000	33,000	185,000	137,000	2,150,000
1921	236,000	177,000	202,460	300,342	300,382	304,000	214,000	279,000	366,000	237,000	143,000	104,000	3,030,000
1922	106,000	198,000	454,000	350,135	300,108	270,000	331,000	364,000	491,890	390,110	200,857	85,700	2,320,000
1923	79,300	118,000	91,000	441,000	39,000	158,000	220,000	267,000	500,220	400,152	200,266	100,000	2,370,000
1924	133,000	102,000	91,000	204,000	330,142	300,142	300,126	300,217	300,153	400,477	400,121	100,976	2,970,000
1925	100,158	100,158	100,158	100,158	100,158	100,158	100,158	100,158	100,158	100,158	100,158	100,158	2,500,000
1926	75,600	73,200	280,000	220,000	202,000	162,000	132,000	121,000	121,000	25,000	124,000	101,000	1,750,000
1927	138,000	42,000	217,000	229,000	198,000	160,000	161,000	200,227	300,377	300,377	300,377	300,377	2,250,000
1928	232,000	449,000	243,000	336,000	25,000	256,000	252,000	337,000	171,000	189,000	128,000	100,000	2,810,000
1929	129,000	89,800	97,800	105,000	90,000	173,000	167,000	305,000	305,000	305,000	305,000	305,000	1,850,000
1930	71,300	40,300	109,000	106,000	224,000	189,000	180,000	167,000	163,000	133,000	109,000	85,700	1,580,000

Monthly and yearly runoff, in acre-feet, of Puyallup River at Puyallup, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	99,600	87,200	64,000	157,000	184,000	164,000	256,000	207,000	215,000	149,000	117,000	89,300	1,700,000
1932	109,000	173,000	175,000	208,000	259,000	335,000	277,000	271,000	316,000	224,000	28,000	109,000	2,640,000
1933	141,000	483,000	78,000	331,000	112,000	199,000	200,000	268,000	371,000	275,000	59,000	126,000	2,940,000
1934	265,400	275,700	871,100	493,300	231,200	311,100	252,000	292,100	158,500	127,100	10,500	79,120	3,567,000
1935	228,700	351,200	271,400	385,000	195,600	192,600	177,600	197,700	244,900	196,100	124,100	96,750	2,662,000
1936	73,370	73,690	92,170	270,300	157,300	217,600	244,900	408,700	360,700	196,200	149,900	113,600	2,358,000
1937	83,510	47,130	193,100	87,070	130,400	202,440	200,560	103,760	200,206	600,128	500	98,820	2,036,000
1938	87,750	373,700	321,100	258,400	129,100	158,100	237,100	272,400	247,000	175,600	18,000	107,400	2,546,000
1939	104,500	134,700	205,600	233,400	172,000	202,150,000	202,010,000	233,700	236,700	187,500	28,700	93,140	2,145,000
1940	87,520	102,700	208,600	292,800	258,000	243,700	184,300	222,500	145,600	128,900	104,900	92,870	1,972,000
1941	97,800	131,900	154,700	142,900	100,000	97,490	117,700	158,400	158,600	136,400	106,800	108,200	1,511,000
1942	142,200	158,900	298,200	142,900	27,300	119,400	148,000	215,500	307,400	226,400	134,200	89,950	2,112,000
1943	70,040	250,300	285,200	180,800	900,200	31,600	90,273,800	205,300	264,700	208,400	10,400	89,360	2,356,000
1944	94,680	88,070	186,700	127,500	152,600	126,300	130,700	186,100	175,900	127,200	100,111,200	1,587,000	2,584,000
1945	80,880	87,870	134,600	268,600	220,900	169,400	202,000	200,504,000	215,100	146,000	110,600	124,100	2,084,000
1946	112,500	257,900	282,400	309,500	225,400	263,700	241,200	340,300	314,800	240,400	29,400	82,320	2,800,000
1947	131,700	226,600	462,600	271,200	228,300	194,100	232,200	243,600	226,600	152,400	92,510	97,690	2,560,000
1948	141,400	300,350,700	277,500	251,100	216,400	203,300	187,600	313,300	414,300	11,900	50,900	108,500	2,912,000
1949	134,400	208,000	268,000	114,900	202,000	240,000	261,800	261,800	198,400	33,500	88,520	2,055,000	2,505,000
1950	134,800	242,000	284,700	277,300	277,700	367,000	246,800	288,500	412,200	317,100	162,500	103,300	3,114,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1914	412	-	-	-	-	-	-	-
1915	412	9,390	Nov. 3, 1914	1,190	2,320	1,680,000	2,530	1,830,000
1916	442	22,300	Dec. 22, 1915	1,190	4,080	2,960,000	3,710	2,700,000
1917	462	15,000	Dec. 13, 1916	1,120	3,630	2,630,000	4,290	3,100,000
1918	482	40,500	Dec. 18, 1917	870	3,850	2,770,000	3,420	2,480,000
1919	512	36,500	Jan. 23, 1919	1,100	3,350	2,420,000	3,190	2,310,000
1920	512	16,500	Jan. 28, 1920	-	2,960	2,150,000	3,260	2,360,000
1921	532	24,900	Dec. 30, 1920	1,470	4,180	3,030,000	4,320	3,130,000
1922	552	35,600	Dec. 13, 1921	1,280	3,200	2,320,000	2,690	1,950,000
1923	572	31,000	Jan. 6, 1923	-	3,270	2,370,000	3,320	2,400,000
1924	592	21,700	Feb. 12, 1924	1,320	2,720	1,970,000	2,860	2,080,000
1925	612	18,600	Dec. 11, 1924	1,250	3,110	2,250,000	2,940	2,130,000
1926	632	15,800	Dec. 23, 1925	1,040	2,420	1,750,000	2,540	1,840,000
1927	652	14,500	Oct. 16, 1926	1,460	3,110	2,250,000	3,700	2,650,000
1928	672	25,400	Nov. 25, 1927	1,460	3,870	2,810,000	3,050	2,200,000
1929	692	8,610	June 14, 1929	1,240	2,560	1,850,000	2,430	1,760,000
1930	707	8,390	Mar. 25, 1930	410	2,180	1,580,000	2,190	1,590,000
1931	722	19,800	Apr. 1, 1931	-	2,350	1,700,000	2,670	1,930,000
1932	737	33,000	Feb. 26, 1932	704	3,630	2,840,000	4,240	3,080,000
1933	752	37,800	Nov. 13, 1932	1,280	4,060	2,940,000	4,910	3,550,000
1934	767	57,000	Dec. 10, 1933	700	4,927	3,567,000	4,014	2,906,000
1935	792	39,500	Oct. 25, 1934	800	3,676	2,662,000	2,631	2,050,000
1936	812	14,000	June 8, 1936	500	3,249	2,358,000	3,365	2,443,000
1937	832	17,800	Apr. 15, 1937	640	2,812	2,036,000	3,446	2,495,000
1938	862	33,900	Apr. 18, 1938	784	3,516	2,546,000	3,050	2,208,000
1939	882	13,000	Feb. 15, 1939	1,140	2,963	2,145,000	2,900	2,099,000
1940	902	11,500	Feb. 10, 1940	986	2,717	1,972,000	2,697	1,958,000
1941	932	18,400	Nov. 29, 1940	1,090	2,087	1,511,000	2,384	1,726,000
1942	962	22,500	Dec. 19, 1941	1,040	2,917	2,112,000	2,926	2,118,000
1943	982	25,700	Nov. 23, 1942	850	3,226	2,336,000	2,900	2,099,000
1944	1012	19,900	Dec. 3, 1943	886	2,186	1,587,000	2,095	1,521,000
1945	1042	21,800	Jan. 7, 1945	860	2,879	2,084,000	3,362	2,434,000
1946	1062	23,800	Dec. 29, 1945	962	3,867	2,800,000	4,099	2,968,000
1947	1092	33,800	Dec. 11, 1946	848	3,535	2,560,000	3,582	2,593,000
1948	1122	17,000	Nov. 8, 1947	930	4,011	2,912,000	3,875	2,668,000
1949	1152	14,000	Feb. 17, 1949	840	3,461	2,505,000	3,531	2,557,000
1950	1182	17,400	Mar. 4, 1950	840	4,301	3,114,000	-	-

† Corrected.

143. Clark Creek at Puyallup, Wash.

Location.--Lat 47°10'40" (revised), long. 122°19'00", in NE 1/4 sec. 32, T. 20 N., R. 4 E., on left bank in Puyallup, a quarter of a mile upstream from East Branch, half a mile downstream from source at Maplewood Springs, and 3 miles upstream from mouth.

Drainage area.--1.66 sq mi.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 40 ft (from topographic map).

Extremes.--1946-48: Maximum discharge, 27 cfs Mar. 21, 1948 (gage height, 1.37 ft); minimum, 10 cfs Feb. 13, 14, 1946.

Remarks.--No diversion or regulation above station.

PUYALLUP RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Clark Creek at Puyallup, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	11.9	12.0	14.7	15.6	16.7	17.2	17.5	-
1947	17.8	17.9	18.1	17.2	18.2	17.0	17.7	19.1	20.0	20.8	21.0	20.9	18.8
1948	19.0	19.2	18.5	18.4	18.2	17.9	18.7	19.1	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	734	716	902	928	1,030	1,060	1,040	-
1947	1,090	1,070	1,110	1,060	1,010	1,050	1,060	1,170	1,190	1,280	1,290	1,240	13,620
1948	1,170	1,150	1,130	1,130	1,050	1,100	1,110	1,180	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1946	1062	-	-	-	-	-	-	-
1947	1092	25	Jan. 25, 1947	15	18.8	13,620	19.1	13,900
1948	1122	a27	Mar. 21, 1948	-	-	-	-	-

a Maximum during period October to May.

WAPATO CREEK BASIN

144. Wapato Creek near Tacoma, Wash.

Location.--Lat 47°13'30", long. 122°20'10", on section line between secs. 17 and 18, T. 20 N., R. 4 E., on left bank 4 miles upstream from mouth and 5½ miles southeast of Tacoma.

Drainage area.--6.00 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Extremes.--June to October 1949: Maximum discharge, 13 cfs Oct. 28; maximum gage height, 2.02 ft Aug. 1; minimum discharge, 1.5 cfs Aug. 11.

Remarks.--Some diversion for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1949						-	2.79	3.18	4.25	4.72		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1949						-	171	195	253	290		

HYLEBOS CREEK BASIN

145. Hylebos Creek near Tacoma, Wash.

Location.--Lat 47°16'05", long. 122°19'40", in NW¼ sec. 32, T. 21 N., R. 4 E., on right bank 5 miles upstream from mouth and 5.3 miles east of Tacoma.

Drainage area.--11.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 45 ft (from topographic map).

Extremes.--1949-50: Maximum discharge, 108 cfs Mar. 17, 1950 (gage height, 2.65 ft), from rating curve extended above 35 cfs; minimum, 6.4 cfs Aug. 29, 31, 1950.

Remarks.--Several small diversions for domestic use and possibly some regulation at trout farm above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	-	9.99	9.27	8.73	-
1950	9.16	12.1	13.1	19.3	13.9	20.7	16.3	12.0	11.0	9.98	10.2	9.92	13.1

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	-	-	-	814	570	519	-
1950	564	721	808	1,190	770	1,270	969	739	652	613	628	590	9,510

HYLEBOS CREEK BASIN

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Yearly discharge, in cubic feet per second, of Hylebos Creek near Tacoma, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1949	1152	-	-	-	-	-	-	-	-	-	-
1950	1182	108	Mar. 17, 1950	6.8	13.1	1.16	15.80	9,510	-	-	-

DUWAMISH RIVER BASIN

146. Snow Creek near Lester, Wash.

Location.--Lat 47°15'00", long. 121°24'00", in NW¼ sec. 3, T. 20 N., R. 11 E., on right bank at road crossing, a quarter of a mile upstream from mouth, and 5½ miles northeast of Lester.

Drainage area.--11.9 sq mi.

Gage.--Water-stage recorder and, after Aug. 7, 1947, rock or concrete control. Altitude of gage is 1,950 ft (from topographic map).

Average discharge.--5 years (1945-50), 68.8 cfs.

Extremes.--1945-50: Maximum discharge, 988 cfs Dec. 11, 1946 (from rating curve extended above 160 cfs); maximum gage height, 4.39 ft Nov. 8, 1947; minimum discharge, 4.5 cfs Oct. 17-19, 1946.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	38.8	70.4	61.7	46.6	23.2	57.9	104	189	137	40.5	11.0	6.65	65.7
1947	41.5	52.2	142	78.2	59.0	96.9	124	88.5	45.3	21.0	7.97	8.48	63.9
1948	43.1	117	50.0	21.7	36.7	34.6	76.2	206	177	26.6	9.87	10.2	67.3
1949	28.2	36.1	25.9	29.7	35.5	44.6	125	244	139	50.3	13.3	9.61	65.2
1950	62.4	102	72.7	40.3	42.1	75.6	75.5	169	230	85.8	17.9	10.3	82.1

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	2,390	4,190	3,790	2,870	1,290	3,560	6,180	11,630	8,140	2,490	675	396	47,600
1947	2,550	3,110	8,740	4,810	3,280	5,960	7,400	5,440	2,700	1,290	490	505	46,280
1948	2,650	6,950	3,070	1,340	2,110	2,130	4,530	12,650	10,560	1,640	607	609	48,850
1949	1,740	2,150	1,590	1,820	1,970	2,740	7,410	14,980	8,300	3,090	816	572	47,180
1950	3,830	6,080	4,470	2,480	2,340	4,650	4,490	10,410	13,710	5,270	1,100	612	59,440

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1082	443	Dec. 28, 1945	6.0	65.7	5.52	74.99	47,600	71.3	81.34	51,630
1947	1092	988	Dec. 11, 1946	4.7	63.9	5.37	72.91	46,280	61.5	70.19	44,540
1948	1122	930	Nov. 8, 1947	7.6	67.3	5.66	76.96	48,850	57.4	65.62	41,660
1949	1152	488	May 12, 1949	7.1	65.2	5.48	74.36	47,180	77.5	86.38	56,080
1950	1182	692	Nov. 27, 1949	6.8	82.1	6.90	93.66	59,440	-	-	-

147. Friday Creek near Lester, Wash.

Location.--Lat 47°13'10", long. 121°27'10", in SE¼ sec. 18, T. 20 N., R. 11 E., on left bank 0.4 mile upstream from mouth and 2 miles northeast of Lester.

Drainage area.--4.55 sq mi (revised).

Gage.--Water-stage recorder and, since Aug. 25, 1949, wooden control. Altitude of gage is 1,760 ft (from topographic map).

Average discharge.--5 years (1945-50), 29.6 cfs.

Extremes.--1945-50: Maximum discharge, 497 cfs Dec. 11, 1946 (gage height, 4.90 ft); minimum, 1.3 cfs Sept. 26-29, Oct. 2, 3, 1949.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Friday Creek near Lester, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	19.3	33.9	27.7	21.5	13.4	26.3	44.7	81.1	67.1	19.3	4.91	2.98	30.2
1947	17.3	23.6	63.9	37.0	36.9	39.3	51.2	35.4	19.7	10.8	3.76	4.84	28.6
1948	23.7	57.0	31.7	16.9	18.2	16.1	29.0	62.8	73.1	14.0	6.00	5.26	29.6
1949	11.2	22.0	19.5	11.5	16.7	23.3	46.5	87.9	61.1	21.4	6.57	3.45	27.6
1950	22.8	38.0	29.0	23.3	18.2	26.5	30.5	59.7	85.2	34.9	8.39	5.36	31.8

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	1,190	2,020	1,700	1,320	742	1,620	2,660	4,980	3,990	1,190	296	177	21,880
1947	1,070	1,410	3,930	2,270	2,050	2,420	3,050	2,180	1,170	664	231	288	20,730
1948	1,460	3,390	1,950	1,160	1,050	1,390	1,730	3,860	4,350	860	369	313	21,480
1949	687	1,310	1,200	708	928	1,430	2,770	5,400	3,640	1,320	404	205	20,000
1950	1,400	2,260	1,780	1,430	1,010	1,630	1,810	3,670	5,070	2,140	516	319	23,040

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	194	Dec. 28, 1945	2.2	30.2	6.64	90.24	21,880	32.3	96.38	23,380
1947	1092	497	Dec. 11, 1946	2.4	29.6	6.29	85.38	20,730	29.2	87.01	21,120
1948	1122	219	Nov. 10, 1947	3.8	29.6	6.51	88.47	21,480	24.6	73.64	17,880
1949	1152	173	May 12, 1949	1.3	27.6	6.07	82.40	20,000	30.7	91.67	22,240
1950	1182	228	Nov. 27, 1949	1.3	31.8	6.99	94.98	23,040	-	-	-

148. Green River near Lester, Wash.

Location.--Lat 47°12'30", long. 121°33'10" (revised), in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 20, T. 20 N., R. 10 E., on right bank three-eighths of a mile downstream from Champion Creek, 1 $\frac{1}{4}$ miles downstream from McCain Creek, and 3 miles west of Lester.

Drainage area.--104 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,480 ft (from topographic map).

Average discharge.--5 years (1945-50), 454 cfs.

Extremes.--1945-50: Maximum discharge, 10,200 cfs (revised) Dec. 11, 1946 (gage height, 12.7 ft, from high-water mark in well), from rating curve extended above 4,500 cfs; minimum, 33 cfs Sept. 29, Oct. 18, 19, 1946.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	186	436	443	337	229	487	806	1,246	628	198	64.6	43.7	426
1947	168	275	1,064	530	502	600	716	453	220	122	53.0	56.6	398
1948	443	964	433	305	310	281	582	1,237	888	168	87.9	65.2	480
1949	160	371	368	193	337	528	998	1,455	624	208	72.0	48.5	447
1950	221	617	558	318	358	587	631	1,151	1,263	388	91.3	60.6	520

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	11,460	25,960	27,210	20,710	12,700	29,930	47,970	76,590	37,360	12,190	3,970	2,600	308,700
1947	10,300	16,350	66,860	32,600	27,900	36,890	42,590	27,930	13,070	7,490	3,260	3,370	288,300
1948	27,240	57,340	26,620	18,720	17,820	17,280	34,610	76,060	52,860	10,300	5,400	3,880	348,100
1949	9,820	22,090	22,660	11,660	18,730	32,460	59,400	89,490	37,110	12,800	4,430	2,880	323,700
1950	13,600	36,710	34,340	19,550	19,910	36,100	37,570	70,790	75,130	23,870	5,620	3,610	376,800

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	4,010	Dec. 28, 1945	34	426	4.10	55.67	308,700	468	60.84	337,400
1947	1092	*10,200	Dec. 11, 1946	34	398	3.83	52.00	288,300	423	55.22	306,200
1948	1122	3,920	Nov. 8, 1947	38	480	4.62	62.76	348,100	402	52.54	291,500
1949	1152	2,840	May 13, 1949	38	447	4.30	58.36	323,700	489	63.79	353,800
1950	1182	3,610	Nov. 27, 1949	38	520	5.00	67.92	376,800	-	-	-

* Revised.

149. Smay Creek near Lester, Wash.

Location.--Lat 47°15'40", long. 121°33'50", in SW $\frac{1}{4}$ sec. 32, T. 21 N., R. 10 E., on right bank $\frac{3}{2}$ miles upstream from mouth and $4\frac{1}{2}$ miles northwest of Lester.

Drainage area.--8.71 sq mi (revised).

Gage.--Water-stage recorder and, since Aug. 7, 1947, rock or concrete control. Altitude of gage is 1,900 ft (from topographic map). Prior to Dec. 11, 1946, water-stage recorder 200 ft upstream at datum 4.28 ft higher.

Extremes.--1946-50: Maximum discharge not determined, occurred Dec. 11, 1946 when recorder was damaged by high water; minimum, 6.2 cfs Oct. 17-19, 1946.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	27.3	42.6	154	61.3	51.5	50.9	64.5	52.0	32.7	22.9	10.0	12.5	48.6
1948	60.2	122	66.4	47.8	41.1	33.2	55.9	123	113	30.5	15.5	16.5	60.4
1949	25.6	38.2	40.4	27.4	31.0	50.6	77.5	151	81.1	35.5	16.6	10.0	48.8
1950	41.6	72.2	68.1	52.7	51.8	73.3	65.0	112	159	63.4	19.8	12.0	65.9

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	1,680	2,530	9,450	3,770	2,860	3,130	3,840	3,200	1,940	1,410	617	745	35,170
1948	3,700	7,290	4,080	2,940	2,360	2,040	3,330	7,590	6,730	1,870	954	924	43,810
1949	1,570	2,270	2,490	1,690	1,720	3,110	4,610	9,280	4,830	2,180	1,020	598	35,370
1950	2,560	4,290	4,190	3,240	2,870	4,510	3,870	6,910	9,450	3,900	1,220	713	47,720

Yearly discharge, in cubic feet per second

Yearly discharges, in cubic feet per second											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	maximum Date				Inches	Acre-feet		Inches	Acre-feet
1947	1092	-	-	6.2	48.6	5.58	75.70	35,170	50.5	78.73	36,580
1948	1122	412	Nov. 8, 1947	11	60.4	6.93	94.30	43,810	48.3	75.50	35,070
1949	1152	-	-	8.4	48.8	5.60	76.15	35,370	55.3	86.26	40,080
1950	1182	332	Nov. 27, 1949	8.4	65.9	7.57	102.72	47,720	-	-	-

150. Charley Creek near Eagle Gorge, Wash.

Location.--Lat 47°15'00", long. 121°47'00", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 3, T. 20 N., R. 8 E., on left bank 300 ft downstream from Beaverdam Lake Creek, $\frac{1}{2}$ miles southwest of Eagle Gorge, and $1\frac{1}{4}$ miles upstream from mouth.

Drainage area.--11.0 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,350 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 1,380 cfs Dec. 11, 1946 (gage height, 6.17 ft), from rating curve extended above 270 cfs; minimum, 7.2 cfs Oct. 19, 1946 (gage height, 1.16 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	-	-	10.3	-
1947	38.3	81.9	172	106	80.9	69.7	103	35.4	42.0	26.8	15.4	20.5	65.9
1948	94.2	152	87.0	79.7	86.0	52.1	85.4	125	89.7	29.7	36.3	34.7	79.1
1949	42.5	102	79.9	43.8	76.6	81.6	118	128	39.1	26.7	18.2	14.0	64.0
1950	73.5	108	112	68.1	112	139	125	131	128	42.0	23.5	19.1	89.8

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	-	-	611	-
1947	2,360	4,870	10,550	6,500	4,490	4,280	6,140	2,180	2,500	1,650	939	1,220	47,680
1948	5,790	9,030	5,350	4,900	4,950	3,200	5,080	7,670	5,340	1,820	2,230	2,070	57,430
1949	2,600	6,070	4,910	2,700	4,250	5,020	6,990	7,880	2,330	1,640	1,120	833	46,340
1950	4,520	6,400	6,870	4,190	6,240	8,550	7,430	8,040	7,620	2,580	1,440	1,140	65,020

Yearly discharge, in cubic feet per second, of Charley Creek near Eagle Gorge, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1092										
1947	1092	1,380	Dec. 11, 1946	7.4	65.9	5.99	81.29	47,680	69.2	85.38	50,070
1948	1122	559	Nov. 7, 1947	13	79.1	7.19	97.90	57,430	70.0	86.65	50,840
1949	1152	440	Feb. 17, 1949	11.5	64.0	5.92	79.98	46,340	69.8	86.17	50,550
1950	1182	*810	Mar. 4, 1950	12	89.8	8.16	110.85	65,020			

* Revised.

151. Bear Creek near Eagle Gorge, Wash.

Location.--Lat 47°17'00", long. 121°48'10", in NW¼ sec. 28, T. 21 N., R. 8 E., on left bank a quarter of a mile upstream from mouth and 2½ miles northwest of Eagle Gorge.

Drainage area.--4.25 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,000 ft (from topographic map). Prior to Sept. 8, 1949, water-stage recorder 25 ft upstream at same datum.

Extremes.--1946-50: Maximum discharge, 605 cfs Dec. 10 or 11, 1946 (gage height, 4.00 ft, from recorded range in stage, site then in use), from rating curve extended above 50 cfs on basis of slope-area determination; minimum not determined (revised), probably occurred Oct. 17, 18, 1946.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	*14.3	*44.8	76.7	41.3	30.2	26.2	29.6	†7.72	14.4	7.38	2.08	5.49	25.0
1948	48.0	64.8	39.0	35.5	37.8	23.6	37.2	36.6	19.4	8.82	7.73	9.85	30.6
1949	12.1	36.8	26.6	12.7	30.6	31.5	45.7	27.0	6.36	6.92	4.08	3.31	20.2
1950	26.9	36.8	41.4	23.5	41.9	48.3	49.2	41.8	25.1	5.23	5.05	4.92	29.0

* Revised.

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	*879	*2,660	4,720	2,540	1,680	1,610	1,760	†475	857	454	128	326	*18,090
1948	2,950	3,850	2,400	2,180	2,170	1,450	2,210	2,250	1,150	542	475	586	22,210
1949	745	2,190	1,630	779	1,700	1,930	2,720	1,660	379	425	251	197	14,610
1950	1,650	2,190	2,540	1,450	2,330	2,970	2,670	2,570	1,490	321	310	293	20,980

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

Water year ending Sept. 30												Calendar year	
Year	W.S.P. no.	Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1947	12461092	605	Dec. 10 or 11, 1946	*0.5	25.0	5.88	79.80	*18,090	26.3	83.96	19,030		
1948	1122	275	Nov. 7, 1947	3.3	30.6	7.20	98.06	22,210	24.2	77.61	17,580		
1949	1152	367	Feb. 17, 1949	1.7	20.2	4.75	64.46	14,610	22.7	72.49	16,420		
1950	1182	384	Mar. 4, 1950	2.0	29.0	6.82	92.59	20,980					

* Revised.

152. Green River near Palmer, Wash.

Location.--Lat 47°17'40", long. 121°49'20", in SW¼NW¼ sec. 20, T. 21 N., R. 8 E., on right bank 1½ miles upstream from diversion dam and intake of Tacoma water-supply system, 2½ miles downstream from North Fork, and 3½ miles (revised) southeast of Palmer.

Drainage area.--230 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 912.6 ft above mean sea level (river-profile survey).

Average discharge.--19 years (1931-50), 1,063 cfs.

Extremes.--1931-50: Maximum discharge, 23,200 cfs Dec. 11, 1946 (gage height, 19.95 ft, from high-water mark in well); minimum, 81 cfs Sept. 4, 5, 1934.

Flood of December 1917 reached a stage of about 20 ft. from crest head over city of Tacoma diversion dam and gage-height relationship curve (discharge about 25,000 cfs).

Remarks.--No diversion or regulation above station.

DUWAMISH RIVER BASIN

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Monthly and yearly mean discharge, in cubic feet per second, of Green River near Palmer, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1932	653	1,200	985	1,640	1,760	2,950	2,090	1,640	1,110	403	221	209	1,240
1933	576	3,700	1,730	2,380	542	1,250	1,600	1,950	2,140	696	197	391	1,430
1934	1,609	1,858	5,533	3,246	1,142	1,858	1,101	586	265	171	117	148	1,479
1935	1,135	1,792	1,746	2,630	1,377	1,131	1,050	1,254	777	336	195	136	1,130
1936	160	388	640	2,040	666	1,640	1,985	2,224	1,097	315	157	159	958
1937	161	126	1,513	395	830	1,474	1,909	1,787	1,498	453	223	177	879
1938	270	2,686	1,786	1,602	579	996	2,141	1,600	522	202	134	99.2	1,052
1939	166	841	1,601	1,932	1,061	1,412	1,517	1,172	838	338	165	152	933
1940	292	682	1,273	709	1,545	1,517	1,085	1,052	294	169	125	118	736
1941	224	730	1,063	732	523	520	630	530	458	207	144	372	511
1942	962	978	1,780	578	915	834	1,241	1,066	1,534	463	214	136	889
1943	227	1,592	1,911	1,056	1,242	1,096	2,182	1,504	1,147	441	197	146	1,057
1944	265	445	1,456	658	841	785	1,085	263	570	230	162	257	669
1945	239	481	914	2,192	1,406	999	1,565	2,231	854	262	128	448	975
1946	641	1,527	1,520	1,548	1,042	1,693	1,932	2,351	1,466	588	221	170	1,226
1947	539	1,059	3,154	1,765	1,481	1,317	1,622	894	614	399	183	245	1,105
1948	1,384	2,608	1,530	1,240	1,241	975	1,555	2,503	1,842	487	295	265	1,325
1949	523	1,315	1,334	664	1,317	1,713	2,289	2,872	1,226	485	218	167	1,175
1950	761	1,631	1,766	1,066	1,464	2,169	2,000	2,514	2,526	847	279	210	1,436

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1932	40,200	71,400	60,600	101,000	101,000	181,000	124,000	101,000	66,000	24,800	13,600	12,400	897,000
1933	55,400	220,000	106,000	146,000	30,100	76,900	95,200	120,000	127,000	42,800	12,100	23,300	1,030,000
1934	98,910	110,500	94,200	199,800	65,410	14,200	65,510	36,050	15,760	10,530	7,220	8,780	1,071,000
1935	69,820	106,600	107,400	161,700	76,490	69,540	62,490	77,120	46,220	20,660	11,980	8,100	818,100
1936	9,860	23,090	39,340	125,500	38,320	100,800	118,100	100,360	65,300	19,390	9,630	9,430	695,600
1937	9,890	7,520	93,010	24,290	46,110	90,650	113,600	109,900	89,160	27,830	13,700	10,530	636,200
1938	16,620	59,800	109,800	98,510	32,160	61,220	127,400	98,390	31,050	12,400	8,240	75,900	761,500
1939	10,190	50,060	98,470	118,800	58,930	86,840	90,270	72,090	49,850	20,770	10,120	9,060	875,400
1940	17,960	40,580	78,290	43,610	88,840	93,280	64,590	64,690	17,520	10,390	7,690	7,000	534,400
1941	13,770	43,440	65,380	45,010	29,040	31,960	37,500	32,570	27,230	12,730	8,880	22,160	369,700
1942	59,130	58,170	108,200	35,550	50,840	51,270	73,860	65,530	91,290	28,480	13,180	8,120	643,600
1943	13,940	94,730	117,500	65,070	69,000	67,370	128,700	92,470	68,240	27,130	12,130	8,680	765,000
1944	16,280	26,480	89,540	40,430	48,360	48,350	64,550	78,030	33,920	14,160	9,980	15,270	485,400
1945	14,680	28,640	56,170	134,800	78,090	61,410	93,140	37,200	50,840	16,130	7,860	26,650	705,600
1946	39,410	90,880	93,490	95,200	57,880	104,100	114,900	44,600	87,230	36,130	13,610	10,150	887,600
1947	33,140	63,040	93,900	108,500	82,250	80,960	98,520	54,980	36,530	24,530	11,280	14,590	800,200
1948	85,130	55,200	94,090	76,240	71,580	59,970	92,550	53,900	109,600	29,960	18,140	15,740	961,900
1949	32,150	76,220	82,040	40,840	73,160	105,300	136,200	76,600	72,930	29,830	13,430	9,940	850,600
1950	46,810	97,060	108,600	66,780	81,280	133,300	119,000	154,600	150,300	52,100	17,140	12,510	1,039,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet
1932	752,1062	17,400	Feb. 26, 1932	154	1,240	5.39	73.19	897,000	1,500	88.66	1,090,000
1933	752,1062	14,900	Nov. 13, 1932	100	1,430	6.22	84.41	1,030,000	1,690	99.70	1,220,000
1934	767,1062	21,700	Dec. 9, 1933	81	1,479	6.43	87.29	1,071,000	1,112	65.62	804,900
1935	792,1062	13,400	Oct. 25, 1934	115	1,130	4.91	66.70	816,100	856	49.45	606,600
1936	812	7,080	Jan. 4, 1936	107	958	4.17	56.70	695,600	1,011	59.81	733,700
1937	832	5,580	Apr. 14, 1937	112	879	3.82	51.86	636,200	1,122	66.20	812,000
1938	862,1062	13,200	Apr. 18, 1938	88	1,052	4.57	62.08	761,500	876	51.68	634,000
1939	862	6,500	Dec. 7, 1938	96	933	4.06	55.06	675,400	903	53.28	653,600
1940	902	5,040	Feb. 10, 1940	100	736	3.20	43.57	534,400	717	42.41	520,200
1941	932	8,070	Nov. 29, 1940	110	511	2.22	30.14	369,700	853	38.53	472,600
1942	962	7,900	Dec. 19, 1941	109	889	3.87	52.47	643,600	890	52.52	644,300
1943	982	11,200	Nov. 23, 1942	106	1,057	4.60	62.36	765,000	927	54.71	671,100
1944	1012	14,600	Dec. 3, 1943	107	669	2.91	39.57	485,400	623	36.89	452,500
1945	1042	13,600	Jan. 7, 1945	106	975	4.24	57.52	705,600	1,146	67.65	829,900
1946	1062	11,400	Dec. 28, 1945	126	1,226	5.33	72.36	887,600	1,318	77.76	953,900
1947	1092	23,200	Dec. 11, 1946	128	1,105	4.80	65.24	800,200	1,167	68.85	844,600
1948	1122	8,510	Nov. 7, 1947	160	1,325	5.76	78.41	961,900	1,129	66.84	819,900
1949	1152	7,340	Feb. 17, 1949	140	1,175	5.11	69.34	850,600	1,258	74.24	910,700
1950	1182	9,050	Mar. 4, 1950	151	1,436	6.24	84.74	1,039,000	-	-	-

† Corrected.

153. Green River at Kanaskat, Wash.

Location.--Lat 47°19'10", long. 121°53'30", in SE $\frac{1}{4}$ sec. 10, T. 21 N., R. 7 E., on left bank 25 ft downstream from highway bridge and an eighth of a mile southeast of Northern Pacific Railway station at Kanaskat.

Drainage area.--240 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 780 ft (from river-profile map).

Extremes.--May to October 1911: Maximum discharge, 3,450 cfs May 19 (gage height, 6.9 ft), from graph based on gage readings; minimum observed, 132 cfs Aug. 27 to Sept. 2 (gage height, 2.05 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1911					1,750	1,090	398	186	509	276			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1911					108,000	64,900	24,500	11,400	30,300	17,000			

154. Green River near Black Diamond, Wash.

Location.--Lat 47°17'00", long. 122°03'10" (revised), in NW $\frac{1}{4}$ sec. 28, T. 21 N., R. 6 E., on left bank at highway bridge, three-quarters of a mile upstream from Newaukum Creek, and 3 miles southwest of Black Diamond.

Drainage area.--281 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 158.5 ft above mean sea level (river-profile survey). Prior to Nov. 11, 1944, staff gage at same site and datum.

Average discharge.--9 years (1939-48), 1,007 cfs.

Extremes.--1939-48: Maximum discharge, 21,100 cfs Dec. 11, 1946 (gage height, 11.24 ft); minimum observed, 56 cfs Sept. 25, 26, 1940 (gage height, 1.39 ft).

Remarks.--City of Tacoma diverted about 85 cfs from river near Palmer, several miles above station, prior to Mar. 1, 1948 and about 105 cfs thereafter, for municipal use. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	266	687	1,343	783	1,695	1,736	1,166	1,183	301	150	96	77.8	790
1941	181	662	1,039	719	526	495	599	508	450	199	118	333	485
1942	906	964	1,798	657	1,008	*955	1,292	1,140	1,620	542	214	113	*932
1943	168	1,766	2,159	1,190	1,368	1,244	2,346	1,612	1,112	389	172	127	1,134
1944	233	*428	1,459	*724	844	813	1,109	1,366	606	208	127	197	*676
1945	219	468	967	*2,375	1,605	1,138	1,807	2,431	877	298	143	426	1,060
1946	671	1,652	1,624	1,809	1,232	1,905	2,092	2,455	1,475	618	215	142	1,325
1947	534	1,165	3,559	2,102	1,719	1,424	1,714	959	640	357	139	189	1,207
1948	1,489	2,870	1,735	1,558	1,452	1,142	1,693	2,589	1,799	536	308	264	1,450

* Revised.

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	16,380	40,890	82,580	48,130	97,490	106,700	70,550	72,740	17,910	9,230	5,920	4,630	573,200
1941	11,140	39,370	63,870	44,220	29,240	30,440	35,660	31,230	26,770	12,220	7,280	19,800	351,200
1942	55,700	57,340	110,400	40,430	56,000	*58,730	76,260	70,080	96,390	33,310	13,170	6,720	*674,500
1943	10,340	105,100	132,800	73,200	76,000	76,490	139,600	99,090	66,190	23,890	10,590	7,560	820,800
1944	14,320	*25,490	89,700	*44,490	49,580	49,990	66,020	84,020	36,090	12,790	7,780	11,740	*491,000
1945	13,460	27,830	59,430	146,100	89,130	70,000	107,500	149,500	52,180	18,320	8,770	25,360	767,600
1946	41,280	98,280	99,830	111,200	68,430	117,100	124,500	150,900	87,770	38,000	13,250	8,440	959,000
1947	32,830	69,330	218,800	129,200	95,440	87,570	102,000	58,950	38,070	21,940	8,570	11,260	874,000
1948	91,540	70,800	106,700	95,800	83,500	70,210	100,700	59,200	107,000	32,980	18,820	15,740	1,053,000

* Revised.

Yearly discharge, in cubic feet per second, of Green River near Black Diamond, Wash.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1940	902	4,710	Feb. 10, 1940	56	790	573,200	754	547,700
1941	932	8,680	Nov. 29, 1940	70	485	351,200	636	460,300
1942	1346, 962	8,360	Dec. 19, 1941	91	*932	*674,500	*966	*699,300
1943	982	11,000	Nov. 23, 1942	78	1,134	820,800	*970	*702,100
1944	1346, 1012	*13,900	Dec. 3, 1943	73	*676	*491,000	*637	*462,200
1945	1042	14,400	Jan. 7, 1945	112	1,060	767,600	1,252	906,200
1946	1062	11,100	Dec. 29, 1945	105	1,325	959,000	1,437	1,041,000
1947	1092	21,100	Dec. 11, 1946	102	1,207	874,000	1,274	922,000
1948	1122	8,730	Nov. 8, 1947	162	1,450	1,053,000	-	-

* Revised.

155. Newaukum Creek near Enumclaw, Wash.

Location.--Lat 47°13'40", long. 121°58'15", in NW¼ sec. 18, T. 20 N., R. 7 E., on right bank 75 ft upstream from county road crossing and 2 miles north of Enumclaw.

Drainage area.--13.4 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 710 ft (from topographic map).

Extremes.--July to September 1945: Maximum discharge, 45 cfs Sept. 20 (gage height, 2.26 ft); minimum, 7.1 cfs Aug. 22, 29 (gage height, 0.98 ft).

Remarks.--Several small diversions for irrigation above station. Waste water from city of Enumclaw water-supply and sewer systems enters above station.

Monthly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1945											9.90	8.65	13.3

Monthly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1945										609	532	792	

156. Newaukum Creek near Black Diamond, Wash.

Location.--Lat 47°16'30", long. 122°03'30", in SW¼ sec. 28, T. 21 N., R. 6 E., on right bank three-quarters of a mile upstream from mouth and 3½ miles southwest of Black Diamond.

Drainage area.--25.5 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 310 ft (from topographic map).

Average discharge.--6 years (1944-50), 67.3 cfs.

Extremes.--1944-50: Maximum discharge, 1,820 cfs about Feb. 17, 1949 (gage height, 3.54 ft, from recorded range in stage), from rating curve extended above 600 cfs; minimum, 11 cfs Oct. 11, 12, 1944.

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	-	-	-	-	-	-	-	-	-	21.4	16.5	15.3	-
1945	14.1	16.8	25.1	76.2	105	92.3	90.4	66.8	35.1	21.8	19.7	22.8	48.6
1946	27.5	70.2	85.6	134	130	140	67.2	33.3	31.0	27.9	21.4	23.8	65.7
1947	24.3	71.9	156	130	123	70.2	68.7	35.4	31.3	20.9	16.8	19.0	63.6
1948	44.8	86.3	101	129	125	99.2	90.7	83.2	62.2	40.1	29.5	33.4	77.1
1949	39.1	80.7	159	62.6	168	76.3	54.9	47.4	25.5	19.5	16.3	15.0	63.1
1950	21.4	60.7	125	192	158	215	105	55.6	35.2	25.8	21.1	19.3	85.9

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	-	-	-	-	-	-	-	-	-	1,310	1,010	912	-
1945	865	1,120	1,540	4,680	5,810	5,670	5,380	4,110	2,090	1,340	1,210	1,360	35,180
1946	1,690	4,180	5,260	8,250	7,230	8,600	4,000	2,050	1,850	1,720	1,320	1,420	47,570
1947	1,490	4,280	9,570	7,970	6,830	4,320	4,090	2,170	1,860	1,290	1,030	1,150	46,030
1948	2,750	5,260	6,230	7,930	7,210	6,100	5,400	5,120	3,700	2,460	1,820	1,990	55,970
1949	2,400	4,800	9,800	3,850	9,340	4,690	3,260	2,910	1,520	1,200	1,000	894	45,660
1950	1,320	3,610	7,720	11,790	8,780	13,190	6,230	3,420	2,090	1,590	1,300	1,150	62,190

Yearly discharge, in cubic feet per second, of Newaukum Creek near Black Diamond, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1944	1012	-	-	-	-	-	-	-	-	-	-
1945	1042	477	Feb. 7, 1945	11	48.6	1.91	25.86	35,180	59.1	31.46	42,760
1946	1062	510	Dec. 28, 1945	20	65.7	2.58	34.98	47,570	71.5	38.08	51,780
1947	1092	803	Dec. 14, 1946	14	63.6	2.49	33.86	46,030	62.1	33.03	44,930
1948	1122	528	Feb. 25, 1948	17	77.1	3.02	41.14	55,970	80.9	43.18	58,730
1949	1152	1,820	Feb. 17, 1949	14	63.1	2.47	35.58	45,660	57.1	30.38	41,310
1950	1182	1,320	Mar. 4, 1950	13.5	85.9	3.37	45.71	62,190	-	-	-

Note.--Station discontinued Nov. 3, 1950. October 1950: 38.3 cfs; 2,390 acre-ft.

157. Burns Creek near Black Diamond, Wash.

Location--Lat 47°17'00", long. 122°06'10", in NE¼ sec. 25, T. 21 N., R. 5 E., on left bank three-quarters of a mile upstream from mouth and 5 miles southwest of Black Diamond.

Drainage area--3.47 sq mi.

Gage--Water-stage recorder. Altitude of gage is 190 ft (from topographic map).

Extremes--July to September 1945: Maximum discharge, 25 cfs Sept. 20 (gage height, 1.53 ft); minimum, 4.1 cfs Sept. 12-14 (gage height, 1.12 ft).

Remarks--Large portion of flow may come directly from Green River. Small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1945							7.54	5.34	6.94				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1945							464	328	413				

158. Little Soos Creek near Kent, Wash.

Location--Lat 47°22'20", long. 122°06'40", on line between secs. 24 and 25, T. 22 N., R. 5 E., 1½ miles upstream from mouth and 5½ miles east of Kent.

Drainage area--3.12 sq mi, excludes 3.95 sq mi in vicinity of Youngs Lake, flow from which has been diverted to Cedar River since about 1935.

Gage--Water-stage recorder. Altitude of gage is 390 ft (from topographic map). Prior to July 30, 1945, staff gage at same site and datum.

Extremes--1945-46: Maximum discharge, 56 cfs Dec. 28, 1945 (gage height, 1.80 ft); minimum, 0.5 cfs Sept. 23, 24, 1946.

Remarks--No known diversion above station. Flow includes between 2 and 2.5 cfs diverted into stream at source from Youngs Lake except during periods of high flow when diversion is ceased to avoid flood damage.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	1.78	1.82	2.24	-
1946	2.22	8.03	11.8	13.9	12.3	9.64	5.13	2.51	2.66	2.66	1.95	1.56	6.17

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	109	112	133	-
1946	136	478	726	853	686	593	305	154	158	164	120	93	4,470

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date							
1945	1042	-	-	-	-	-	-	-	-	-
1946	1062	56	Dec. 28, 1945		0.6	6.17	4,470		-	-

159. Big Soos Creek above Jenkins Creek, near Auburn, Wash.

Location.--Lat 47°20'20", long. 122°08'00", in N $\frac{1}{2}$ sec. 2, T. 21 N., R. 5 E., on left bank 300 ft upstream from Jenkins Creek and 5 miles northeast of Auburn.

Drainage area.--16.3 sq mi (revised), excludes 3.95 sq mi in vicinity of Youngs Lake, flow from which has been diverted to Cedar River since about 1935.

Gage.--Water-stage recorder. Altitude of gage is 300 ft (from topographic map). July 4 to Nov. 6, 1944, water-stage recorder 150 ft downstream at different datum.

Extremes.--1944-45: Maximum discharge recorded, 35 cfs Sept. 20, 1945 (gage height, 1.66 ft); minimum discharge, 4.3 cfs July 14, 1945.

Remarks.--Several small diversions for domestic use above station. City of Seattle diverts between 2 and 2.5 cfs from Youngs Lake into Little Soos Creek, a tributary, except during periods of high flow.

Monthly mean discharge, in cubic feet per second

Year					June	July	Aug.	Sept.	Oct.	Nov.		
1944					-	6.19	5.90	6.55	8.12	-		
1945					-	6.74	6.42	11.4	-	-		

Monthly runoff, in acre-feet

Year					June	July	Aug.	Sept.	Oct.	Nov.		
1944					-	361	363	390	499	-		
1945					-	414	395	679	-	-		

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1944	1012	118	Oct. 31, 1944	5.1	-	-	-	-	-	-	-
1945	1045	35	Sept. 20, 1945	5.2	-	-	-	-	-	-	-

* Not previously published.

160. Jenkins Creek near Auburn, Wash.

Location.--Lat 47°20'20", long. 122°07'55", in NE $\frac{1}{4}$ sec. 2, T. 21 N., R. 5 E., on left bank 75 ft upstream from mouth and 5 miles northeast of Auburn.

Drainage area.--14.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 300 ft (from topographic map).

Extremes.--1944-45: Maximum discharge recorded, 30 cfs Sept. 4, 1945 (gage height, 6.06 ft); minimum, 10 cfs Oct. 11, 1944.

Remarks.--Minor diversion for domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year					June	July	Aug.	Sept.	Oct.	Nov.		
1944					-	17.7	13.8	12.5	12.1	-		
1945					-	19.4	14.7	17.7	-	-		

Monthly runoff, in acre-feet

Year					June	July	Aug.	Sept.	Oct.	Nov.		
1944					-	1,090	849	742	742	-		
1945					-	1,190	902	1,050	-	-		

161. Covington Creek near Auburn, Wash.

Location (revised).--Lat 47°19'10", long. 122°07'00", in SW $\frac{1}{4}$ sec. 12, T. 21 N., R. 5 E., three-quarters of a mile upstream from mouth and 5 miles northeast of Auburn.

Drainage area.--18.5 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 300 ft (from topographic map).

Extremes.--1944-45: Maximum discharge recorded, 18 cfs June 30, 1945; maximum gage height recorded, 2.96 ft Sept. 26, 1945; minimum discharge observed, 2.4 cfs Nov. 6, 1944, result of discharge measurement.

Remarks.--During low-flow season a coal company diverted entire flow of Rock Creek (head of Covington Creek) above Lake Sawyer. Several other small diversions for domestic use and irrigation above station. No regulation.

DUWAMISH RIVER BASIN

Monthly mean discharge, in cubic feet per second, of Covington Creek near Auburn, Wash.

Year					June	July	Aug.	Sept.	Oct.			
1944					-	6.35	3.96	3.14	-			
1945					-	10.9	5.40	6.12	-			

Monthly runoff, in acre-feet

Year					June	July	Aug.	Sept.	Oct.			
1944					-	390	244	187	-			
1945					-	669	332	364	-			

162. Big Soos Creek near Auburn, Wash.

Location.--Lat 47°19'00", long. 122°08'40", in SE $\frac{1}{4}$ sec. 10, T. 21 N., R. 5 E., on left bank three-quarters of a mile downstream from Covington Creek, 2 miles upstream from mouth, and 4 miles east of Auburn.

Drainage area.--49.4 sq mi (revised), excludes 3.95 sq mi in vicinity of Youngs Lake, flow from which has been diverted to Cedar River since about 1935.

Gage.--Water-stage recorder. Altitude of gage is 170 ft (from topographic map).

Average discharge.--6 years (1944-50), 131 cfs.

Extremes.--1944-50: Maximum discharge, 869 cfs Mar. 5, 1950 (gage height, 4.11 ft); minimum, 22 cfs Aug. 30, Sept. 9, Oct. 21, 1944.

Remarks.--Several small diversions for irrigation and domestic use above station. City of Seattle diverts between 2 and 2.5 cfs from Youngs Lake into Little Soos Creek, a tributary, except during periods of high flow.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	-	-	-	-	-	-	-	-	-	-	-	-	-
1945	25.0	34.5	45.4	141	223	178	169	142	80.1	42.3	29.8	24.6	94.7
1946	38.7	129	193	304	285	268	189	103	67.2	48.3	32.8	35.9	140
1947	38.1	80.2	309	207	272	154	124	69.5	59.7	38.8	30.7	31.2	117
1948	77.0	174	211	325	239	226	181	163	113	85.1	56.5	51.7	158
1949	57.5	126	288	151	278	208	130	101	58.6	38.2	28.1	27.9	123
1950	36.7	64.5	145	298	341	431	228	119	66.6	43.1	33.8	30.8	152

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	-	-	-	-	-	-	-	-	-	-	-	-	-
1945	1,540	2,050	2,670	8,690	12,400	10,930	10,080	8,720	4,770	2,600	1,830	1,480	68,590
												2,310	
1946	2,380	7,670	11,870	18,720	15,840	16,470	11,220	6,320	4,000	2,970	2,020	2,140	101,600
1947	2,340	4,770	19,010	12,740	15,120	9,450	7,560	4,280	3,550	2,390	1,890	1,860	84,760
1948	4,750	10,350	12,970	20,000	13,740	13,890	10,780	10,020	6,730	5,230	3,470	3,080	115,000
1949	3,540	7,470	17,700	9,290	15,460	12,770	7,710	6,230	3,490	2,350	1,730	1,660	89,400
1950	2,260	3,840	8,940	18,310	18,940	26,500	13,540	7,300	3,960	2,650	2,080	1,830	110,200

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Inches	Runoff Acre-feet	Mean	Runoff		
		Discharge	Date							Inches	Acre-feet	
1944	1012	-	-	-	-	-	-	-	-	-	-	-
1945	1042	493	Feb. 8, 1945	23	94.7	1.92	26.05	68,590	116	32.00	84,250	-
1946	1062	488	Jan. 8, 1946	31	140	2.83	38.57	101,600	146	40.17	105,800	-
1947	1092	748	Dec. 15, 1946	27	117	2.37	32.18	84,760	120	32.91	86,690	-
1948	1122	496	Feb. 26, 1948	28	158	3.20	43.66	115,000	159	43.91	115,600	-
1949	1152	735	Feb. 17, 1949	25	125	2.49	33.93	89,400	105	28.74	75,730	-
1950	1182	869	Mar. 5, 1950	28	152	3.08	41.82	110,200	-	-	-	-

163. Green River near Auburn, Wash.

Location.--Lat 47°18'15", long. 122°12'10", in lot 3, NW $\frac{1}{4}$ sec. 17, T. 21 N., R. 5 E., on left bank $\frac{1}{2}$ miles east of Auburn and 2 miles downstream from Big Soos Creek.

Drainage area.--382 sq mi (revised), excludes 4 sq mi in vicinity of Youngs Lake, flow from which has been diverted to Cedar River since about 1935.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929.

Average discharge.--14 years (1936-50), 1,274 cfs.

Extremes.--1936-50: Maximum discharge, 22,000 cfs Dec. 11, 1946 (elevation, 68.16 ft); minimum, 113 cfs Sept. 25, 1940; minimum elevation, 54.21 ft Sept. 1-3, 1945.

Remarks.--Diversion of about 85 cfs May 8, 1913, to Mar 1, 1948, and about 108 cfs thereafter, near Palmer several miles above station, for municipal supply of city of Tacoma. Many small diversions on tributaries for domestic use and irrigation above station. Minor regulation on Little Soos Creek, a tributary.

DUWAMISH RIVER BASIN

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Monthly and yearly mean discharge, in cubic feet per second, of Green River near Auburn, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	-	-	-	-	-	-	-	-	-	-	567	376	-
1937	230	187	1,757	627	1,304	1,909	2,505	2,010	1,685	587	287	231	1,108
1938	321	3,142	2,496	2,509	1,084	1,463	2,682	1,977	728	317	185	144	1,421
1939	222	966	1,753	2,449	1,694	1,923	1,810	1,342	1,033	466	233	203	1,174
1940	327	821	1,600	1,028	2,071	2,077	1,450	1,399	408	223	155	148	972
1941	285	824	1,377	1,030	732	681	827	676	607	290	182	437	662
1942	1,058	1,156	2,358	981	1,350	1,137	1,457	1,266	1,849	639	298	196	1,143
1943	222	1,923	2,367	1,435	1,630	1,438	2,624	1,685	1,331	569	238	173	1,298
1944	305	521	1,631	906	1,180	1,041	1,302	1,492	768	303	195	286	827
1945	276	562	1,075	2,762	2,099	1,583	2,172	2,797	1,076	362	201	510	1,285
1946	734	1,946	2,040	2,432	1,776	2,442	2,453	2,665	1,710	774	297	239	1,625
1947	753	1,341	4,182	2,452	2,211	1,757	1,977	1,117	750	453	204	256	1,451
1948	1,607	3,062	1,974	1,980	1,812	1,531	1,958	2,854	2,205	707	404	375	1,703
1949	643	1,568	1,945	1,000	1,875	2,042	2,409	3,016	1,318	537	250	187	1,398
1950	778	1,741	2,225	1,715	2,187	3,112	2,615	2,829	2,648	954	340	244	1,778

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	-	-	-	-	-	-	-	-	-	-	34,860	22,340	-
1937	14,170	11,140	108,000	38,530	72,430	117,400	149,100	123,600	100,300	36,070	17,640	13,740	802,100
1938	19,740	187,000	153,500	154,300	60,180	89,930	159,600	211,500	43,330	19,500	11,400	8,550	1,029,000
1939	13,660	57,460	107,800	150,600	94,070	118,200	107,700	82,530	61,490	29,910	14,330	12,070	849,800
1940	20,110	48,850	98,350	63,230	119,100	127,700	66,280	86,010	24,270	13,720	9,510	8,790	705,900
1941	17,520	49,030	84,670	63,340	40,630	41,880	49,240	41,540	36,100	17,820	11,210	25,990	479,000
1942	64,900	68,790	45,000	60,340	75,000	69,930	86,720	77,810	10,000	39,280	18,320	11,680	827,800
1943	13,670	114,400	45,600	88,250	90,550	88,450	156,100	103,600	79,200	35,000	14,660	10,300	939,800
1944	18,730	31,020	100,300	55,690	67,900	64,030	77,490	91,710	45,700	18,640	12,000	17,010	600,200
1945	16,950	33,460	66,090	69,800	116,600	97,320	129,300	172,000	64,000	22,280	12,330	30,340	930,500
1946	45,150	115,800	25,400	149,600	98,640	150,100	146,000	163,900	101,800	47,610	16,260	14,240	1,178,000
1947	45,040	79,810	257,200	150,800	122,800	108,000	117,700	68,700	44,640	27,840	12,520	15,230	1,050,000
1948	98,800	182,200	211,400	21,700	104,200	94,140	116,600	175,500	31,200	43,450	24,810	22,290	1,236,000
1949	39,530	93,290	119,600	61,500	104,200	25,500	143,400	185,600	78,430	33,000	15,370	11,110	1,011,000
1950	47,640	103,600	136,800	105,500	121,500	191,300	155,600	174,000	157,600	58,680	20,880	14,500	1,288,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1936	832	-	-	-	-	-	-	-
1937	832	6,820	Apr. 15, 1937	170	1,108	802,100	1,421	1,029,000
1938	862	14,400	Apr. 18, 1938	125	1,421	1,029,000	1,170	847,200
1939	882	5,420	Dec. 8, 1938	125	1,174	849,800	1,158	838,200
1940	902	5,150	Feb. 10, 1940	113	972	705,900	950	669,800
1941	932	7,290	Nov. 29, 1940	145	662	479,000	838	606,400
1942	962	9,310	Dec. 19, 1941	166	1,143	827,800	1,137	822,800
1943	982	10,900	Nov. 23, 1942	136	1,298	939,800	1,127	816,200
1944	1012	12,900	Dec. 3, 1943	122	827	600,200	781	566,700
1945	1042	13,600	Jan. 7, 1945	164	1,285	930,500	1,520	1,100,000
1946	1062	12,800	Dec. 29, 1945	200	1,625	1,176,000	1,757	1,272,000
1947	1092	22,000	Dec. 11, 1946	168	1,451	1,050,000	1,479	1,071,000
1948	1122	8,960	Nov. 8, 1947	258	1,703	1,236,000	1,498	1,086,000
1949	1152	9,470	Feb. 17, 1949	158	1,396	1,011,000	1,445	1,046,000
1950	1182	11,800	Mar. 4, 1950	166	1,778	1,288,000	-	-

LAKE WASHINGTON BASIN

164. North Fork Cedar River near Lester, Wash.

Location.--Lat 47°19'00", long. 121°30'00" (revised), in SW¼ sec. 11, T. 21 N., R. 10 E., on left bank at falls 1 mile upstream from confluence with South Fork and 7½ miles north of Lester.

Drainage area.--8.81 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 2,320 ft (from topographic map).

Average discharge.--6 years (1944-50), 72.3 cfs.

Extremes.--1944-50: Maximum discharge, 1,180 cfs (revised) Jan. 7, 1945 (gage height, 7.3 ft), from rating curve extended above 350 cfs; minimum, 8.2 cfs Oct. 18, 19, 1946 (gage height, 1.53 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of North Fork Cedar River near Lester, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	*17.6	25.2	*50.2	*112	*65.8	25.9	48.8	*192	115	29.0	11.5	27.0	*60.0
1946	*45.3	73.7	*51.2	36.8	19.2	34.4	82.2	*210	*183	83.4	16.2	10.6	*70.8
1947	*43.9	39.4	131	74.7	85.6	80.9	115	125	74.2	27.1	11.4	17.2	*67.0
1948	98.8	118	57.4	31.5	36.3	26.4	49.9	184	270	52.9	20.1	17.0	80.1
1949	35.2	44.0	32.7	25.3	37.0	39.9	82.0	245	172	94.1	23.9	13.5	70.5
1950	63.8	107	56.7	41.4	34.0	65.5	54.8	151	278	144	27.3	18.2	85.2

* Revised.

† Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	*1,080	1,500	*3,090	*6,890	*3,650	1,590	2,910	*11,790	6,850	1,780	704	1,600	*43,430
1946	*2,780	4,390	*3,150	2,260	1,070	2,110	4,890	*12,930	*10,900	5,130	994	632	*51,240
1947	*2,700	2,290	8,080	4,590	3,640	4,970	6,730	7,710	4,420	1,670	700	1,030	*48,530
1948	6,070	7,030	5,530	1,930	2,080	1,620	2,970	11,310	16,070	3,250	1,230	1,010	58,110
1949	2,160	2,820	2,450	1,560	2,050	2,450	4,890	15,060	10,200	5,780	1,470	700	51,050
1950	3,930	6,370	3,480	2,540	1,890	4,030	3,260	8,080	16,540	8,640	1,680	1,080	61,720

* Revised.

† Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1945	1286,1042	*1,180	Jan. 7, 1945	10	*60.0	*6.81	*92.46	*43,430	*66.4	*102.36	*48,080	
1946	1286,1062	*575	Oct. 25, 1945	8.7	*70.8	*8.04	*109.05	*51,240	*74.6	*114.91	*53,990	
1947	1286,1092	*1,050	Dec. 11, 1946	8.4	*67.0	*7.60	*103.29	*48,530	*72.0	*110.86	*52,090	
1948	1122	645	(a)	12	80.1	9.09	123.70	58,110	66.5	102.76	48,270	
1949	1152	590	May 12, 1949	12	70.5	8.00	108.66	51,050	80.2	123.53	58,040	
1950	1182	960	Nov. 27, 1949	11.5	85.2	9.67	131.35	61,720	-	-	-	

* Revised.

† Corrected.

* Not previously published.

a Oct. 19, 1947, May 28, 1948.

165. South Fork Cedar River near Lester, Wash.

Location (revised).--Lat 47°18'30", long. 121°31'00", in NE¼ sec. 15, T. 21 N., R. 10 E., on left bank about half a mile upstream from confluence with North Fork and 7 miles northwest of Lester.

Drainage area.--6.00 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 2,300 ft (from topographic map).

Average discharge.--6 years (1944-50), 42.9 cfs.

Extremes.--1944-50: Maximum discharge, 878 cfs Jan. 7, 1945 (gage height, 4.86 ft), from rating curve extended above 125 cfs; maximum gage height, 6.38 ft Feb. 17, 1949 (backwater from ice and debris); minimum discharge, 2.9 cfs Oct. 17-19, 1946 (gage height, 1.25 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	*8.40	10.6	37.8	80.2	39.8	13.4	31.2	122	48.4	10.5	4.15	10.1	*34.7
1946	24.0	37.4	37.1	23.0	10.6	27.2	62.1	178	107	35.7	6.84	3.70	46.3
1947	27.9	25.8	90.0	51.5	38.1	49.0	65.7	44.8	27.9	13.5	5.08	6.46	37.2
1948	51.0	80.7	38.9	20.1	22.4	19.9	33.1	109	114	20.3	9.19	7.67	43.8
1949	18.0	29.4	26.1	15.3	27.6	28.6	54.3	140	91.3	44.6	12.0	5.77	41.1
1950	48.6	96.5	41.7	30.5	27.4	42.5	33.4	76.0	173	62.1	12.4	7.45	54.2

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	*517	834	2,310	4,930	2,210	825	1,860	7,480	2,980	645	255	603	*25,150
1946	1,470	2,220	2,280	1,410	588	1,670	3,690	10,970	6,370	2,190	420	220	33,500
1947	1,710	1,530	5,530	3,170	2,120	3,010	3,910	2,760	1,660	830	312	384	26,930
1948	3,130	4,800	2,390	1,240	1,290	1,220	1,970	6,720	6,770	1,250	565	457	31,800
1949	1,110	1,750	1,610	943	1,530	1,760	3,230	8,600	5,430	2,740	740	343	29,790
1950	2,990	5,740	2,560	1,870	1,520	2,610	1,990	4,670	10,290	3,920	761	443	39,260

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second, of South Fork Cedar River near Lester, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	878	Jan. 7, 1945	3.2	34.7	5.78	78.60	25,150	38.2	86.47	27,660
1946	1062	398	Dec. 28, 1945	3.0	46.3	7.72	104.78	33,500	50.2	113.52	36,300
1947	1092	630	Dec. 11, 1946	2.9	37.2	6.20	84.15	26,930	39.5	89.00	28,480
1948	1122	540	Nov. 7, 1947	4.8	43.8	7.30	99.41	31,800	35.7	81.08	25,950
1949	1152	305	May 13, 1949	4.8	41.1	6.85	93.07	29,790	50.6	114.41	36,610
1950	1182	595	Nov. 27, 1949	4.8	54.2	9.03	122.70	39,250	-	-	-

* Corrected.

† Not previously published.

166. Cedar River below Bear Creek, near Cedar Falls, Wash.

Location.--Lat 47°20'40", long. 121°33'00", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 32, T. 22 N., R. 10 E., on right bank 500 ft downstream from Bear Creek and 12 miles southeast of Cedar Falls.

Drainage area.--25.4 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,880 ft (from topographic map).

Average discharge.--5 years (1945-50), 189 cfs.

Extremes.--1945-50: Maximum discharge, 1,940 cfs Dec. 11, 1946 (gage height, 6.32 ft); minimum, 18.5 cfs Feb. 9, 1949, result of freeze up; minimum gage height, 2.59 cfs Oct. 17-19, 1946.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	112	194	180	132	66.2	133	238	491	387	164	42.0	27.4	180
1947	106	130	353	219	183	211	288	245	162	72.0	28.5	39.9	169
1948	256	338	173	104	109	90.9	188	457	543	114	49.0	42.1	204
1949	91.7	154	116	72.8	95.9	127	256	565	375	184	58.6	34.9	178
1950	155	256	192	125	123	195	169	362	608	282	65.4	41.2	215

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	6,860	11,530	9,860	8,120	3,680	8,180	14,180	30,210	23,020	10,110	2,580	1,630	130,000
1947	6,500	7,730	21,690	13,440	10,140	13,000	16,830	15,060	9,660	4,450	1,750	2,370	122,600
1948	15,770	20,110	10,650	6,390	6,280	5,590	10,010	28,120	32,310	7,010	3,010	2,510	147,600
1949	5,640	9,190	7,130	4,470	5,330	7,830	15,240	34,720	22,330	11,330	3,600	2,080	128,900
1950	9,530	15,210	11,800	7,700	6,820	12,000	10,060	22,240	36,190	17,320	4,020	2,450	155,300

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	1,110	Dec. 28, 1945	21	180	7.09	95.94	130,000	190	101.61	137,600
1947	1092	1,940	Dec. 11, 1946	20	169	6.85	90.50	122,600	184	98.32	133,200
1948	1122	1,250	(a)	31	204	8.03	109.06	147,800	170	90.92	123,200
1949	1152	1,090	May 13, 1949	28	178	7.01	95.12	128,900	198	105.90	143,500
1950	1182	1,510	Nov. 27, 1949	30	215	8.46	114.69	155,300	-	-	-

a Nov. 7, 1947, May 28, 1948.

167. Cedar River near Cedar Falls, Wash.

Location.--Lat 47°22'20", long. 121°37'30", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 23, T. 22 N., R. 9 E., on right bank 2 miles upstream from Cedar Lake and 8 miles southeast of Cedar Falls.

Drainage area.--41.8 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,560 ft (from topographic map).

Average discharge.--5 years (1945-50), 290 cfs.

Extremes.--1945-50: Maximum discharge (revised), 3,850 cfs Dec. 11, 1946 (gage height, 9.34 ft); maximum gage height, 9.81 ft Dec. 14, 1946 (backwater from Cedar Lake); minimum discharge, 34 cfs Sept. 29, Oct. 18, 1946.

Remarks.--No diversion or regulation above station. Records during periods of backwater from Cedar Lake computed by stage-ratio method.

LAKE WASHINGTON BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Cedar River near Cedar Falls, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	179	325	278	251	130	255	375	*678	*533	223	61.5	43.4	*278
1947	168	235	*602	384	326	317	417	327	217	107	44.0	67.1	*267
1948	403	*523	297	*213	206	175	281	618	*640	156	74.7	68.7	*304
1949	140	274	211	121	204	277	417	757	451	227	80.0	47.4	267
1950	237	387	313	220	246	420	362	558	779	330	102	68.4	335

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	11,020	19,310	17,100	15,440	7,250	15,670	22,320	*41,690	*31,700	13,700	3,780	2,580	*201,600
1947	10,330	15,960	*37,040	23,600	18,090	19,470	24,850	20,090	12,930	6,600	2,710	3,990	*193,600
1948	24,760	*31,120	18,260	*13,090	11,840	10,750	16,730	38,020	*38,100	9,600	4,590	4,090	*221,000
1949	8,630	16,320	12,980	7,410	11,350	17,030	24,810	46,570	26,820	13,980	4,920	2,820	193,600
1950	14,580	23,020	19,240	13,500	13,650	25,800	21,570	34,330	46,370	20,300	6,300	4,070	242,700

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-foot		Inches	Acres-foot
1946	1286,1062	2,160	Dec. 28, 1945	35	*278	*6.65	*90.41	*201,600	*238	*96.64	*215,500
1947	1286,1092	*3,850	Dec. 11, 1946*	35	*267	*6.39	*86.84	*193,600	*285	*92.59	*206,400
1948	1286,1122	1,920	Nov. 7, 1947	47	*304	*7.27	*99.10	*221,000	*254	*82.86	*184,700
1949	1152	1,470	May 13, 1949	37	267	6.39	86.86	193,600	294	95.35	212,600
1950	1182	2,460	Nov. 27, 1949	39	335	8.01	108.88	242,700	-	-	-

* Revised.

168. Rex River near Cedar Falls, Wash.

Location.--Lat 47°21'10", long. 121°39'50", in NE¼NW¼ sec. 33, T. 22 N., R. 9 E., on right bank 2½ miles upstream from mouth and Cedar Lake and 7 miles southeast of Cedar Falls.

Drainage area.--13.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,600 ft (from topographic map).

Average discharge.--5 years (1945-50), 111 cfs.

Extremes.--1945-50: Maximum discharge recorded, 1,780 cfs (revised) Dec. 28, 1945 (gage height, 6.20 ft), from rating curve extended above 680 cfs, but may have been greater Dec. 14, 1946, during period of faulty gage-height record; minimum recorded, 8.1 cfs Sept. 29, 30, 1946; minimum gage height, 2.60 ft Aug. 25-29, 1947.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	87.8	130	*138	115	68.6	113	143	256	186	61.1	13.7	10.1	*111
1947	72.2	106	278	141	134	112	157	92.5	80.0	31.0	11.4	34.4	104
1948	171	213	137	89.5	94.5	59.1	107	219	218	40.2	29.8	31.0	117
1949	60.6	131	78.7	40.1	101	111	160	243	156	74.8	22.6	16.9	99.6
1950	116	152	127	79.8	111	138	130	186	263	116	30.3	25.5	123

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	5,400	7,760	*8,510	7,070	3,810	6,940	8,530	15,770	11,060	3,750	843	599	*80,040
1947	4,440	6,330	17,090	8,700	7,460	6,900	9,320	5,690	4,760	1,910	704	2,050	75,350
1948	10,500	12,690	8,440	5,500	5,430	3,630	6,340	13,490	13,000	2,470	1,890	1,850	85,170
1949	5,720	7,800	4,840	2,470	5,600	6,820	9,500	14,970	9,380	4,600	1,390	1,000	72,090
1950	7,100	9,030	7,810	4,910	6,150	8,520	7,730	11,420	15,640	7,120	1,860	1,520	88,810

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-foot		Inches	Acres-foot
1946	1286,1062	*1,780	Dec. 28, 1945	8.4	*111	*8.54	*115.47	*80,040	119	124.38	86,230
1947	1092	-	-	8.6	104	8.00	108.66	75,350	109	114.10	79,120
1948	1122	*1,090	Nov. 7, 1947	15.5	117	9.00	122.84	85,170	96.3	100.83	69,900
1949	1152	*938	Nov. 23, 1948	9.8	99.6	7.66	103.98	72,090	110	114.93	79,670
1950	1182	*1,560	Nov. 27, 1949	11	123	9.46	128.12	88,810	-	-	-

* Revised.

169. Cedar River at Cedar Lake, near North Bend, Wash. 1/

Location.--Lat 47°24'20", long. 121°43'10", in SE $\frac{1}{4}$ sec. 12, T. 22 N., R. 8 E., on right bank 800 ft downstream from outlet of Cedar Lake, 3 miles southeast of Cedar Falls, and 7 miles (revised) southeast of North Bend.

Drainage area.--77.7 sq mi. At site 1898-99, 79.2 sq mi.

Gage.--Staff gage. Datum of gage is 1,542.07 ft above mean sea level (levels by city of Seattle). June 26, 1898, to May 28, 1899, staff gage at Vaughn Bridge 2,000 ft downstream at different datum.

Extremes.--1898-99, 1902-3: Maximum discharge observed, 5,080 cfs Jan. 21, 1899 (gage height, 6.60 ft, site and datum then in use), from rating curve extended above 370 cfs; minimum observed, 44 cfs Sept. 9-12, 14-19, 1898 (gage height, 1.20 ft, site and datum then in use).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	-	-	203	68.0	73.1	-
1899	168	610	684	1,290	1,110	321	590	\$1,250	-	-	-	-	-
1903	-	668	797	1,260	289	243	414	894	931	340	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	-	-	12,500	4,180	4,350	-
1899	10,300	36,300	42,100	79,300	61,600	19,700	35,100	\$76,900	-	-	-	-	-
1903	-	39,700	49,000	77,500	16,000	14,900	24,600	55,000	55,400	20,900	-	-	-

† Corrected.

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Maximum observed		Minimum day	Mean	Per square mile	Runoff	Mean		Runoff	Mean	Runoff	Mean
		Discharge	Date					Inches	Acre-feet		Inches	Acre-feet	
1898	492	-	-	44	-	-	-	-	-	-	-	-	-
1899	492	5,080	Jan. 21, 1899	-	-	-	-	-	-	-	-	-	-
1903	492,100	4,310	Jan. 3, 1903	-	-	-	-	-	-	-	-	-	-

Note.--Estimates of discharge for August 1895 to June 1898, June 1901 to October 1902, and August 1903 to December 1907 (published in W.S.P. 492) are considered unreliable and are not published herein.

170. Cedar River at Cedar Falls, Wash.

Location.--Lat 47°25'10", long. 121°47'20", in SE $\frac{1}{4}$ sec. 4, T. 22 N., R. 8 E., on right bank three-quarters of a mile downstream from Seattle municipal powerplant at Cedar Falls and 3 miles downstream from Cedar Lake.

Drainage area.--84.2 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 910 ft (from river-profile map).

Average discharge.--36 years (1914-50), 297 cfs.

Extremes.--1914-50: Maximum discharge (revised), 6,440 cfs Dec. 22, 1933 (gage height, 11.5 ft); no flow part of Nov. 25, 1917, Aug. 18, 1923; minimum daily, 2 cfs Sept. 20, 1922.

Remarks.--All artificially diverted water returned to river above station. Regulated by Cedar Lake for power.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	-	-	-	\$635	525	355	187	167	147	-
1915	128	338	224	204	179	191	224	71.7	62.4	81.3	85.5	179	164
1916	218	502	515	232	525	858	565	690	873	491	237	221	493
1917	145	245	283	459	671	275	459	811	1,420	814	258	160	498
1918	152	150	2,200	1,390	617	363	512	502	440	213	117	123	567
1919	227	405	506	511	311	261	319	433	395	253	106	95.9	319
1920	182	330	344	408	435	320	330	319	316	214	112	219	293
1921	336	319	333	491	410	423	370	379	382	328	215	172	348
1922	187	292	849	361	204	153	260	317	430	288	174	92	302
1923	106	277	295	813	315	283	315	387	380	266	247	52.3	312
1924	152	151	354	400	524	421	301	342	285	72.6	53.2	178	269
1925	147	165	346	410	610	240	291	332	174	65.1	44.0	92.5	241

1/ Published as Cedar River at Vaughn Bridge, 1898-99.

Monthly and yearly mean discharge, in cubic feet per second, of Cedar River at Cedar Falls, Wash.--
Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	69.8	246	302	423	214	189	119	98.5	79.1	24.5	30.8	110	158
1927	281	219	297	363	149	229	161	292	471	257	75.5	75.9	1240
1928	212	637	519	740	302	223	203	122	126	98.6	53.4	47.1	299
1929	15.8	78.5	79.1	152	176	171	308	265	318	136	99.4	37.4	185
1930	36.6	91.8	108	229	239	358	193	180	148	87.5	56.9	38.2	147
1931	49.9	244	284	234	152	158	287	228	197	160	99.5	120	184
1932	180	233	240	302	337	800	716	504	452	215	132	132	352
1933	137	960	509	695	210	271	230	261	829	342	174	116	395
1934	162	572	2,193	1,175	304	528	422	195	180	80.0	45.0	45.0	496
1935	100	207	439	853	512	265	236	251	249	160	76.6	73.7	284
1936	64.5	64.3	114	524	285	407	205	711	407	174	99.0	62.5	261
1937	57.4	43.7	159	205	224	347	214	328	645	158	104	97.8	215
1938	77.6	276	495	441	230	131	327	424	146	97.0	76.5	62.8	232
1939	58.6	97.0	143	547	314	342	140	354	333	126	81.3	67.0	217
1940	106	79.1	224	142	272	432	346	561	98.5	85.7	81.8	84.2	193
1941	62.1	91.2	143	134	116	89.0	77.1	77.1	84.2	69.0	59.9	115	93.0
1942	199	151	238	438	286	228	404	284	281	301	123	65.7	250
1943	61.2	262	610	392	317	220	410	561	376	395	180	115	308
1944	99.1	142	385	202	234	215	371	272	316	108	126	113	215
1945	116	139	203	655	513	380	443	473	478	224	78.6	81.1	314
1946	163	502	368	508	283	467	392	396	672	332	227	59.6	362
1947	47.0	200	784	526	649	417	506	473	258	137	96.4	75.1	346
1948	158	662	358	371	369	500	433	440	866	370	177	102	399
1949	104	323	473	194	317	523	384	653	585	346	191	90.0	349
1950	141	234	275	441	297	638	468	656	1,009	463	114	145	407

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	-	-	-	437,800	32,300	21,200	11,500	10,300	8,750	-
1915	7,870	20,100	13,800	12,500	9,940	11,700	13,300	4,410	3,710	5,000	5,260	10,700	118,000
1916	13,400	29,800	31,700	14,300	30,200	52,800	33,600	42,400	51,900	30,200	14,600	13,200	358,000
1917	8,920	14,600	17,400	28,200	37,300	16,900	27,300	49,900	84,500	50,100	15,900	9,520	361,000
1918	9,350	8,950	35,000	85,500	34,300	22,300	30,500	30,900	26,200	13,100	7,190	7,320	411,000
1919	14,000	24,100	31,100	31,400	17,300	16,000	19,000	26,600	23,500	15,800	8,520	5,710	231,000
1920	11,200	19,600	21,200	25,100	25,000	19,700	19,600	19,900	18,900	13,200	6,890	13,000	213,000
1921	20,700	19,000	20,500	30,200	22,800	26,000	22,300	22,700	20,200	13,200	15,200	10,200	251,000
1922	11,500	17,400	52,200	22,200	11,400	9,410	15,500	19,500	25,600	17,700	10,700	5,470	219,000
1923	6,520	16,500	18,100	50,000	17,500	17,400	18,700	23,800	22,600	16,400	15,200	3,110	226,000
1924	9,350	8,980	21,800	24,600	30,100	25,900	17,900	21,000	17,000	4,460	3,270	10,800	195,000
1925	9,040	9,820	21,300	25,200	33,900	14,800	17,300	20,400	10,400	4,000	2,710	5,500	174,000
1926	4,290	14,600	18,600	26,000	11,900	11,600	7,080	5,440	4,710	1,510	1,890	6,550	114,000
1927	17,300	13,000	18,300	22,300	8,280	14,100	9,580	18,000	28,000	15,800	4,640	4,520	174,000
1928	13,000	37,900	31,900	45,500	17,400	13,700	12,100	26,300	7,500	6,060	3,280	2,800	217,000
1929	10,300	4,670	4,860	9,350	9,780	10,500	18,300	16,300	18,900	8,360	6,110	2,230	120,000
1930	2,250	5,460	6,640	14,100	13,300	22,000	11,500	11,100	8,810	5,380	3,500	2,270	106,000
1931	3,070	14,500	17,500	14,400	8,440	9,720	17,100	14,000	11,700	9,840	6,120	7,140	134,000
1932	9,840	13,900	14,900	18,600	19,400	49,200	42,600	31,000	26,900	13,200	8,120	7,660	255,000
1933	8,420	57,100	37,500	42,700	11,700	16,700	13,700	16,000	49,300	21,000	10,700	6,900	286,000
1934	9,950	34,010	34,800	72,220	16,910	32,480	25,130	11,970	10,710	5,530	2,770	2,680	359,200
1935	6,190	12,350	26,970	52,460	28,430	16,300	14,060	15,420	14,830	9,850	4,710	4,390	205,900
1936	3,960	3,830	7,020	32,210	16,400	25,050	12,210	43,750	24,230	10,670	6,090	3,720	189,100
1937	3,530	2,600	8,790	12,590	12,450	21,370	12,740	20,140	38,400	9,580	6,390	5,620	155,400
1938	4,770	16,420	30,410	27,140	12,750	6,070	19,450	26,100	8,720	5,960	4,700	7,740	169,200
1939	3,600	5,770	8,800	33,630	17,470	21,050	8,340	21,800	19,790	7,770	5,000	3,990	157,000
1940	6,490	4,700	13,780	8,720	15,660	26,570	20,610	22,210	5,850	5,270	5,030	5,010	139,900
1941	3,820	5,420	8,790	8,260	6,440	5,470	4,590	4,740	5,010	4,240	3,690	6,830	67,300
1942	12,260	9,000	14,660	26,900	15,900	14,040	24,030	17,460	16,700	18,530	7,540	3,910	180,900
1943	5,760	15,560	37,530	24,110	17,800	13,500	24,420	22,190	22,370	24,310	11,070	6,860	223,300
1944	6,090	8,490	23,680	12,440	13,430	13,200	16,080	16,750	18,800	8,680	7,770	6,740	156,100
1945	7,120	8,300	12,490	40,280	28,510	23,350	26,330	29,050	28,430	13,770	4,840	4,820	227,300
1946	10,050	29,890	22,650	31,140	14,030	28,710	23,310	24,560	39,960	20,410	13,990	3,550	282,000
1947	2,890	11,890	48,190	32,350	36,030	25,610	30,120	29,090	15,350	8,400	5,920	4,700	250,500
1948	9,740	39,380	22,000	21,210	30,770	25,770	27,040	51,540	22,780	10,910	6,050	2,900	290,000
1949	6,420	19,210	29,110	11,910	17,800	32,150	22,870	40,130	34,810	21,250	11,760	5,360	252,600
1950	8,700	13,920	16,920	27,140	16,520	39,210	27,850	40,320	60,030	28,480	6,990	8,640	294,700

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1914	412	-	-	-	-	-	-	-
1915	412	1,160	Apr. 15, 1915	10	164	118,000	209	152,000
1916	442	1,830	Mar. 11, 1916	154	493	359,000	446	324,000
1917	462	1,980	June 17, 1917	42	498	361,000	653	473,000
1918	482	6,290	Dec. 19, 1917	43	567	411,000	451	327,000
1919	512	1,280	Jan. 23, 1919	59	319	231,000	295	214,000
1920	512	776	Jan. 31, 1920	70	293	213,000	305	221,000

Yearly discharge, in cubic feet per second, of Cedar River at Cedar Falls, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Discharge	Momentary maximum Date	Minimum day	Mean	Runoff in acre-feet	Mean
1921	532	748	Jan. 5, 1921	58	346	251,000	375
1922	552	4,500	Dec. 12, 1921	2	302	219,000	247
1923	572	2,790	Jan. 10, 1923	30	312	226,000	311
1924	592	915	Feb. 12, 1924	7	269	195,000	269
1925	612	1,880	Feb. 7, 1925	5	241	174,000	237
1926	632	765	Jan. 21, 1926	4	158	114,000	173
1927	652	1,210	June 10, 1927	28	†240	174,000	287
1928	672	3,430	Jan. 13, 1928	14	299	217,000	213
1929	692	714	Apr. 29, 1929	28	165	120,000	158
1930	722	964	May 4, 1930	22	147	106,000	175
1931	722	802	Mar. 14, 1931	28	184	134,000	189
1932	737	1,740	Mar. 19, 1932	70	352	265,000	432
1933	752	3,050	Nov. 17, 1932	86	395	286,000	508
1934	767	*6,440	Dec. 22, 1933	-	496	359,200	312
1935	792	3,270	Jan. 25, 1935	42	284	205,900	242
1936	812	1,940	May 16, 1936	56	261	189,100	262
1937	832	1,800	June 20, 1937	30	215	155,400	264
1938	862	2,020	Nov. 29, 1937	52	232	168,200	186
1939	882	1,100	Jan. 25, 1939	37	217	157,000	226
1940	902	1,310	Mar. 8, 1940	48	193	139,900	183
1941	932	742	Nov. 28, 1940	52	93	67,300	118
1942	962	822	June 15, 1942	34	250	180,900	279
1943	982	924	June 10, 1943	53	308	223,300	283
1944	1012	866	May 24, 1944	51	215	156,100	201
1945	1042	946	Jan. 7, 1945	32	314	227,300	362
1946	1062	1,140	May 29, 1946	-	362	262,000	362
1947	1092	2,880	Dec. 14, 1946	9.5	346	250,500	357
1948	1122	1,380	Nov. 12, 1947	44	399	290,000	377
1949	1152	1,340	May 16, 1949	59	349	252,600	328
1950	1182	2,050	Mar. 6, 1950	54	407	294,700	-

* Revised.

† Corrected.

171. Taylor Creek near Selleck, Wash.

Location.--Lat 47°23'10", long. 121°50'45", in NW¼ sec. 19, T. 22 N., R. 8 E., on right bank half a mile upstream from mouth and 1 mile northeast of Selleck.

Drainage area.--17.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 940 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge, 321 cfs Sept. 20 (gage height, 3.75 ft), from rating curve extended above 85 cfs; minimum, 23 cfs Sept. 1 (gage height, 1.22 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	41.6	26.2	59.0	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	2,560	1,610	3,510	-		

172. Cedar River near Landsburg, Wash. 1/

Location (revised).--Lat 47°23'35", long. 121°56'50", in NE 1/4 sec. 17, T. 22 N., R. 7 E., on left bank 2 miles upstream from Seattle municipal water-supply intake at Landsburg, 4 1/2 miles east of Maple Valley, 5 miles downstream from Taylor Creek, and 12 miles downstream from Cedar Lake.

Drainage area (revised).--125 sq mi, excludes that of Rock Creek. At site 1895-1900, 140 sq mi; at Seattle municipal water-supply intake 1901-13, 139 sq mi; at site 1914-28, 135 sq mi; at present site 1928-32, 134 sq mi, includes that of Rock Creek.

Gage.--Water-stage recorder. Altitude of gage is 600 ft (from river-profile map). July 25, 1895, to Sept. 30, 1898, staff gage 2 1/2 miles downstream at different datum. Mar. 24, 1901, to May 15, 1913, staff gage 2 miles downstream at datum of 535.84 ft above mean sea level (levels by city of Seattle). Apr. 30, 1914, to Oct. 22, 1928, water-stage recorder a quarter of a mile downstream from present site at different datum.

Average discharge.--55 years (1895-1950), 686 cfs.

Extremes.--1895-98, 1901-50: Maximum discharge, 14,200 cfs (revised) Nov. 19, 1911 (gage height, 10.0 ft, from graph based on gage readings, site and datum then in use), caused by failure of flashboards at Cedar Lake; minimum observed, 83 cfs Sept. 19, 1898.

Remarks.--Records include flow of Seattle municipal water-supply 1901-13 and Rock Creek 1895-1931. Rock Creek (see p. 148), a tributary which entered just above present gage prior to 1932, has been diverted to enter river at a point 2 miles downstream from Seattle municipal water-supply intake to lessen danger of pollution. Some regulation by Cedar Lake, 12 miles above station, since Oct. 14, 1904.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1895	-	-	-	-	-	-	-	-	-	-	163	210	-
1896	166	141	1,060	1,170	1,210	910	774	1,100	1,540	688	236	165	762
1897	159	1,540	2,200	1,350	1,170	814	1,500	1,410	977	1,018	373	313	1,060
1898	308	1,270	1,530	754	1,300	508	618	921	724	262	124	127	700
1899	306	762	1,000	1,840	1,590	566	888	1,510	1,220	909	330	345	955
1900	408	1,420	2,330	1,600	885	1,190	986	1,190	663	453	228	251	969
1901	381	800	1,410	964	1,030	980	759	973	824	439	207	205	746
1902	197	1,040	1,120	947	676	745	705	1,140	710	604	245	211	695
1903	209	837	1,150	1,790	572	480	653	1,020	990	533	179	449	739
1904	657	780	1,070	1,110	744	712	1,030	942	856	502	183	175	750
1905	141	359	831	647	557	766	644	829	679	352	243	221	523
1906	734	499	756	968	992	635	704	566	567	349	238	230	601
1907	712	1,830	1,040	675	1,470	625	828	826	486	312	246	258	778
1908	224	637	868	680	563	1,190	979	1,010	1,020	553	288	269	691
1909	297	548	634	870	705	612	692	935	985	429	305	298	608
1910	303	2,060	1,120	579	695	1,550	1,090	867	501	316	226	265	798
1911	469	1,280	792	724	527	490	454	995	689	343	254	293	609
1912	267	1,760	800	1,090	1,100	*561	*614	*990	*708	*517	*316	*318	*750
1913	*343	*852	*738	*1,070	*847	*644	*827	*998	*1,080	*678	*392	*373	*736
1914	*611	*674	*555	*1,300	*918	*948	*783	763	554	340	300	292	*669
1915	230	660	440	563	504	450	510	306	358	366	280	346	422
1916	447	902	1,050	641	1,150	1,500	1,100	1,140	1,250	916	560	479	927
1917	347	510	641	924	1,130	626	984	1,220	1,800	1,080	469	354	837
1918	313	317	2,760	2,200	1,250	792	887	810	650	389	304	264	912
1919	459	663	1,010	1,210	914	860	862	943	817	568	330	276	742
1920	354	680	656	974	928	767	865	692	663	502	315	466	654
1921	670	609	770	1,160	1,120	1,070	918	858	757	644	472	394	784
1922	418	644	1,440	699	526	444	610	671	752	571	427	287	626
1923	292	473	603	1,480	737	730	675	729	791	579	476	230	650
1924	306	312	628	732	1,220	862	682	571	527	301	227	332	556
1925	357	493	747	1,040	1,310	688	705	709	495	359	297	277	619
1926	223	418	710	866	726	622	476	449	402	268	217	283	470
1927	563	463	703	987	739	786	611	715	911	584	323	362	661
1928	590	1,380	1,210	1,550	737	726	739	889	456	410	325	278	775
1929	432	280	333	437	445	628	764	694	809	521	425	278	504
1930	221	259	368	478	654	755	601	548	514	403	333	266	449
1931	255	448	484	540	445	539	778	585	530	459	379	352	483
1932	394	522	583	828	898	1,640	1,300	940	821	518	427	388	771
1933	368	1,500	1,090	1,370	608	782	694	689	1,240	708	285	426	831
1934	556	1,126	3,126	2,015	890	931	836	539	464	334	259	220	944
1935	371	707	943	1,518	896	721	641	595	557	467	360	326	682

* Revised.

* Not previously published; computed from available gage heights May 1912 to May 1913, and furnished by city of Seattle June 1913 to April 1914.

1/ Published as Cedar River near Seattle, 1895-98, Cedar River near Maple Valley, 1902, and as Cedar River near Ravensdale, 1898-1901, 1903-12.

LAKE WASHINGTON BASIN

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Monthly and yearly mean discharge, in cubic feet per second, of Cedar River near Landsburg, Wash.--
Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	270	267	337	979	675	896	617	1,096	859	515	398	329	604
1937	271	225	512	1,469	605	814	715	764	1,029	493	402	374	555
1938	318	803	1,052	1,037	664	576	846	832	463	371	335	289	632
1939	247	306	433	998	802	807	525	679	713	444	355	323	552
1940	359	351	611	516	751	905	729	732	382	344	312	284	521
1941	253	311	413	399	394	360	335	331	360	312	275	337	340
1942	440	400	709	815	708	587	674	551	635	610	402	290	568
1943	266	640	1,016	804	786	622	843	729	713	681	450	334	656
1944	300	348	632	435	519	483	629	553	568	353	335	299	454
1945	281	336	424	962	924	830	940	928	831	539	327	324	635
1946	395	928	807	1,179	754	975	814	747	1,074	700	520	304	766
1947	278	503	1,418	1,053	1,174	851	924	796	576	403	311	286	712
1948	473	1,162	869	921	875	971	873	901	1,260	689	488	369	821
1949	349	658	934	569	770	987	789	1,056	931	650	469	321	707
1950	388	536	736	951	823	1,326	1,035	1,108	1,405	791	397	409	825

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1895	-	-	-	-	-	-	-	-	-	-	10,000	12,500	-
1896	10,200	8,390	65,200	71,900	69,600	56,000	46,100	67,600	91,600	42,300	14,500	9,820	553,000
1897	9,780	91,600	35,000	81,800	65,000	50,100	89,300	86,700	58,100	62,100	22,900	18,900	771,000
1898	18,900	75,600	94,100	46,400	72,200	31,200	36,800	56,600	43,100	16,100	7,620	7,560	506,000
1899	18,800	45,300	61,500	113,000	88,300	34,800	52,800	92,800	72,600	55,900	20,300	20,500	677,000
1900	25,100	84,500	43,000	98,400	50,900	73,200	58,700	73,200	39,500	27,900	14,000	14,900	703,000
1901	23,400	47,600	86,700	59,300	57,200	60,300	45,200	59,800	49,000	27,000	12,700	12,200	540,000
1902	12,100	61,900	68,900	58,200	37,500	45,800	42,000	70,100	42,200	37,100	15,100	12,600	504,000
1903	12,900	49,800	70,700	100,100	31,800	29,500	38,900	62,700	58,300	32,800	11,000	26,200	535,000
1904	40,400	46,400	65,800	68,200	42,800	43,800	61,300	57,900	50,900	30,900	11,300	10,400	530,000
1905	8,670	21,400	51,100	39,300	30,900	47,100	38,300	51,000	40,200	21,600	14,900	13,200	378,000
1906	45,100	29,700	46,500	59,500	55,100	39,000	41,900	34,800	33,700	21,500	14,600	13,700	435,000
1907	43,800	15,000	64,000	41,500	81,600	38,400	49,300	50,800	28,900	19,200	15,100	15,400	563,000
1908	13,800	37,900	63,400	41,800	32,400	73,200	58,300	82,100	60,700	34,000	17,700	16,000	501,000
1909	18,300	32,600	39,000	53,500	39,200	37,600	41,200	57,400	58,600	26,400	18,700	17,700	440,000
1910	18,600	23,000	68,900	35,600	38,600	95,300	64,900	53,400	29,800	19,400	13,900	15,800	577,000
1911	28,800	76,200	48,700	44,500	29,300	30,100	27,000	61,200	41,000	21,100	15,600	17,400	441,000
1912	16,400	105,000	49,200	67,000	63,300	34,500	36,500	80,900	42,100	31,800	19,400	18,900	545,000
1913	21,100	50,700	45,000	86,800	47,000	39,800	49,200	61,400	64,300	41,700	24,100	22,200	532,000
1914	37,600	40,100	34,100	79,900	51,000	58,300	46,600	46,900	33,000	20,900	18,400	17,400	484,000
1915	17,800	39,300	27,100	34,600	28,000	27,700	30,300	18,800	21,300	22,500	17,200	20,600	305,000
1916	27,500	53,700	64,600	39,600	66,200	92,200	65,500	70,100	74,400	56,300	34,400	28,500	673,000
1917	19,300	30,300	39,400	56,800	62,800	38,500	58,600	75,000	107,000	66,400	28,800	21,100	606,000
1918	19,200	18,900	70,000	35,000	69,400	48,700	52,800	49,800	38,700	23,900	18,700	15,700	661,000
1919	28,200	39,500	62,100	74,400	50,600	52,900	51,300	58,000	48,600	34,900	20,300	16,400	537,000
1920	21,800	40,500	40,300	59,900	53,400	47,200	51,500	42,500	39,500	30,900	19,400	27,700	475,000
1921	41,200	36,200	47,300	71,300	62,200	65,800	54,600	51,500	45,000	39,600	29,000	23,400	567,000
1922	25,700	36,300	88,500	43,000	29,200	27,300	36,300	41,300	44,700	35,100	26,300	17,100	453,000
1923	18,000	28,100	37,100	91,000	40,900	44,900	40,200	44,800	47,100	35,600	29,300	13,700	471,000
1924	18,800	18,600	38,600	45,000	70,200	53,000	40,600	35,100	31,400	18,500	14,000	19,800	404,000
1925	22,000	29,300	45,900	64,000	72,800	42,300	42,000	43,600	29,500	22,100	18,300	16,500	448,000
1926	13,700	24,900	43,700	53,200	40,300	38,200	28,300	27,600	23,900	16,500	13,300	16,800	340,000
1927	32,300	27,600	43,200	60,700	41,000	48,300	36,400	47,500	54,200	35,900	22,900	21,500	472,000
1928	36,300	82,100	74,400	95,300	42,400	44,600	44,000	54,700	27,100	25,200	20,000	16,500	563,000
1929	26,600	16,700	20,200	26,900	24,700	38,600	45,500	42,700	48,100	32,000	26,100	16,500	365,000
1930	13,600	15,400	22,600	59,400	36,300	46,400	35,800	33,700	30,600	24,800	20,500	15,800	325,000
1931	15,700	25,700	29,800	33,200	24,700	33,100	46,300	36,000	31,500	28,200	23,300	20,900	349,000
1932	24,200	31,100	50,200	84,200	51,300	31,000	77,500	49,900	51,900	26,300	23,300	30,600	507,000
1933	22,600	89,300	67,000	84,200	33,800	48,100	41,300	42,400	73,800	43,500	29,800	25,300	601,000
1934	34,190	66,980	92,200	203,820	48,460	57,250	49,860	33,110	27,640	20,520	15,910	13,110	683,400
1935	22,810	42,100	57,990	93,320	55,290	44,350	38,140	36,570	33,130	28,740	22,130	19,410	494,000
1936	16,580	15,880	20,740	60,210	38,830	55,080	36,740	67,420	51,100	31,640	24,450	19,590	438,300
1937	16,640	15,370	31,460	28,860	33,580	50,030	42,530	46,990	61,240	30,300	24,740	22,270	402,000
1938	19,570	47,760	64,680	63,740	36,890	35,400	50,320	51,170	27,520	22,630	20,630	17,200	457,700
1939	15,180	16,240	26,850	61,390	44,560	49,630	31,260	41,770	42,450	27,310	21,840	19,220	399,500
1940	22,060	20,910	37,590	31,740	42,070	55,670	43,350	45,000	22,720	21,120	19,200	16,920	378,400
1941	15,570	18,480	25,370	24,520	21,880	22,150	19,960	20,360	21,440	19,180	16,920	20,060	245,900
1942	27,050	23,810	43,600	50,110	39,350	36,080	40,130	33,850	37,790	37,540	24,740	17,280	411,300
1943	16,380	38,100	62,500	49,460	43,630	38,250	50,180	44,820	42,400	41,850	27,690	19,880	475,100
1944	18,450	20,720	38,840	26,740	29,870	29,680	37,430	34,020	33,800	20,570	17,780	17,650	329,600
1945	17,280	20,210	26,060	59,180	51,320	51,060	55,960	57,070	49,470	33,140	20,100	19,250	459,900
1946	24,310	55,240	49,640	72,510	41,850	59,970	48,420	45,950	63,910	43,020	31,950	18,060	554,800
1947	17,100	29,940	87,200	64,720	65,210	52,360	55,010	48,940	34,260	24,760	19,130	17,030	515,700
1948	29,090	70,130	53,440	56,630	42,320	59,730	51,940	55,420	74,950	42,370	30,020	21,950	596,200
1949	21,460	39,030	57,460	34,990	42,750	60,670	46,960	64,940	55,380	39,970	28,830	19,090	511,500
1950	23,840	31,910	45,230	58,460	45,700	81,540	61,570	68,120	83,620	48,640	24,400	24,360	597,400

* Revised.

* Not previously published; computed from available gage heights May 1912 to May 1913, and furnished by city of Seattle June 1913 to April 1914.

Yearly discharge, in cubic feet per second, of Cedar River near Landsburg, Wash.

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Discharge	Maximum Date	Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
1895	492	-	-	-	-	-	-	-
1896	492	*3,420	Jan. 9 or 10, 1896	96	762	553,000	972	706,000
1897	492	*5,380	Nov. 14 or 15, 1896	137	1,060	771,000	999	724,000
1898	492	*5,030	Nov. 19, 1897	83	700	506,000	612	443,000
1899	492	-	-	-	935	677,000	1,110	804,000
1900	492	-	-	-	969	703,000	838	608,000
1901	492	-	-	-	746	540,000	726	526,000
1902	492	*3,790	Dec. 24, 1901	110	695	504,000	682	494,000
1903	492	*10,200	Jan. 5, 1903	130	739	535,000	765	554,000
1904	492	*2,020	Jan. 15, 1904	143	730	530,000	632	459,000
1905	492	*2,080	May 24, 1905	126	523	378,000	578	418,000
1906	492	*2,020	Jan. 25, 1906	185	601	435,000	741	537,000
1907	492	*12,400	Nov. 15, 1906	216	778	563,000	815	445,000
1908	492	*5,130	Mar. 16, 1908	210	691	509,000	670	486,000
1909	492	*2,480	Jan. 14, 1909	238	608	440,000	775	561,000
1910	492	*8,370	Nov. 23, 1909	200	798	577,000	719	520,000
1911	312	*4,520	Nov. 21, 1910	215	609	441,000	632	458,000
1912	332,1286	*14,200	Nov. 19, 1911	215	*750	*545,000	*677	*492,000
1913		*3,790	Jan. 3, 1913	-	*736	*532,000	*728	*527,000
1914	412				*689	*448,000	*631	*457,000
1915	412	1,330	Apr. 4, 1915	186	422	305,000	507	367,000
1916	442	2,630	Mar. 10, 1916	366	927	673,000	851	618,000
1917	462	2,240	June 17, 1917	239	837	606,000	999	723,000
1918	482	7,500	Dec. 29, 1917	223	912	661,000	805	582,000
1919	512	3,160	Jan. 22, 1919	230	742	537,000	705	510,000
1920	512	1,860	Jan. 28, 1920	238	654	475,000	684	497,000
1921	532	1,920	Feb. 11, 12, 1921	264	784	567,000	822	595,000
1922	552	15,960	Dec. 12, 1921	-	626	453,000	530	384,000
1923	572	4,160	Jan. 10, 1923	197	650	471,000	640	464,000
1924	592	3,100	Feb. 12, 1924	185	556	404,000	585	425,000
1925	612	2,740	Feb. 8, 1925	225	619	448,000	599	433,000
1926	632	1,720	Jan. 5, 1926	167	470	340,000	499	361,000
1927	652	1,820	Jan. 2, 1927	257	651	472,000	775	561,000
1928	672	4,860	Jan. 13, 1928	238	775	563,000	597	434,000
1929	692	1,180	Mar. 31, 1929	234	504	365,000	487	353,000
1930	707	1,350	Jan. 4, 1930	190	449	325,000	477	346,000
1931	722	1,200	Mar. 31, 1931	223	483	349,000	509	368,000
1932	737	4,860	Feb. 26, 1932	-	771	560,000	1993	648,000
1933	752	4,300	Jan. 9, 1933	279	831	601,000	1989	715,000
1934	767	7,520	Dec. 22, 1933	206	944	683,400	708	513,000
1935	792	4,160	Jan. 25, 1935	206	682	494,000	586	424,300
1936	812	1,900	May 17, 1936	236	604	438,300	615	446,500
1937	832	1,800	June 20, 1937	197	555	402,000	653	472,600
1938	862	2,360	Nov. 29, 1937	262	632	457,700	533	385,800
1939	902	1,500	Feb. 15, 1939	207	552	399,500	580	420,000
1940		1,880	Mar. 7, 1940	242	521	378,400	492	357,200
1941	932	1,050	Nov. 28, 1940	229	340	245,900	388	280,900
1942	962	1,830	Dec. 19, 1941	248	568	411,300	599	433,800
1943	982	2,140	Nov. 23, 1942	220	656	475,100	602	436,200
1944	1012	1,380	May 24, 1944	226	454	329,600	434	314,900
1945	1042	1,970	Feb. 7, 1945	214	635	459,900	726	525,700
1946	1062	2,040	Dec. 28, 1945	263	766	554,800	773	559,900
1947	1092	4,190	Dec. 14, 1946	226	712	515,700	738	534,300
1948	1122	1,940	Nov. 11, 13, 1947	235	821	596,200	773	561,300
1949	1152	1,750	Feb. 17, 1949	262	707	511,500	683	494,600
1950	1182	3,050	Mar. 5, 1950	256	825	597,400	-	-

* Revised.

† Corrected.

‡ Not previously published.

173. Rock Creek diversion near Landsburg, Wash. 1/

Location.--Lat 47°23'30", long. 121°58'40" (revised), in SE 1/4 sec. 13, T. 22 N., R. 6 E., on right bank 1 mile upstream from mouth and 1 1/4 miles north of Landsburg.

Drainage area.--11 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 650 ft (from topographic map). Prior to July 1945, staff gage a quarter of a mile upstream at different datum.

Average discharge.--16 years (1932-48), 25.5 cfs.

Extremes.--1945-48: Maximum discharge, 213 cfs Dec. 14, 1946 (gage height, 3.30 ft, from recorded range in stage); minimum, 2.2 cfs Sept. 26, 1946.

Remarks.--Canal diverts entire flow of Rock Creek in NE 1/4 sec. 16, T. 23 N., R. 7 E., and discharges into Cedar River below city of Seattle water-supply intakes and the Cedar River near Landsburg gaging station. Some regulation at Walsh Lake by city of Seattle. Records, October 1934 to June 1945, previously published only in conjunction with those for Cedar River near Landsburg.

1/ Published as Rock Creek near Landsburg, 1945-48.

Monthly and yearly runoff, in acre-feet, of Rock Creek Diversion near Landsburg, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1933	\$250	\$4,200	\$5,000	\$6,600	\$1,700	\$3,900	\$2,900	\$2,400	\$2,000	\$1,400	\$740	\$710	\$31,800
1934	\$1,800	\$4,500	\$1,000	\$9,500	\$4,500	\$2,000	\$2,100	\$1,100	\$480	\$250	\$180	\$120	\$37,530
1935	2,090	3,730	3,730	3,990	1,980	1,690	1,320	859	571	373	248	190	20,770
1936	244	674	1,170	4,670	1,770	3,060	1,620	1,750	1,500	510	250	361	17,580
1937	196	165	2,650	708	2,840	3,450	3,950	1,410	1,960	375	268	345	18,320
1938	1,020	1,880	0	0	0	0	1,170	1,410	298	280	448	365	6,870
1939	120	180	550	2,800	3,100	3,100	1,700	920	1,800	800	180	300	15,350
1940	750	880	2,140	2,350	2,640	2,850	1,660	1,230	880	380	230	250	16,240
1941	1,290	1,550	2,890	2,340	1,220	1,410	1,010	1,050	1,010	430	120	650	14,970
1942	1,230	1,190	3,070	1,840	2,220	1,840	1,490	922	1,790	922	307	179	17,000
1943	184	1,490	2,150	1,840	2,220	1,230	1,790	922	774	246	184	119	13,150
1944	615	1,190	615	922	1,440	922	833	738	595	307	184	417	8,780
1945	369	893	922	2,460	2,780	3,690	4,170	1,540	714	302	237	1,270	19,350
1946	1,020	3,110	2,960	3,260	2,730	2,550	1,400	639	1,270	859	254	375	20,430
1947	705	2,010	4,350	2,620	2,530	1,630	1,780	579	1,160	470	276	681	18,790
1948	2,370	4,010	2,950	3,540	3,040	2,270	2,050	2,360	1,820	944	780	917	27,050
1949	988	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; estimated on the basis of discharge measurements, gage heights, and records for nearby streams.

Note.--All flow of Rock Creek during period December 1937 to March 1938, when diversion dam was washed out, entered Cedar River above Cedar River near Landsburg gaging station.

174. Rock Creek near Maple Valley, Wash.

Location.--Lat 47°22'50" long. 122°01'10", in NE¹ sec. 22, T. 22 N., R. 6 E., on right bank 600 ft upstream from mouth (revised) and 2 miles southeast of Maple Valley.

Drainage area.--14.0 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 425 ft (from topographic map).

Average discharge.--5 years (1945-50), 24.3 cfs.

Extremes.--1945-50: Maximum discharge, 138 cfs Mar. 5, 1950 (gage height, 3.84 ft); minimum, 3.1 cfs Oct. 11, 12, 13, 1947.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	11.4	8.31	7.73	-
1946	8.77	20.1	27.9	47.8	49.0	46.2	31.4	17.4	14.2	13.7	10.0	7.87	24.4
1947	6.46	9.85	46.5	34.8	46.1	27.4	22.2	15.5	10.2	8.36	6.50	5.26	19.3
1948	9.19	31.2	36.4	56.0	37.5	43.5	34.5	28.9	23.4	17.4	11.2	8.75	28.1
1949	8.00	12.6	48.0	29.3	35.2	32.5	19.7	16.8	10.5	7.94	7.11	6.60	19.5
1950	5.47	7.42	23.6	51.4	59.0	83.4	53.6	31.8	16.8	11.0	8.23	7.95	29.8

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	698	511	460	-
1946	539	1,190	1,720	2,940	2,720	2,840	1,870	1,070	848	843	617	468	17,660
1947	397	586	2,860	2,140	2,560	1,690	1,320	953	604	514	388	313	14,320
1948	565	1,860	2,240	3,440	2,160	2,670	2,050	1,780	1,350	1,070	686	521	20,430
1949	492	753	2,950	1,800	1,960	2,000	1,170	1,030	624	488	437	393	14,100
1950	356	442	1,450	3,160	3,270	5,130	3,190	1,960	1,000	674	506	473	21,590

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	72	Jan. 7, 1946	6.7	24.4	1.74	23.68	17,660	24.9	24.20	18,060
1947	1092	105	Dec. 14, 1946	3.8	19.8	1.41	19.18	14,320	20.9	20.29	15,150
1948	1122	87	Feb. 27, 1948	3.5	28.1	2.01	27.37	20,430	27.5	26.74	19,960
1949	1152	72	Dec. 12, 1948	5.9	19.5	1.39	18.69	14,100	16.8	16.26	12,130
1950	1182	138	Mar. 5, 1950	4.2	29.8	2.13	28.92	21,590	-	-	-

LAKE WASHINGTON BASIN

175. Cedar River at Renton, Wash.

Location (revised).--Lat 47°28'50", long. 122°12'10", in SW1/4 sec. 17, T. 23 N., R. 5 E., on left bank 600 ft upstream from bridge on U. S. Highway 10 at Renton and 2 miles upstream from mouth.

Drainage area.--197 sq mi; includes 4 sq mi in vicinity of Youngs Lake in the Big Soos Creek basin.

Gage.--Water-stage recorder. Datum of gage is 19.13 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Mar. 10, 1901, to July 15, 1903, and Aug. 25, 1906, to Dec. 31, 1907, staff gage half a mile downstream at datum 29.94 ft lower. Aug. 7, 1945, to Aug. 15, 1947, water-stage recorder at present site at datum 1 ft higher.

Average discharge.--6 years (1906-7, 1945-50), 825 cfs.

Extremes.--1901-3, 1906-7, 1945-50: Maximum discharge observed, 5,650 cfs Nov. 15, 1906 (gage height, 50.0 ft, site and datum then in use); minimum discharge, 97 cfs Sept. 13, 1945.

Remarks.--The city of Seattle has diverted increasing amounts from 35 cfs in 1901 to between 150 and 250 cfs in recent years for municipal use, at Landsburg 25 miles above station. Flow partly regulated by Cedar Lake reservoir for power.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1901	-	-	-	-	-	-	944	1,010	900	504	*223	*200	-
1902	*195	1,170	1,280	1,320	942	948	845	-	-	-	-	179	-
1903	195	567	-	-	-	-	-	-	1,100	-	-	-	-
1906	-	-	-	-	-	-	-	-	-	-	-	250	-
1907	608	1,740	1,130	1,080	2,250	1,100	1,280	1,160	705	369	256	281	987
1908	254	771	1,620	-	-	-	-	-	-	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	*280	250	-
1946	339	1,095	957	1,507	1,002	1,176	905	717	1,039	629	408	186	829
1947	195	515	1,636	884	1,211	976	985	801	529	296	176	212	699
1948	511	1,357	1,070	1,225	1,101	1,076	940	960	1,329	618	383	292	903
1949	281	747	1,176	637	1,006	1,066	771	1,006	789	487	317	234	708
1950	308	520	800	1,155	1,066	1,651	1,032	968	1,320	618	256	239	826

* Only monthly figures revised; revised daily figures not available.

† Not previously published; estimated on the basis of records for Cedar River near Landsburg.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1901	-	-	-	-	-	-	56,200	62,100	53,600	31,000	*13,600	*11,900	-
1902	*12,000	69,600	78,700	81,200	52,300	58,300	50,300	-	-	-	-	10,700	-
1903	12,000	33,700	-	-	-	-	-	-	65,500	-	-	-	-
1906	-	-	-	-	-	-	-	-	-	-	-	14,900	-
1907	37,400	104,000	69,500	66,400	125,000	67,600	76,200	71,300	42,000	22,700	15,700	16,700	714,000
1908	14,400	45,900	99,800	-	-	-	-	-	-	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	*10,400	14,890	-
1946	20,840	65,130	58,870	92,670	55,660	72,310	53,870	44,060	61,800	38,660	25,070	11,090	600,000
1947	11,980	30,670	100,600	54,360	67,280	60,030	58,590	49,270	31,450	18,200	10,820	12,620	505,900
1948	31,410	80,730	65,770	75,310	63,340	66,180	55,960	59,050	79,060	38,020	23,540	17,360	655,700
1949	17,300	44,470	72,340	59,180	55,890	65,560	45,860	61,840	46,950	29,320	19,490	13,910	512,700
1950	16,930	30,950	49,200	70,990	59,180	101,500	61,390	59,500	78,520	37,970	15,730	14,220	599,100

* Only monthly figures revised; revised daily figures not available.

† Not previously published; estimated on the basis of records for Cedar River near Landsburg.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1901	492	-	-	-	-	-	-	-
1902	492	-	-	-	-	-	-	-
1903	492	-	-	-	-	-	-	-
1906	492	-	-	-	-	-	-	-
1907	492	a5,650	Nov. 15, 1906	165	987	714,000	916	664,000
1908	492	-	-	-	-	-	-	-
1945	1042	-	-	-	-	-	-	-
1946	1062	2,680	Dec. 29, 1945	152	829	600,000	827	598,400
1947	1092	5,510	Dec. 15, 1946	127	699	505,900	747	538,500
1948	1122	2,750	Feb. 26, 1948	152	903	655,700	843	611,900
1949	1152	2,780	Feb. 17, 1949	186	708	512,700	660	477,700
1950	1162	4,160	Mar. 4, 1950	130	826	599,100	-	-

a Maximum observed.

176. May Creek near Renton, Wash.

Location.--Lat 47°31'10", long. 122°11'10", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 32, T. 24 N., R. 5 E., on left bank 20 ft downstream from county bridge, 1 mile upstream from mouth, and 2½ miles north of Renton.

Drainage area.--13.2 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 120 ft (from topographic map).

Average discharge.--5 years (1945-50), 22.2 cfs.

Extremes.--1945-50: Maximum discharge, 401 cfs Feb. 17, 1949 (gage height, 3.98 ft); minimum, 1.9 cfs July 30, 1945, July 10, Sept. 3, 5, 1947.

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	2.75	2.65	5.64	-
1946	5.91	25.2	38.2	53.5	50.5	38.2	23.1	6.96	6.01	5.54	3.65	3.75	21.6
1947	4.95	18.2	51.0	28.0	44.6	18.3	16.9	5.98	4.30	2.95	2.58	2.75	16.5
1948	26.3	42.2	49.0	56.8	47.8	34.4	22.5	22.7	14.9	7.38	4.35	5.88	27.8
1949	5.39	31.9	49.0	25.2	66.1	28.8	14.8	9.13	4.22	3.02	2.87	2.89	19.8
1950	3.91	14.9	28.8	67.5	57.2	75.4	31.3	9.07	4.09	3.32	3.66	3.87	25.1

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	189	163	336	-
1946	383	1,500	2,350	3,290	2,800	2,350	1,370	428	358	341	224	223	15,600
1947	305	1,090	3,130	1,720	2,480	1,120	1,000	368	256	181	159	163	11,970
1948	1,620	2,510	3,010	3,490	2,740	2,120	1,340	1,400	885	454	267	350	20,190
1949	331	1,900	3,010	1,430	3,670	1,770	878	561	251	186	177	172	14,340
1950	240	888	1,770	4,150	3,180	4,630	1,860	558	243	204	225	230	18,180

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1082	131	Dec. 29, 1945	2.4	21.6	1.64	22.17	15,600	22.0	22.60	15,910
1947	1092	*198	Dec. 14, 1946	2.1	16.5	1.25	17.01	11,970	20.2	20.73	14,590
1948	1122	148	Jan. 24, 1948	2.6	27.8	2.11	28.67	20,190	25.2	25.98	18,290
1949	1152	401	Feb. 17, 1949	2.5	19.8	1.50	20.36	14,340	16.8	17.03	11,990
1950	1182	354	Mar. 4, 1950	2.6	25.1	1.90	25.83	18,180	-	-	-

* Revised.

177. Mercer Creek near Bellevue, Wash.

Location.--Lat 47°36'05", long. 122°11'00", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 4, T. 24 N., R. 5 E., on right bank 50 ft upstream from county road crossing, 1 mile southeast of Bellevue, and 1½ miles upstream from mouth.

Drainage area.--12.8 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 25 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge, 26 cfs Sept. 25 (gage height, 1.49 ft); minimum, 2.8 cfs July 30, Aug. 21 (gage height, 0.72 ft).

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	3.45	3.25	6.07	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	212	200	361	-		

178. Juanita Creek near Kirkland, Wash.

Location.--Lat 47°42'35" (revised), long. 122°12'35", in SE $\frac{1}{4}$ sec. 30, T. 26 N., R. 5 E., on left bank at upstream side of county bridge, half a mile upstream from mouth, and 2 miles north of Kirkland.

Drainage area.--5.6 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 35 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge, 4.8 cfs Sept. 20 (gage height, 1.18 ft); minimum, 1.1 cfs Sept. 1 (gage height, 0.86 ft).

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						*2.73	1.84	1.55	2.15	-		

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						*182	113	95	128	-		

* Not previously published; partly estimated on the basis of records for nearby streams.

179. Issaquah Creek near Issaquah, Wash.

Location.--Lat 47°28'55", long. 122°02'10", in NW $\frac{1}{4}$ sec. 15, T. 23 N., R. 6 E., on right bank at county road crossing, $3\frac{1}{2}$ miles south of Issaquah, and 4 miles upstream from East Fork.

Drainage area.--26.0 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 210 ft (from topographic map). Prior to Oct. 1, 1948, water-stage recorder at datum 0.99 ft higher.

Average discharge.--5 years (1945-50), 79.5 cfs.

Extremes.--1945-50: Maximum discharge, 1,120 cfs Feb. 17, 1949 (gage height, 4.64 ft); minimum not determined, probably less than 13 cfs during period of doubtful or no gage-height record in August, September, or October 1949.

Remarks.--Several small diversions for irrigation and domestic use above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	19.4	16.1	41.0	-
1946	34.9	106	131	159	160	126	77.8	36.7	48.5	34.9	18.9	20.2	79.0
1947	33.0	91.8	205	116	138	70.6	75.4	30.7	37.9	22.2	16.0	28.7	71.7
1948	103	154	152	156	138	102	93.2	91.0	69.8	35.9	26.5	33.4	96.1
1949	56.8	109	150	70.5	169	95.5	58.4	42.5	22.4	19.0	15.8	15.0	68.0
1950	26.4	58.2	119	167	158	208	132	*52.6	*24.9	19.1	18.4	17.7	*82.9

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	1,190	992	2,440	-
1946	2,150	6,300	8,080	9,750	8,910	7,720	4,630	2,260	2,890	2,140	1,160	1,200	57,190
1947	2,030	5,460	12,620	7,140	7,650	4,340	4,490	1,890	2,260	1,360	984	1,710	51,930
1948	6,350	9,190	9,320	9,600	7,940	6,280	5,540	5,600	4,160	2,210	1,630	1,990	69,810
1949	3,490	6,480	9,200	4,330	9,390	5,870	3,470	2,610	1,330	1,170	970	891	49,200
1950	1,620	3,350	7,290	10,280	8,760	12,800	7,860	*3,240	*1,480	1,180	1,130	1,060	*60,050

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	452	Dec. 28, 1945	16	79.0	3.04	41.26	57,190	84.0	43.94	60,770
1947	1092	675	Dec. 14, 1946	14	71.7	2.76	37.45	51,930	78.3	40.98	56,680
1948	1122	540	Feb. 26, 1948	21	96.1	3.70	50.34	69,810	89.3	46.24	64,120
1949	1152	1,120	Feb. 17, 1949	13	68.0	2.62	35.49	49,200	58.4	30.50	42,290
1950	1346, 1182	800	Mar. 4, 1950	13	*82.9	*3.19	*43.30	*60,050	-	-	-

* Revised.

180. East Fork Issaquah Creek at Issaquah, Wash.

Location.--Lat 47°31'55", long. 122°01'20", in SE $\frac{1}{4}$ sec. 27, T. 24 N., R. 6 E., on left bank half a mile east of Issaquah and 1 mile upstream from mouth.

Drainage area.--8.54 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 180 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge, 39 cfs Sept. 25 (gage height, 1.62 ft); minimum, 2.3 cfs Aug. 20-24 (gage height, 0.92 ft).

Remarks.--Some small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	3.61	2.60	8.21	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	222	160	489	-		

181. Bear Creek near Redmond, Wash.

Location.--Lat 47°43'00", long. 122°04'30", in SW $\frac{1}{4}$ sec. 20, T. 26 N., R. 6 E., on right bank at county road crossing, 1 mile upstream from Cottage Lake Creek, and $3\frac{1}{2}$ miles northeast of Redmond.

Drainage area.--12.8 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 110 ft (from topographic map).

Extremes.--1945-49: Maximum discharge, 196 cfs Feb. 2, 1947 (gage height, 3.83 ft); minimum, 3.1 cfs Aug. 22, 1946.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	\$9.31	6.46	6.15	8.92	-
1946	12.0	37.3	50.8	53.5	61.3	47.8	26.1	11.6	13.8	7.75	5.21	7.30	27.7
1947	11.6	37.2	67.5	52.7	68.3	25.7	27.1	10.5	10.3	6.97	6.73	9.14	27.5
1948	20.2	50.8	58.2	63.9	60.2	38.4	32.8	41.2	24.5	12.5	11.0	14.7	35.6
1949	16.5	44.3	38.1	37.2	64.4	38.3	20.6	17.7	8.37	7.19	6.48	7.10	25.3
1950	13.2	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of weather records and records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	\$554	397	378	531	-
1946	736	2,220	3,120	3,290	3,410	2,940	1,550	713	819	477	320	434	20,030
1947	712	2,210	4,150	3,240	3,790	1,580	1,610	644	611	429	414	544	19,930
1948	1,240	3,020	3,580	3,930	3,460	2,360	1,950	2,530	1,460	766	676	875	25,850
1949	1,020	2,630	2,340	2,280	3,580	2,350	1,230	1,090	498	442	398	423	18,280
1950	811	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	139	Feb. 6, 1946	3.7	27.7	2.18	29.34	20,030	29.0	30.79	21,020
1947	1092	198	Feb. 2, 1947	6.1	27.5	2.15	19,930	28.6	30.35	20,700	
1948	1122	130	Jan. 4, 1948	8.3	35.6	2.78	37.87	25,850	33.1	35.16	24,000
1949	1152	180	Feb. 22, 1949	4.9	25.3	1.98	26.79	18,280	-	-	-

182. Cottage Lake Creek near Redmond, Wash.

Location.--Lat 47°44'00", long. 122°05'00", in SE $\frac{1}{4}$ sec. 18, T. 26 N., R. 6 E., on left bank 100 ft downstream from county road bridge, 2 miles upstream from mouth, and 4 $\frac{1}{2}$ miles northeast of Redmond.

Drainage area.--11.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (from topographic map).

Extremes.--June to September 1945: Maximum discharge, 11 cfs Sept. 20 (gage height, 1.09 ft); minimum, 4.2 cfs Aug. 15, 17 (gage height, 0.93 ft).

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945									-	5.16	4.73	5.96	

Monthly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945									-	318	291	355	

183. Evans Creek near Redmond, Wash.

Location.--Lat 47°39'15", long. 122°04'45", in NW $\frac{1}{4}$ sec. 17, T. 25 N., R. 6 E., on left bank at county road crossing, 2 miles upstream from mouth, and 2 $\frac{1}{2}$ miles southeast of Redmond.

Drainage area.--11.1 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 75 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge, 21 cfs Sept. 25 (gage height, 4.65 ft); minimum, 4.7 cfs Aug. 21 (gage height, 4.22 ft).

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1945						-	6.51	5.74	7.11	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1945						-	400	353	423	-			

184. Bear Creek at Redmond, Wash.

Location.--Lat 47°40'10", long. 122°06'30", in NE $\frac{1}{4}$ sec. 12, T. 25 N., R. 5 E., on right bank 300 ft downstream from highway crossing, half a mile east of Redmond, and three-quarters of a mile upstream from mouth.

Drainage area.--47.5 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

Average discharge.--5 years (1945-50), 83.4 cfs.

Extremes.--1945-50: Maximum discharge, 654 cfs Mar. 5, 1950; maximum gage height, 6.53 ft Jan. 22, 1950; minimum discharge, 13 cfs Aug. 26, 1947.

Remarks.--Several small diversions for irrigation and domestic use above station. Minor regulation by fish trap half a mile above gage.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	\$35.9	20.2	18.0	25.9	-
1946	35.5	99.1	131	165	176	146	79.0	36.4	40.7	27.2	19.4	24.5	81.1
1947	35.8	97.1	178	127	191	78.4	80.0	35.0	30.5	21.3	18.0	25.1	75.4
1948	51.2	117	139	181	166	111	96.8	113	74.1	38.2	34.1	38.7	96.5
1949	48.7	112	119	98.1	194	105	62.5	47.7	27.3	25.0	21.5	22.3	72.8
1950	35.5	58.3	96.6	191	213	250	99.1	57.5	32.2	23.0	22.5	21.7	91.1

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet, of Bear Creek at Pedmond, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	\$2,020	1,240	1,110	1,540	-
1946	2,180	5,900	8,040	10,160	9,760	8,990	4,700	2,240	2,420	1,870	1,190	1,480	58,710
1947	2,190	5,780	10,940	7,810	10,600	4,820	4,730	2,030	1,820	1,110	1,100	1,490	54,620
1948	3,150	6,950	8,570	11,140	9,570	6,810	5,750	6,970	4,410	2,350	2,100	2,300	70,070
1949	3,000	6,880	7,290	6,030	10,770	6,470	3,720	2,930	1,620	1,540	1,320	1,320	52,690
1950	2,180	3,470	5,940	11,740	11,850	15,350	5,900	3,530	1,910	1,410	1,390	1,290	65,960

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1945	1042	-	-	-	-	-	-	-	-	-	-	-
1946	1062	363	Feb. 6, 1946	17	81.1	1.71	23.17	58,710	85.0	24.27	61,500	
1947	1092	*460	Feb. 2, 1947	15.5	75.4	1.59	21.56	54,620	75.1	21.46	54,380	
1948	1122	349	Jan. 4, Feb. 26, 1948	24	96.5	2.03	27.66	70,070	94.2	27.00	68,370	
1949	1152	*555	Feb. 22, 1949	18	72.8	1.53	20.80	52,690	65.4	18.68	47,310	
1950	1182	654	Mar. 5, 1950	17.5	91.1	1.92	26.05	65,960	-	-	-	

* Revised.

Note.--Station discontinued Nov. 6, 1950. October 1950: 43.1 cfs; 2,650 acre-ft.

185. Sammamish River near Redmond, Wash.

Location.--Lat 47°40'10", long. 122°07'50" (revised), in NE $\frac{1}{4}$ sec. 11, T. 25 N., R. 5 E., on right bank at highway crossing 500 ft downstream from Bear Creek, half a mile west of Redmond, and 1 $\frac{1}{2}$ miles downstream from outlet of Sammamish Lake.

Drainage area.--144 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 23.08 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 14, 1946, staff gages at sites 1 $\frac{1}{2}$ and 2 miles upstream on west shore of Sammamish Lake at datum approximately 2.0 ft higher. Nov. 14, 1946, to July 8, 1947, water-stage recorder at present site at datum 1.52 ft higher.

Supplementary staff gage on Sammamish Lake, May 30 to Sept. 30, 1950.

Average discharge.--11 years (1939-50), 281 cfs.

Extremes.--1939-50: Maximum discharge, 1,360 cfs Mar. 6, 1950 (gage height, 8.35 ft); minimum, 51 cfs Sept. 27, 30, Oct. 1, 1939.

Remarks.--Numerous small diversions for irrigation and domestic use above station. Slight regulation on some tributaries.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	500	485	289	137	108	106	67.0	56.6	-
1940	55.7	84.8	252	391	393	586	398	381	187	94.4	78.0	66.8	247
1941	87.7	159	252	333	292	227	194	156	125	77.4	58.6	87.4	170
1942	133	194	477	460	440	365	249	180	189	143	90.5	84.8	250
1943	76.3	229	464	413	441	300	463	312	191	112	79.0	65.1	261
1944	76.7	127	150	212	284	270	222	208	151	84.1	59.0	69.6	159
1945	83.7	115	201	277	420	494	580	429	258	129	72.1	86.6	261
1946	105	288	496	629	611	590	463	273	172	155	89.5	88.0	329
1947	137	261	723	532	674	456	361	215	152	106	68.0	69.6	311
1948	203	537	552	737	606	625	484	423	343	201	129	137	414
1949	207	322	603	465	523	594	375	238	115	82.3	67.6	69.8	304
1950	99.4	176	323	708	837	1,094	651	360	175	105	82.6	71.3	388

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	27,750	29,800	17,220	8,450	6,450	6,540	4,120	3,370	-
1940	3,420	5,050	15,520	24,060	22,600	36,050	23,660	23,410	11,110	5,990	4,800	3,980	179,600
1941	5,390	9,470	15,500	20,470	16,190	13,930	11,540	9,600	7,470	4,760	3,600	5,200	123,100
1942	8,180	11,560	29,320	28,300	24,430	22,470	14,790	11,070	11,250	8,790	5,570	5,050	180,800
1943	4,590	13,610	28,550	25,380	24,500	18,430	27,520	19,160	11,380	6,900	4,860	3,870	188,800
1944	4,710	7,530	9,200	13,050	16,350	16,610	13,180	12,810	9,000	5,170	3,630	4,140	115,400
1945	5,150	6,840	12,340	17,020	23,350	30,390	34,540	26,380	15,360	7,940	4,440	5,160	188,900
1946	6,480	17,160	30,510	38,690	33,940	36,310	27,540	16,820	10,210	9,550	5,500	5,240	237,900
1947	8,420	15,520	44,440	32,680	37,440	28,030	21,490	13,230	9,070	6,480	4,180	4,140	225,100
1948	12,460	31,950	33,950	45,350	34,830	38,440	28,810	26,010	20,410	12,370	7,900	8,170	300,600
1949	12,730	19,160	37,050	28,580	29,060	36,500	22,290	14,630	6,840	5,060	4,160	4,150	220,200
1950	6,110	10,450	19,830	43,410	46,460	67,290	38,740	22,110	10,390	6,480	5,080	4,240	280,600

Yearly discharge, in cubic feet per second, of Sammamish River near Redmond, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1939	882	-	-	-	-	-	-	-	-	-	-
1940	902	689	Mar. 9, 10, 1940	51	247	1.72	23.39	179,600	256	24.22	186,000
1941	932	370	Jan. 20-26, 1941	56	170	1.18	16.03	123,100	196	18.46	141,800
1942	962	672	Dec. 23-25, 1941	80	250	1.74	23.54	180,800	247	23.25	178,600
1943	982	541	Apr. 5, 1943	52	281	1.81	24.59	188,800	226	21.28	163,400
1944	1012	307	Feb. 17, 1944	53	159	1.10	15.03	115,400	163	15.40	118,300
1945	1042	620	Apr. 12, 1945	64	261	1.81	24.59	188,900	302	28.48	218,700
1946	1062	704	Jan. 9-12, 1946	72	329	2.28	30.98	237,900	348	32.84	252,200
1947	1092	924	Dec. 15, 16, 1946	61	311	2.16	29.32	225,100	325	30.61	235,100
1948	1122	860	Jan. 10, 11, 1948	75	414	2.88	39.15	300,800	401	37.92	291,200
1949	1152	846	Feb. 24, 1949	60	304	2.11	28.67	220,200	259	24.44	187,700
1950	1182	1,360	Mar. 6, 1950	62	398	2.39	36.53	280,600	-	-	-

186. Bear Creek at Woodinville, Wash.

Location.--Lat 47°45'55", long. 122°09'20" in SW $\frac{1}{4}$ sec. 3, T. 26 N., R. 5 E., on left bank at county road crossing, three-quarters of a mile north of Woodinville, and 1 mile upstream from mouth.

Drainage area.--15.4 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 75 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge, 25 cfs Sept. 20 (gage height, 1.43 ft); minimum, 3.4 cfs Aug. 21.

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	5.08	4.80	8.22	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	312	295	489	-		

187. North Creek near Bothell, Wash.

Location.--Lat 47°47'30", long. 122°11'45" (revised), on line between secs. 29 and 32, T. 27 N., R. 5 E., on left bank 2 miles north of Bothell and 2 $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--24.1 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 70 ft (from topographic map). Prior to Apr. 5, 1950, at datum 0.59 ft lower.

Average discharge.--5 years (1945-50), 38.2 cfs.

Extremes.--1945-50: Maximum discharge (revised), 680 cfs Mar. 5 or 6, 1950 (gage height, 6.4 ft, present datum, from high-water elevation, pointed out by local resident); minimum, 1.0 cfs Aug. 10, 1946.

Remarks.--Several small diversions for irrigation and domestic use above station. Slight regulation by small dam above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	\$10.2	5.83	6.09	9.71	-
1946	13.1	48.2	59.7	74.4	103	70.7	35.1	14.5	15.0	9.38	6.42	7.60	37.6
1947	11.5	33.0	63.1	69.8	108	33.5	27.2	11.4	10.3	7.17	6.09	7.31	31.0
1948	24.4	37.8	72.9	89.9	81.1	50.0	50.5	58.9	31.2	11.0	10.8	13.9	44.3
1949	19.0	50.2	59.9	38.6	121	50.9	26.1	22.9	9.14	7.09	8.00	8.48	34.5
1950	13.3	28.8	48.8	96.4	111	132	39.8	19.2	11.6	8.72	9.09	8.57	43.6

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet, of North Creek near Bothel, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	#605	358	375	578	-
1946	804	2,870	3,670	4,570	5,700	4,350	2,090	893	891	577	395	452	27,260
1947	709	1,970	3,860	3,680	6,000	2,060	1,620	700	615	441	374	435	22,480
1948	1,500	2,250	4,460	5,530	4,870	3,080	3,000	3,620	1,860	678	664	625	32,160
1949	1,170	2,990	3,680	2,370	6,700	3,130	1,550	1,410	544	436	492	505	24,980
1950	816	1,710	3,000	5,920	6,170	8,130	2,370	1,180	690	538	559	510	31,590

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	280	Feb. 27, 1946	5.1	37.6	1.56	21.20	27,260	36.6	20.58	26,480
1947	1092	420	Feb. 2, 1947	4.7	31.0	1.29	17.48	22,480	33.5	18.79	24,220
1948	1122	323	Oct. 19, 1947	5.8	44.3	1.84	25.03	32,160	43.7	24.71	31,770
1949	1152	455	Feb. 17, 22, 1949	5.5	34.5	1.43	19.43	24,980	31.3	17.63	22,660
1950	1182	*680	Mar. 5, 6, 1950*	5.6	43.6	1.81	24.57	31,590	-	-	-

* Revised.

188. Sammamish River at Bothell, Wash.

Location (revised).--Lat 47°45'20", long. 122°11'35", in NW¼SE¼ sec. 8, T. 26 N., R. 5 E., on left bank in Bothell, a quarter of a mile downstream from North Creek, and 3½ miles upstream from mouth.

Drainage area.--205 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is mean lower low water at Seattle (Corps of Engineers benchmark), or 6.54 ft below mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Dec. 28, 1939, staff gages at same site and datum.

Average discharge.--11 years (1939-50), 356 cfs.

Extremes.--1939-50: Maximum discharge, 1,630 cfs Mar. 5, 6, 1950; maximum gage height, 32.12 ft Feb. 22, 1949; minimum discharge, 63 cfs Aug. 30, 1944; minimum gage height, 23.34 ft Sept. 22, 23, 1950.

Remarks.--Numerous small diversions for irrigation and domestic use above station. Slight regulation on some tributaries.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	111	152	441	508	563	710	474	438	218	123	92.9	91.4	326
1941	139	229	332	440	367	291	272	197	155	93.2	72.8	118	225
1942	183	272	667	553	558	441	285	261	239	166	108	100	320
1943	107	336	593	537	585	439	561	381	217	129	100	88.1	338
1944	142	178	209	304	362	319	298	252	176	97.3	74.3	90.1	207
1945	111	189	242	363	605	646	639	498	298	165	110	123	330
1946	158	401	587	789	843	765	533	323	229	177	113	119	417
1947	167	344	849	667	928	535	444	257	185	124	89.8	98.0	388
1948	274	607	694	963	737	738	591	556	415	248	179	184	515
1949	259	397	718	551	764	745	430	301	154	105	85.9	93.5	†382
1950	141	240	450	899	1,052	1,264	719	396	211	119	95.4	94.9	470

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	6,810	9,040	27,090	31,240	32,370	43,650	28,200	26,930	12,990	7,550	5,710	5,440	237,000
1941	8,550	13,640	20,420	27,020	20,410	17,870	16,170	12,110	9,240	5,730	4,470	7,000	162,600
1942	11,240	16,190	42,230	34,010	31,000	27,120	16,960	16,020	14,200	10,180	6,670	5,960	231,800
1943	6,590	19,980	36,460	33,030	32,510	26,990	33,400	23,440	12,890	7,910	6,150	5,240	244,600
1944	8,760	10,610	12,870	18,690	20,850	19,590	17,140	15,520	10,480	5,980	4,570	5,560	150,400
1945	6,820	11,240	14,900	22,320	33,580	39,740	38,020	30,610	17,740	10,130	6,770	7,310	239,200
1946	9,740	23,850	36,120	48,500	46,820	47,060	31,730	19,850	13,620	10,910	8,960	7,080	302,200
1947	10,270	20,450	52,180	40,990	51,510	32,890	26,400	15,830	11,000	7,850	5,520	5,830	280,500
1948	16,830	36,140	42,670	59,200	42,410	45,370	35,180	34,210	24,690	15,250	10,980	10,920	373,800
1949	15,920	23,640	44,160	33,860	42,460	45,820	25,570	18,500	9,160	6,430	5,280	5,570	276,400
1950	8,650	14,260	27,640	55,250	58,440	77,710	42,550	24,350	12,540	7,340	5,860	5,650	340,200

Yearly discharge, in cubic feet per second, of McAleer Creek near Bothell, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1947	1092	-	-	-	-	-	-	-	8.96	16.25	6,480
1948	1122	67	Oct. 18, 1947	3.2	9.76	1.30	17.75	7,090	9.28	16.89	6,740
1949	1152	141	Feb. 23, 1949	2.0	9.17	1.23	16.65	6,640	-	-	-
1950	1152	-	-	-	-	-	-	-	-	-	-

191. Thornton Creek near Seattle, Wash.

Location.--Lat 47°41'45", long. 122°16'30", in SE $\frac{1}{4}$ sec. 34, T. 26 N., R. 4 E., on left bank at highway crossing a quarter of a mile upstream from mouth and 1 $\frac{1}{2}$ miles north of Seattle.

Drainage area.--13.5 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

Extremes.--1945-46: Maximum discharge, 151 cfs Feb. 5, 1946 (gage height, 2.69 ft); minimum, 2.0 cfs Aug. 22, 23, 1946.

Remarks.--Several small diversions for irrigation and domestic use above station. Flow partly regulated by supplemental inflow from city of Seattle water supply.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	+11.6	4.97	10.1	17.3	-
1946	18.1	29.6	30.7	36.2	45.0	34.4	25.8	13.7	14.6	10.1	5.72	13.9	23.0

* Not previously published; partly estimated on the basis of weather records and records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	+693	305	618	1,030	-
1946	1,110	1,770	1,890	2,230	2,500	2,110	1,530	841	879	624	351	628	16,660

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	151	Feb. 5, 1946	2.4	23.0	1.70	23.15	16,600	-	-	-

POWDER CREEK BASIN

192. Powder Creek near Mukilteo, Wash.

Location.--Lat 47°57'15", long. 122°16'15", in SE $\frac{1}{4}$ sec. 34, T. 29 N., R. 4 E., on right bank at highway crossing, a quarter of a mile upstream from mouth, and 1 $\frac{1}{4}$ miles east of Mukilteo.

Drainage area.--2.06 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 160 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge, 3.8 cfs June 30, Aug. 6 (gage height, 1.22 ft); minimum, 1.9 cfs Aug. 8.

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	2.68	2.49	2.39	+2.51		

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	165	153	142	+155		

* Not previously published; partly estimated on the basis of records for nearby streams.

193. Tye River near Skykomish, Wash.

Location.--Lat 47°42'20", long. 121°17'40" (revised), in NW¼ sec. 32, T. 26 N., R. 12 E., on left bank a quarter of a mile upstream from confluence with Foss River and 3 miles east of Skykomish.

Drainage area.--79.8 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,060 ft (from river-profile map). Aug. 1, 1929, to Sept. 30, 1931, staff gage at different datum.

Extremes.--1929-31, 1946: Maximum discharge not determined, probably occurred Oct. 26, 1946 during period of no gage-height record; minimum not determined, probably occurred during period Jan. 8-30, 1930 when stage-discharge relation was affected by ice.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	122	76.3	-
1930	80.5	76.9	187	96.6	543	394	743	649	525	202	86.2	67.5	302
1931	136	172	145	288	336	383	454	902	545	173	81.2	87.2	308
1946	-	-	-	-	-	-	-	-	-	514	138	90.2	-
1947	*272	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of record for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	7,500	4,540	-
1930	4,950	4,580	11,500	5,940	30,200	24,200	44,200	39,900	31,200	12,400	5,300	4,020	218,000
1931	8,360	10,200	8,920	17,700	18,700	23,600	27,000	55,500	32,400	10,600	4,990	5,190	223,000
1946	-	-	-	-	-	-	-	-	-	31,620	8,460	5,370	-
1947	*16,690	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1929	692	-	-	-	-	-	-	-	-	-	-	-
1930	707	1,270	Feb. 19, 1930	-	302	3.78	51.32	218,000	311	52.85	225,000	-
1931	722	1,500	(a)	53	308	3.86	52.44	223,000	-	-	-	-
1946	1062	-	-	-	-	-	-	-	-	-	-	-
1947	1062	-	-	-	-	-	-	-	-	-	-	-

a Apr. 30, May 13, 1931.

194. Foss River near Skykomish, Wash.

Location.--Lat 47°41'40", long. 121°17'50", in SW¼ sec. 32, T. 26 N., R. 12 E., on left bank half a mile downstream from Great Northern Railway crossing, three-quarters of a mile upstream from confluence with Tye River, and 3 miles east of Skykomish.

Drainage area.--54.8 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 1,120 ft (from river-profile map).

Extremes.--July to December 1911: Maximum discharge, 2,620 cfs Nov. 19, 1911 (gage height, 6.2 ft, from graph based on gage readings); minimum observed, 83 cfs Nov. 2-4, 1911 (gage height, 0.9 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	-	399	233	270	-
1912	125	556	238	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	-	24,500	14,300	16,100	-
1912	7,690	33,100	14,600	-	-	-	-	-	-	-	-	-	-

Note.--Records for May and June 1911 published in Water-Supply Paper 332 have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. Those records are not published herein and should not be used.

195. South Fork Skykomish River near Skykomish, Wash.

Location.--Lat 47°42'20", long. 121°18'30", in NW¼NE¼ sec. 31, T. 26 N., R. 12 E., on left bank a quarter of a mile downstream from confluence of Tye and Foss Rivers and 2½ miles east of Skykomish.

Drainage area.--135 sq mi. At site 1929-31, 137 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,030 ft (from river-profile survey). Aug. 1, 1929, to Sept. 30, 1931, staff gages about 1,000 ft downstream at different datum.

Average discharge.--6 years (1929-31, 1946-50), 846 cfs.

Extremes.--1929-31, 1946-50: Maximum discharge, 12,400 cfs Nov. 27, 1949 (gage height, 10.51 ft), from rating curve extended above 6,600 cfs; minimum observed, 124 cfs Dec. 4, 1929, may have been less during period Jan. 10-31, 1930 when stage-discharge relation was affected by ice.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	327	208	-
1930	183	154	411	212	1,040	645	1,190	1,020	947	512	253	195	558
1931	343	386	*282	560	638	750	823	1,440	1,070	440	238	239	*600
1946	-	-	-	-	-	-	-	-	-	1,102	390	253	-
1947	530	481	1,185	799	809	817	1,270	1,973	1,509	776	349	323	902
1948	1,074	1,160	887	502	411	375	717	2,021	2,963	1,065	516	369	1,005
1949	636	625	517	278	443	580	1,086	2,523	1,942	1,186	529	399	898
1950	784	1,302	904	589	498	781	763	1,586	3,018	2,023	770	338	1,114

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	20,100	12,300	-
1930	11,300	9,160	25,300	13,000	57,800	39,700	70,800	82,700	56,400	31,500	15,600	11,600	405,000
1931	21,100	23,000	*17,300	34,400	35,400	46,100	49,000	88,500	63,700	27,100	14,600	14,200	*434,000
1946	-	-	-	-	-	-	-	-	-	67,730	23,970	15,030	-
1947	32,570	28,620	72,840	49,150	44,920	50,220	75,560	121,300	89,790	47,710	21,460	19,210	653,400
1948	66,050	69,010	54,550	30,860	23,620	23,070	42,650	124,300	176,300	65,490	31,750	21,970	729,600
1949	39,110	37,210	31,790	17,120	24,610	35,640	64,640	155,100	115,500	72,920	32,500	23,730	649,900
1950	48,190	77,490	55,580	36,230	27,660	48,050	45,400	96,300	179,600	124,400	47,350	20,100	806,300

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	*2,440	Feb. 19, 1930	-	558	4.07	55.39	405,000	*580	*57.55	*420,000
1931	1346,722	*3,060	Jan. 28, 1931	143	*600	*4.38	*59.46	*434,000	-	-	-
1946	1062	-	-	-	-	-	-	-	-	-	-
1947	1092	6,410	Dec. 11, 1946	170	902	6.68	90.76	653,400	979	98.48	708,900
1948	1122	8,290	Oct. 19, 1947	250	1,005	7.44	101.34	729,600	893	90.01	648,100
1949	1152	4,850	May 13, 1949	195	898	6.65	90.28	649,900	999	100.44	723,000
1950	1182	12,400	Nov. 27, 1949	254	1,114	8.25	111.98	806,300	-	-	-

* Revised.

Note.--Station discontinued Dec. 7, 1950. October 1950: 907 cfs; 55,570 acre-ft. November 1950: 1,140 cfs; 67,830 acre-ft.

196. Beckler River near Skykomish, Wash.

Location.--Lat 47°44'20", long. 121°19'10", in SW¼ sec. 18, T. 26 N., R. 12 E., on left bank a quarter of a mile downstream from Eagle Creek, 2¼ miles upstream from mouth, and 3 miles northeast of Skykomish.

Drainage area.--96.5 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,080 ft (from topographic map).

Average discharge.--7 years (1929-33, 1946-49), 606 cfs.

Extremes.--1929-33, 1946-49: Maximum discharge, 10,900 cfs Nov. 13, 1932 (gage height, 9.6 ft), from rating curve extended above 3,300 cfs; minimum recorded, 50 cfs Oct. 3, 1929 (gage height, 2.09 ft), but may have been less during period of ice-effect Jan. 9-29, 1930.

Flood of Nov. 27, 1949 reached a stage of 9.4 ft, from floodmarks (discharge, 9,600 cfs).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Beckler River near Skykomish, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1930	80.2	75.3	260	142	903	509	1,030	796	628	215	76.1	66.5	394
1931	223	247	252	*518	501	*638	692	1,140	720	220	83.9	108	*445
1932	222	539	331	471	750	897	1,000	1,300	1,480	579	148	100	649
1933	284	1,740	774	501	170	323	543	1,040	1,810	1,210	431	*485	*776
1946	-	-	-	-	-	-	-	-	-	658	143	92.5	-
1947	338	321	1,008	663	712	709	1,026	1,412	941	374	125	98.4	644
1948	783	778	648	368	310	282	591	1,595	2,057	544	195	189	695
1949	398	494	351	173	311	528	873	1,977	1,380	721	220	184	636
1950	465	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1930	4,930	4,480	16,000	8,730	50,200	31,300	61,300	48,900	37,400	13,200	4,680	3,960	285,000
1931	13,700	14,700	15,500	*31,900	27,800	*39,200	41,200	70,100	42,800	13,500	5,160	6,430	*322,000
1932	13,600	32,100	20,400	29,000	43,100	55,200	59,500	79,900	88,100	35,600	9,100	5,950	472,000
1933	17,500	104,000	47,600	30,800	9,440	19,900	32,300	64,000	108,000	74,400	26,500	*28,900	*563,000
1946	-	-	-	-	-	-	-	-	-	40,460	8,780	5,500	-
1947	20,770	19,110	62,010	40,750	39,550	43,600	61,050	86,840	55,990	22,990	7,670	5,960	456,200
1948	48,160	46,290	39,870	22,620	17,950	17,310	35,170	98,080	122,400	33,420	12,000	11,270	504,400
1949	24,480	29,400	21,610	10,660	17,250	32,370	51,950	121,800	82,110	44,340	13,520	10,930	460,200
1950	28,600	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Runoff Acre-feet	Mean	Runoff	
		Discharge	Date							Inches	Acre-feet
1929	707	-	-	-	-	-	-	-	-	-	-
1930	707	2,380	Feb. 5, 1930	-	394	4.08	55.38	285,000	419	58.97	304,000
1931	1346,722	*4,620	Jan. 28, 1931	57	*445	4.61	62.56	*322,000	475	66.86	344,000
1932	737	10,000	Feb. 26, 1932	74	649	6.73	91.58	472,000	790	111.49	575,000
1933	752	10,900	Nov. 13, 1932	-	*776	*8.04	*103.17	*563,000	-	-	-
1946	1062	-	-	-	-	-	-	-	-	-	-
1947	1092	5,790	Dec. 11, 1946	70	644	6.67	90.59	466,200	689	96.89	498,600
1948	1122	6,580	Oct. 19, 1947	72	695	7.20	98.00	504,400	614	86.57	445,600
1949	1152	4,140	May 13, 1949	90	636	6.59	89.40	460,200	-	-	-
1950	1182	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published.

197. Miller River at Miller River, Wash. 1/

Location.--Lat 47°42'30", long. 121°23'50", in SW 1/4 sec. 28, T. 26 N., R. 11 E., on left bank five-eighths of a mile south of Miller River and five-eighths of a mile upstream from mouth.

Drainage area.--44.7 sq mi (revised). At site May 1911 to September 1919, 44.2 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 915 ft (from river-profile map). May 24, 1911, to Sept. 30, 1919, and Dec. 13, 1928, to Sept. 30, 1931, staff gages at sites within half a mile upstream at different datums.

Average discharge.--11 years (1911-19, 1928-31), 337 cfs.

Extremes.--1911-19, 1928-31, 1946: Maximum discharge not determined, occurred during flood of Dec. 18, 1917, which destroyed gage; minimum, 18 cfs Sept. 3, 1930.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	*745	348	55.3	289	-
1912	87.0	190	279	373	339	109	261	*765	595	237	137	116	*373
1913	183	349	238	220	353	210	434	702	*990	627	170	175	*387
1914	*361	433	157	*366	165	392	540	640	455	210	65	120	*328
1915	333	581	99.1	83.1	96.0	296	449	312	158	89.0	32.6	34.3	214
1916	531	*285	300	154	452	508	494	569	878	680	236	128	*432
1917	64.2	278	136	189	308	108	326	875	1,050	855	226	79.1	356
1918	100	160	1,500	660	272	130	400	550	641	240	147	35.9	405
1919	508	345	945	461	225	182	472	589	567	400	110	75	408

* Revised.

1/ Published as Miller Creek near Berlin prior to 1917 and as Miller Creek near Miller River, 1917.

Monthly and yearly mean discharge, in cubic feet per second, of Miller Creek at Miller River, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	310	170	140	79.5	45.2	240	303	868	775	130	120	29.7	285
1930	83.0	69.0	310	98.4	686	314	450	392	361	335	29.0	44.2	244
1931	287	144	130	496	245	385	381	586	448	98.9	29.1	102	278
1946	-	-	-	-	-	-	-	-	-	412	82.5	54.2	-
1947	*264	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	*44,300	21,400	3,400	17,200	-
1912	5,350	70,800	17,200	22,900	19,500	6,700	15,500	*47,000	35,500	14,600	8,420	6,900	*270,000
1913	11,300	20,800	14,600	13,500	19,600	12,900	25,800	43,200	58,900	38,600	10,500	10,400	*280,000
1914	*23,400	25,800	9,650*	22,500	9,160	24,100	32,100	39,400	27,100	12,900	4,000	7,140	*237,000
1915	20,500	34,600	6,090	5,110	5,330	18,200	26,700	19,200	9,400	5,470	2,000	2,040	155,000
1916	32,600*	17,000	18,400	9,470	26,000	31,100	29,400	35,000	52,100	40,600	14,500	7,500	*314,000
1917	3,950	16,400	8,360	10,400	17,100	6,640	19,400	41,500	62,500	53,200	13,500	4,710	258,000
1918	6,150	9,520	92,200	40,600	15,100	7,990	23,800	33,800	36,100	14,800	9,040	2,140	293,000
1919	31,200	20,500	58,100	28,300	12,500	11,200	28,100	36,200	33,700	24,600	6,760	4,460	296,000
1929	19,100	10,100	8,610	4,890	2,510	14,800	18,000	53,400	46,100	20,600	7,390	1,770	207,000
1930	5,100	4,110	19,100	6,050	36,100	19,300	26,800	24,100	21,500	7,990	1,780	2,630	177,000
1931	17,600	6,570	7,990	30,500	13,600	23,700	22,700	36,000	26,700	6,080	1,790	6,070	201,000
1946	-	-	-	-	-	-	-	-	-	25,310	5,070	3,220	-
1947	*16,230	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	1346,332	-	-	-	-	-	-	-	-	-	-
1912	1346,332	-	-	37	*373	*8.44	*14.81	*270,000	*308	*94.94	*224,000
1913	a362,492	-	-	70	*387	*8.76	*18.78	*280,000	*404	*123.92	*292,000
1914	a392,492	*2,850	Jan. 5, 1914*	-	*328	*7.42	*100.56	*237,000	*331	*101.51	*240,000
1915	412	-	-	24	214	4.84	65.57	155,000	*223	*68.55	*161,000
1916	1346,442	-	-	44	*432	*9.77	*33.11	*314,000	378	116.43	274,000
1917	462	-	-	33	356	8.05	109.41	258,000	465	142.96	337,000
1918	482,492	-	-	-	405	9.16	124.29	293,000	408	125.20	295,000
1919	512,492	b4,160	Dec. 13, 1918	-	408	9.23	125.43	296,000	-	-	-
1929	692,870	-	-	-	285	6.38	86.54	207,000	273	82.94	198,000
1930	707	*2,260	Feb. 5, 1930*	18	244	5.46	74.05	177,000	252	76.54	182,000
1931	722	*3,920	Jan. 28, 1931*	22	278	6.22	84.43	201,000	-	-	-
1946	1062	-	-	-	-	-	-	-	-	-	-
1947	1062	-	-	-	-	-	-	-	-	-	-

* Revised.

a See also Water-Supply Paper 1346 for revised records.

b Maximum observed.

198. South Fork Skykomish River near Index, Wash.

Location.--Lat 47°48'20" long. 121°32'40", in NE¼ sec. 29, T. 27 N., R. 10 E., on right bank 600 ft upstream from Sunset Falls, 1 mile (revised) southeast of Index, and 2 miles upstream from North Fork. Discharge measurements made about 2 miles upstream from gage.

Drainage area.--355 sq mi.

Gage.--Water-stage recorder. Datum of gage is 574.80 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Mar. 15, 1934, staff gages and water-stage recorder about 300 ft downstream as follows: Oct. 6, 1902, to Sept. 30, 1905, staff gage at datum 0.39 ft higher and Apr. 26, 1911, to Sept. 30, 1913, at datum 1 ft higher; Oct. 1, 1913, to Sept. 13, 1920, staff gage, Sept. 14, 1920, to Oct. 1, 1921, water-stage recorder, and Jan. 23, 1922, to Mar. 14, 1934, staff gage, at present datum.

Average discharge.--42 years (1902-5, 1911-50), 2,346 cfs (corrected).

Extremes.--1902-5, 1911-50: Maximum discharge, 55,000 cfs (revised) Dec. 12, 1921 (revised) (gage height, 22.8 ft, revised, from high-water marks at site then in use), from rating curve extended above 14,000 cfs by logarithmic plotting; minimum observed, 214 cfs Oct. 15-21, 23, 1925.

Flood of 1897 reached a stage of about 5 ft higher than that of Dec. 12, 1921 (discharge, about 70,000 cfs).

Remarks.--No diversion or regulation above Station.

SNOHOMISH RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of South Fork Skykomish River near Index, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1903	697	2,090	2,530	3,880	1,070	1,280	1,830	3,800	6,260	2,690	1,000	1,600	2,400
1904	2,420	2,570	2,550	2,340	1,000	1,510	3,710	3,540	4,090	2,380	790	527	2,290
1905	546	2,590	2,510	1,570	1,440	2,690	2,080	2,380	2,760	1,100	811	1,040	1,790
1911	-	-	-	-	-	-	-	3,550	4,010	1,940	642	1,250	-
1912	593	4,700	2,070	2,890	2,340	926	1,800	4,560	4,370	1,810	853	1,340	2,350
1913	1,100	2,800	1,700	1,700	1,600	1,600	2,700	4,900	6,730	4,280	1,310	1,400	2,650
1914	2,410	2,950	1,270	3,510	1,520	2,660	3,540	4,330	3,080	1,400	500	934	2,330
1915	1,800	4,200	2,919	749	780	1,720	3,260	1,740	1,050	657	421	334	1,470
1916	2,060	2,280	2,960	941	2,590	3,400	3,150	4,200	6,300	4,510	1,500	793	2,840
1917	464	1,900	3,980	1,300	2,020	898	2,280	4,510	7,460	6,020	1,460	680	2,490
1918	615	1,030	11,000	5,060	2,090	1,770	2,830	3,630	4,750	1,610	980	446	3,000
1919	2,130	2,040	5,110	3,840	1,320	1,560	3,350	4,750	4,120	2,680	882	580	2,710
1920	612	4,050	3,100	3,590	1,660	1,630	1,650	2,550	3,100	1,550	634	2,560	2,220
1921	3,590	2,050	2,370	2,720	3,680	2,900	2,550	4,770	6,380	2,780	904	1,590	3,010
1922	1,900	2,600	5,000	750	560	685	1,790	4,450	4,980	1,320	596	773	2,120
1923	1,070	1,340	2,870	4,580	884	1,400	3,260	4,180	3,890	2,230	719	442	2,230
1924	884	1,650	2,990	2,160	5,410	1,240	1,800	4,750	2,590	1,060	536	491	2,120
1925	2,120	2,480	4,040	2,850	3,740	1,560	3,210	5,340	3,450	1,420	558	351	2,590
1926	750	1,310	4,790	2,170	2,110	1,910	2,140	2,130	963	424	419	674	1,650
1927	2,500	1,820	2,120	1,730	1,710	1,300	2,350	4,260	5,670	2,050	802	1,720	2,330
1928	3,060	5,740	2,900	4,570	1,100	2,700	2,220	5,080	2,960	1,310	474	407	2,720
1929	1,850	1,070	976	597	454	1,720	1,830	4,800	4,560	1,670	540	350	1,720
1930	461	426	1,610	770	3,970	2,090	3,360	2,650	2,340	962	406	380	1,600
1931	1,280	1,160	1,010	2,140	2,040	2,720	2,620	3,700	2,810	961	404	597	1,790
1932	1,210	2,460	1,460	2,210	3,930	4,060	3,690	4,340	4,660	2,350	812	581	2,640
1933	1,634	7,910	3,377	2,792	780	1,719	2,645	4,119	6,860	4,682	1,693	1,962	3,352
1934	4,326	3,786	9,440	5,334	2,262	4,278	4,244	3,158	1,627	839	498	588	3,383
1935	2,610	4,132	2,843	5,093	2,651	1,630	1,641	3,686	4,322	2,072	635	491	2,651
1936	526	938	1,153	2,081	695	1,881	3,867	7,005	5,017	1,424	535	536	2,141
1937	479	365	3,092	595	897	1,858	2,464	4,424	6,309	2,013	687	449	1,973
1938	997	4,910	3,258	2,158	802	1,551	3,725	4,169	3,352	1,122	434	341	2,237
1939	740	2,398	3,151	3,524	1,394	1,986	3,322	4,827	3,730	2,364	755	506	2,399
1940	1,135	2,055	3,838	1,611	2,248	2,481	2,467	3,538	1,651	655	408	322	1,868
1941	1,232	1,477	1,974	1,435	1,068	1,209	1,640	2,167	1,414	646	383	1,578	1,352
1942	3,035	2,238	3,155	819	1,010	1,209	2,859	3,298	3,922	1,563	557	360	2,007
1943	642	3,058	2,608	1,760	1,709	2,348	4,336	3,969	4,933	3,263	898	506	2,501
1944	717	1,151	2,999	1,376	1,254	1,553	2,517	3,516	2,607	889	471	1,297	1,679
1945	1,011	1,637	2,280	3,605	2,811	1,460	1,815	5,027	3,013	1,197	480	1,004	2,109
1946	1,786	2,806	2,322	2,040	1,432	1,950	3,129	6,260	5,552	2,686	782	502	2,609
1947	1,695	1,815	4,351	2,877	2,932	2,759	3,759	6,656	3,413	1,625	637	704	2,564
1948	3,539	3,590	2,778	1,655	1,569	1,283	3,583	5,797	7,130	2,327	1,095	944	2,840
1949	1,725	2,374	1,707	748	1,569	2,258	3,395	6,758	4,740	2,807	1,142	952	2,518
1950	2,273	4,104	3,042	1,942	1,899	3,131	2,777	4,579	7,966	4,926	1,757	781	3,269

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1903	42,900	24,000	56,000	39,000	59,400	78,700	109,000	234,000	372,000	165,000	61,500	95,200	1,740,000
1904	149,000	153,000	157,000	144,000	57,500	92,800	221,000	218,000	243,000	146,000	48,600	31,400	1,660,000
1905	33,600	154,000	154,000	96,500	80,000	65,000	100,240	146,000	164,000	87,600	49,900	61,900	1,300,000
1911	-	-	-	-	-	-	-	218,000	239,000	119,000	39,500	74,400	-
1912	36,500	280,000	127,000	178,000	135,000	56,900	107,000	200,000	260,000	111,000	52,400	79,700	1,700,000
1913	67,600	187,000	105,000	105,000	88,900	400,161	1,003,001	1,004,000	1,002,663	500	80,600	83,500	1,920,000
1914	148,000	76,000	78,100	204,000	84,400	164,000	100,211	1,002,866	1,003,183	86,100	30,700	56,600	1,690,000
1915	111,000	250,000	56,500	46,100	43,300	106,000	194,000	107,000	62,500	40,400	25,900	19,900	1,060,000
1916	127,000	136,000	147,000	57,900	149,000	209,000	187,000	258,000	375,000	277,000	92,200	47,200	2,060,000
1917	28,500	115,000	59,000	79,900	112,000	55,200	136,000	100,277	100,443	100,370	89,800	40,500	1,800,000
1918	37,800	61,500	676,000	311,000	116,000	109,000	168,000	223,000	283,000	99,000	60,300	26,500	1,770,000
1919	131,000	121,000	154,000	36,000	75,300	95,900	199,000	292,000	245,000	165,000	54,200	34,500	1,910,000
1920	37,600	421,000	131,000	221,000	95,500	100,000	98,200	157,000	184,000	95,300	39,000	152,000	1,310,000
1921	221,000	22,000	146,000	167,000	178,000	152,000	152,000	293,000	380,000	70,000	55,600	94,600	2,180,000
1922	117,000	155,000	307,000	44,900	31,100	42,000	107,000	274,000	296,000	81,200	36,600	46,000	1,540,000
1923	65,800	79,700	76,000	269,000	49,100	86,100	194,000	100,257	100,231	100,137	44,200	26,300	1,620,000
1924	54,400	98,200	184,000	33,000	11,000	76,200	107,000	292,000	154,000	65,200	33,000	29,200	1,540,000
1925	150,000	148,000	161,000	175,000	208,000	95,900	191,000	328,000	205,000	87,300	34,300	20,200	1,770,000
1926	46,100	78,000	235,000	33,000	117,000	100,127	100,131	100,570	26,100	25,800	40,100	1,900	1,980,000
1927	154,000	108,000	100,000	106,000	95,000	79,900	140,000	262,000	333,000	26,000	49,300	102,000	1,690,000
1928	168,000	342,000	178,000	208,000	63,300	166,000	100,132	100,032	176,000	80,600	29,100	24,200	1,970,000
1929	120,000	63,700	60,000	36,600	25,200	106,000	109,000	295,000	271,000	103,000	33,200	20,800	1,240,000
1930	28,300	25,300	99,000	47,300	220,000	129,000	200,000	163,000	139,000	59,200	25,000	22,600	1,160,000
1931	78,700	69,000	62,100	132,000	113,000	187,000	100,156	100,228	100,167	59,100	42,300	35,500	1,290,000
1932	74,400	146,000	89,800	136,000	226,000	200,000	220,000	267,000	277,000	144,000	49,900	34,600	1,910,000
1933	100,400	70,200	70,700	71,700	43,310	70,500	57,400	253,200	408,200	287,900	104,100	116,800	2,427,000
1934	266,000	225,300	580,500	327,900	125,600	263,000	252,500	194,200	96,830	51,610	30,590	34,960	2,419,000
1935	160,500	425,900	74,800	513,100	47,300	100,120	97,660	226,800	200,257	100,127	40,300	29,220	1,990,000
1936	32,490	55,790	70,870	128,000	39,980	115,700	230,100	430,700	298,500	87,530	32,870	31,920	1,554,000
1937	29,460	21,720	139,100	36,590	49,800	14,200	14,200	14,200	14,200	14,200	42,250	26,710	1,429,000
1938	61,290	92,100	100,300	32,700	44,530	95,370	221,700	221,700	400,199	509	69,010	26,690	1,620,000
1939	45,500	142,700	193,800	216,700	77,440	122,100	197,700	296,800	221,900	145,300	46,440	30,120	1,736,000
1940	69,790	122,300	236,000	99,030	29,300	152,500	146,800	217,500	98,260	40,300	25,110	19,190	1,356,000

Monthly and yearly runoff, in acre-feet, of South Fork Skykomish River near Index, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	75,780	87,900	21,300	88,250	59,290	74,350	97,570	133,300	84,130	39,740	23,570	93,890	979,100
1942	186,600	133,200	194,000	50,390	56,090	74,340	170,100	202,800	233,400	96,110	34,280	21,420	1,453,000
1943	39,470	182,000	160,400	108,200	94,930	144,400	258,000	244,000	293,500	200,600	55,210	30,090	1,811,000
1944	44,070	68,480	84,400	84,590	72,130	95,500	137,900	216,200	201,550	54,690	28,960	77,190	1,219,000
1945	62,190	97,390	140,200	21,700	156,100	89,780	108,000	309,100	100,790	30,730	29,530	59,730	1,527,000
1946	109,800	166,900	142,800	125,400	79,540	119,900	186,200	384,900	330,400	165,100	48,090	29,860	1,889,000
1947	104,200	90,140	268,300	183,000	162,800	156,100	223,100	286,300	203,100	99,910	39,170	41,670	1,856,000
1948	217,600	133,600	170,400	101,800	89,680	78,890	141,800	356,400	424,500	143,100	67,300	56,160	2,061,000
1949	106,000	141,300	104,600	46,010	87,130	136,800	202,000	415,500	282,000	172,600	70,240	56,620	1,823,000
1950	139,800	244,200	187,300	119,400	105,500	192,500	165,200	281,600	474,000	302,900	108,100	46,470	2,367,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1903	512	*32,800	Jan. 3, 1903	457	2,400	6.76	91.77	1,740,000	2,590	99.09	1,870,000
1904	512	*12,400	Nov. 30, 1903	403	2,290	6.45	87.79	1,680,000	2,130	81.67	1,540,000
1905	512	*10,200	Nov. 22, 1904	356	1,790	5.04	68.41	1,300,000	-	-	-
1911	512	-	-	-	-	-	-	-	-	-	-
1912	512	*26,000	Nov. 19, 1911	313	2,350	6.62	90.11	1,700,000	2,200	84.39	1,600,000
1913	512	-	-	-	2,650	7.46	101.27	1,920,000	2,740	104.79	1,980,000
1914	512	*24,800	Jan. 6, 1914	-	2,330	6.56	89.05	1,690,000	2,350	89.86	1,700,000
1915	412	*15,800	Nov. 3, 1914	264	1,470	4.14	56.19	1,060,000	1,460	55.79	1,060,000
1916	442	*14,200	Oct. 31, 1915	374	2,840	8.00	108.90	2,080,000	2,550	97.73	1,850,000
1917	442	*14,300	Oct. 19, 1917	332	2,300	7.01	95.15	1,800,000	3,290	125.85	2,380,000
1918	462	*54,100	Dec. 18, 1917	346	3,000	8.45	114.70	2,170,000	2,710	103.57	1,960,000
1919	512	*26,500	Dec. 14, 1918	359	2,710	7.63	103.58	1,960,000	2,580	98.68	1,860,000
1920	512	*33,900	Nov. 15, 1919	333	2,220	6.25	89.09	1,610,000	2,250	86.11	1,630,000
1921	532	*22,100	Feb. 11, 1921	463	3,010	8.46	115.30	2,180,000	3,140	120.12	2,270,000
1922	552	*55,000	Dec. 12, 1921	417	2,120	5.97	81.14	1,540,000	1,770	67.54	1,280,000
1923	572	*25,400	Jan. 6, 1923*	346	2,230	6.28	85.23	1,620,000	2,250	86.06	1,630,000
1924	592	*60,500	Feb. 12, 1924	320	2,120	5.97	81.17	1,540,000	2,360	91.22	1,730,000
1925	612	*22,400	Feb. 2, 1925*	271	2,590	7.30	98.61	1,870,000	2,440	93.10	1,760,000
1926	632	*22,400	Dec. 23, 1925	214	1,650	4.65	63.05	1,190,000	1,610	61.66	1,170,000
1927	652	*21,500	Oct. 16, 1926	530	2,330	6.56	89.32	1,690,000	2,770	106.03	2,010,000
1928	672	*34,300	Jan. 12, 1928	304	2,720	7.66	104.24	1,970,000	2,080	79.67	1,510,000
1929	692	*10,500	Oct. 9, 1928	271	1,720	4.85	65.58	1,240,000	1,590	60.79	1,150,000
1930	707	*10,900	Feb. 5, 1930	271	1,600	4.51	61.15	1,160,000	1,690	64.16	1,210,000
1931	722	*19,400	Jan. 27, 1931*	304	1,790	5.04	68.23	1,290,000	1,920	73.53	1,390,000
1932	737	*50,000	Feb. 26, 1932	400	2,640	7.44	101.08	1,910,000	3,280	125.82	2,380,000
1933	752	*46,900	Nov. 13, 1932	327	3,352	9.44	128.17	2,427,000	3,757	143.71	2,720,000
1934	792	*53,200	Dec. 21, 1933	415	3,363	9.53	129.49	2,449,000	2,705	103.46	1,958,000
1935	792	35,400	Oct. 25, 1934	402	2,651	7.47	101.30	1,919,000	2,068	79.06	1,497,000
1936	812	11,800	May 16, 1936	362	2,141	6.03	82.03	1,554,000	2,254	86.37	1,637,000
1937	832	14,400	Dec. 18, 1936	320	1,973	5.56	75.56	1,429,000	2,405	92.03	1,741,000
1938	862	27,700	Apr. 18, 1938	272	2,237	6.30	85.47	1,620,000	2,000	76.42	1,448,000
1939	882	17,200	Jan. 1, 1939	244	2,399	6.78	91.72	1,736,000	2,462	94.15	1,763,000
1940	902	15,400	Dec. 15, 1939	279	1,868	5.26	71.62	1,356,000	1,671	64.07	1,213,000
1941	932	15,000	Nov. 29, 1940	303	1,352	3.61	51.70	979,100	1,668	63.78	1,208,000
1942	962	12,600	Dec. 23, 1941	310	2,007	5.55	75.72	1,453,000	1,824	69.75	1,321,000
1943	982	21,200	Nov. 23, 1942	275	2,501	7.05	95.64	1,811,000	2,384	91.17	1,726,000
1944	1012	41,900	Dec. 3, 1943	317	1,679	4.73	64.40	1,219,000	1,663	64.53	1,222,000
1945	1042	28,200	Jan. 7, 1945	350	2,109	5.94	80.61	1,527,000	2,274	86.95	1,646,000
1946	1062	18,400	Oct. 25, 1945	387	2,609	7.35	99.76	1,889,000	2,666	101.94	1,930,000
1947	1092	24,700	Dec. 11, 1946	359	2,564	7.22	98.05	1,856,000	2,759	105.50	1,997,000
1948	1122	26,900	Oct. 19, 1947	449	2,840	8.00	108.90	2,080,000	2,495	95.68	1,811,000
1949	1152	13,800	May 13, 1949	406	2,518	7.09	96.28	1,823,000	2,621	107.87	2,042,000
1950	1182	33,700	Nov. 27, 1949	570	3,269	9.21	125.02	2,367,000	-	-	-

* Revised.

† Not previously published.

199. Troublesome Creek near Index, Wash.

Location.--Lat 47°54'00", long. 121°23'40" (revised), in NE $\frac{1}{4}$ sec. 21, T. 28 N., R. 11 E. (unsurveyed), on right bank a quarter of a mile upstream from mouth and 9 miles north-east of Index.

Records represent flow passing measuring section $1\frac{1}{4}$ miles upstream.

Drainage area.--10.6 sq mi (revised) at measuring section.

Gage.--Water-stage recorder. Altitude of gage is 1,350 ft (from topographic map).

Average discharge.--12 years (1929-41), 114 cfs.

Extremes.--1929-41: Maximum discharge, 2,300 cfs Dec. 21, 1933 (gage height, 7.0 ft); from rating curve extended above 750 cfs; maximum gage height, 7.54 ft Feb. 26, 1932; minimum discharge, 10 cfs Nov. 17, 18, 19, 1936.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Troublesome Creek near Index, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	*125	54.1	29.1	-
1930	31.0	20.8	66.4	27.4	158	71.3	142	119	135	88.8	42.1	38.4	77.7
1931	86.3	56.9	45.8	119	56.2	88.7	117	193	208	87.5	37.7	57.7	96.3
1932	66.9	112	54.2	75.2	146	126	127	141	177	154	78.4	48.4	109
1933	91.2	309	115	117	29.9	48.5	96.8	154	279	237	134	148	147
1934	226	161	381	274	98.6	217	180	158	101	81.5	49.5	52.0	166
1935	149	291	195	287	94.6	61.8	58.1	156	202	147	56.7	50.6	146
1936	35.3	43.3	51.4	92.2	21.1	67.2	146	258	238	96.5	45.8	48.2	95.4
1937	33.1	11.7	236	17.9	103	202	250	200	303	132	51.9	34.2	131
1938	77.4	322	214	98.9	18.9	55.8	153	190	194	101	38.3	32.7	125
1939	74.0	112	148	130	32.0	71.5	127	211	181	174	59.5	37.7	114
1940	81.2	110	162	58.1	83.8	86.9	103	148	101	54.6	36.7	27.4	87.7
1941	116	70.4	88.4	58.9	40.3	53.8	71.3	105	83.3	55.4	32.8	106	73.6
1942	162	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	*7,710	3,330	1,730	-
1930	1,910	1,240	4,080	1,680	8,780	4,380	8,450	7,320	8,030	5,460	2,590	2,280	56,200
1931	5,310	3,390	2,820	7,320	3,120	5,450	6,960	11,900	12,400	5,380	2,320	3,430	69,800
1932	4,110	6,680	3,330	4,620	8,400	7,750	7,560	8,670	10,500	9,470	4,820	2,880	78,800
1933	5,610	18,400	7,070	7,190	1,660	2,980	5,780	9,470	16,600	14,600	8,240	8,810	106,000
1934	13,860	9,800	23,400	16,850	5,480	13,350	10,720	9,750	6,020	5,010	3,050	3,090	120,200
1935	9,180	17,310	12,010	17,640	5,260	3,800	3,460	9,570	12,000	9,060	3,490	5,010	105,800
1936	2,170	2,570	3,160	5,670	1,210	4,130	8,690	15,860	14,150	5,930	2,820	2,870	69,230
1937	2,040	694	14,500	1,100	5,720	12,410	14,850	12,280	18,050	8,150	3,190	2,040	95,020
1938	4,760	19,170	13,140	6,080	1,050	3,430	9,080	11,700	11,550	6,200	2,360	1,950	90,470
1939	4,550	6,690	9,080	8,020	1,780	4,400	7,580	12,960	10,770	10,720	3,660	2,240	82,450
1940	4,990	6,520	9,980	3,570	4,820	5,340	6,130	9,100	6,010	3,360	2,260	1,630	63,710
1941	7,150	4,190	5,430	3,620	2,240	3,310	4,240	6,430	4,960	3,400	2,020	6,280	53,270
1942	11,190	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1929	707	-	-	-	-	-	-	-	-	-	-	
1930	707	632	Feb. 5, 1930	11	77.7	7.33	99.47	56,200	83.6	107.02	60,500	
1931	722	1,100	Jan. 27, 1931	21	96.3	9.08	123.38	69,800	100	127.96	72,400	
1932	752	2,220	Feb. 26, 1932	14	109	10.3	139.37	78,800	132	169.32	95,800	
1933	752	1,620	Nov. 13, 1932	18	147	13.9	188.09	106,000	169	216.15	122,000	
1934	792	2,300	Dec. 21, 1933	24	166	15.7	212.58	120,200	154	197.73	111,800	
1935	792	1,480	Jan. 24, 1935	18	146	13.8	187.09	105,800	104	132.97	75,190	
1936	812	486	May 16, 1936	12	95.4	9.00	122.46	69,230	108	138.96	78,560	
1937	832	740	Dec. 18, 1936	10	131	12.4	168.07	95,020	159	203.16	114,900	
1938	862	940	Apr. 18, 1938	14	125	11.8	160.02	90,470	102	130.40	73,720	
1939	882	720	Oct. 12, 1938	14	114	10.8	145.63	82,450	115	147.89	83,620	
1940	902	438	Dec. 15, 1939	20	87.7	8.27	112.68	63,710	81.2	104.33	58,990	
1941	932	575	Oct. 10, 1940	20	73.6	6.94	94.23	53,270	-	-	-	
1942	932	-	-	-	-	-	-	-	-	-	-	

200. North Fork Skykomish River at Index, Wash.

Location.--Lat 47°49'10"N, long. 121°33'10"W, in NW¼ sec. 20, T. 27 N., R. 10 E., on highway bridge at Index 1½ miles upstream from mouth.

Drainage area.--149 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 525 ft (from river-profile map). Aug. 24, 1910, to Sept. 30, 1922, staff or chain gages at several sites within 1,600 ft of described site at different datums. Feb. 19, 1929, to Sept. 8, 1930, chain gage at described site and datum.

Average discharge.--23 years (1910-22, 1929-38, 1946-48), 1,210 cfs.

Extremes.--1910-22, 1929-38, 1946-48: Maximum discharge observed, 28,400 cfs (revised) Dec. 21, 1933 (gage height, 10.7 ft, from graph based on gage readings), from rating curve extended above 6,200 cfs on basis of proportioned peak flow of Skykomish River near Gold Bar and logarithmic plotting; probably higher Dec. 12, 1921 when gage washed out; minimum observed, 78 cfs Sept. 25, 1930.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of North Fork Skykomish River at Index, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	1,500	2,030	1,020	617	223	664	929	1,750	2,000	1,060	288	617	1,060
1912	276	*2,530	891	1,030	1,030	376	820	2,080	2,270	994	392	365	*1,080
1913	541	1,550	850	1,050	650	700	1,280	2,120	2,990	2,080	645	766	1,240
1914	1,240	1,370	541	1,460	666	1,330	1,630	2,050	1,640	802	272	679	1,140
1915	928	2,030	394	342	372	874	1,660	872	540	320	168	163	720
1916	1,000	1,050	994	456	1,260	1,370	1,220	1,760	2,820	2,190	796	572	1,290
1917	246	1,060	428	624	855	375	912	2,060	3,500	2,770	820	356	1,170
1918	327	641	4,460	1,950	841	713	1,470	1,750	2,520	872	621	214	1,370
1919	1,170	959	2,020	1,420	693	650	1,750	2,850	2,350	1,760	426	303	1,330
1920	284	2,230	1,360	1,820	764	759	663	1,360	1,670	869	295	1,560	1,130
1921	1,800	1,070	1,110	1,200	1,820	1,280	1,180	2,500	3,500	1,620	478	1,030	1,550
1922	1,450	1,410	2,760	251	165	245	785	2,040	2,350	583	266	416	1,060
1929	-	-	-	-	-	749	838	2,330	2,230	818	249	145	-
1930	276	224	861	363	1,940	977	1,650	1,370	1,310	502	178	198	611
1931	885	581	541	1,380	910	1,270	1,340	2,100	1,780	550	210	416	998
1932	705	1,200	733	997	1,630	2,160	2,150	2,630	3,000	1,850	462	305	1,470
1933	1,051	3,662	1,467	1,176	358	684	1,147	2,069	3,624	2,638	951	1,388	1,704
1934	2,277	1,958	4,581	2,792	1,077	2,294	2,172	1,680	808	422	204	292	1,723
1935	1,275	2,265	1,464	2,671	1,325	787	862	2,011	2,275	1,214	386	317	1,406
1936	363	539	662	959	256	809	1,796	3,224	2,665	796	258	286	1,052
1937	259	128	1,424	252	378	867	1,203	2,218	3,054	993	316	208	944
1938	620	2,018	1,493	1,000	368	735	1,667	2,034	1,761	625	182	138	1,055
1946	-	-	-	-	-	-	-	-	-	1,658	426	252	-
1947	948	671	1,838	1,311	1,268	1,074	1,705	2,315	1,813	776	294	314	1,211
1948	1,796	1,446	1,218	699	647	523	1,103	2,808	3,424	1,123	531	591	1,326

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	92,200	121,000	62,700	37,900	12,400	40,800	55,300	108,000	119,000	65,200	17,700	36,700	769,000
1912	17,000	151,000	54,800	63,300	59,200	23,100	48,800	127,000	135,000	61,100	24,100	22,900	*787,000
1913	33,300	92,200	52,300	46,100	36,100	43,000	76,200	130,000	178,000	128,000	39,700	45,600	900,000
1914	76,200	81,500	33,500	69,800	37,000	61,800	97,000	126,000	97,600	49,500	19,700	40,400	627,000
1915	57,100	121,000	24,200	21,000	20,700	53,700	98,800	53,600	32,100	19,700	10,300	9,700	522,000
1916	61,500	62,500	61,100	28,000	72,500	84,200	72,600	108,000	168,000	135,000	48,900	34,000	936,000
1917	15,100	63,100	26,300	38,400	47,500	23,100	54,300	127,000	208,000	170,000	50,400	21,300	844,000
1918	20,100	38,100	274,000	120,000	46,700	43,800	87,500	108,000	150,000	53,600	38,200	12,700	993,000
1919	71,900	57,100	24,000	87,300	32,900	40,000	104,000	157,000	139,000	108,000	26,200	18,000	965,000
1920	17,500	133,000	83,600	112,000	43,900	46,700	39,500	83,600	99,400	53,400	18,100	92,800	824,000
1921	110,000	63,700	68,200	73,800	101,000	78,700	70,200	154,000	206,000	99,600	29,400	61,300	1,120,000
1922	89,200	83,900	167,000	15,400	9,160	15,100	46,700	125,000	140,000	35,800	16,400	24,800	768,000
1929	-	-	-	-	-	46,100	49,900	143,000	133,000	50,300	15,300	8,630	-
1930	17,000	13,300	52,900	22,300	108,000	60,100	98,200	84,200	78,000	30,900	10,900	11,800	598,000
1931	54,400	34,600	33,500	84,800	50,500	78,100	79,700	129,000	106,000	33,800	12,900	24,800	722,000
1932	43,300	71,400	45,100	61,300	93,800	133,000	128,000	162,000	179,000	100,100	28,400	18,100	1,060,000
1933	64,650	127,900	90,180	72,290	19,870	42,070	68,280	272,000	150,174	50,470	58,470	82,570	1,234,000
1934	154,000	116,500	281,700	71,600	59,610	141,000	129,200	103,300	48,090	25,970	12,540	17,350	1,247,000
1935	78,430	134,800	91,230	164,200	73,570	48,380	51,260	123,600	135,400	74,620	23,750	18,840	1,018,000
1936	22,300	32,070	40,680	59,000	14,750	49,720	106,900	198,200	158,600	48,960	15,860	17,030	764,100
1937	15,900	7,700	87,600	15,520	21,020	53,350	71,580	136,400	161,700	61,080	19,430	12,400	685,500
1938	38,110	120,100	91,820	61,490	20,460	45,220	99,210	125,100	104,040	38,400	11,220	8,240	764,200
1946	-	-	-	-	-	-	-	-	-	-	-	-	-
1947	58,300	51,810	115,000	80,640	70,430	66,030	101,500	142,400	107,900	47,720	18,100	18,700	876,500
1948	110,500	86,040	74,900	42,980	37,220	32,170	65,630	172,600	203,700	69,020	32,650	35,140	962,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean		Runoff	Mean	Runoff	Runoff
		Discharge	Date					Inches	Acre-feet		Inches	Acre-feet	
1911	312,492	*15,300	Nov. 21, 1910	110	1,060	7.11	96.74	769,000	*988	*89.99	*716,000		
1912	1346,412	*16,900	Nov. 19, 1911	144	*1,080	*7.25	*98.92	*787,000	1,020	93.28	742,000		
1913	412,492	-	-	-	1,240	8.32	112.94	900,000	1,260	114.84	914,000		
1914	1412,492	*11,800	Jan. 6, 1914	144	1,140	7.65	103.84	827,000	1,160	105.74	838,000		
1915	412	*10,200	Nov. 2, 1914	97	720	4.83	65.56	522,000	697	63.53	505,000		
1916	442	*7,500	Oct. 31, 1915	198	1,290	8.66	117.88	936,000	1,180	107.60	856,000		
1917	462	*8,750	Nov. 9, 1916	130	1,170	7.85	106.56	844,000	1,460	134.79	1,070,000		
1918	462	*26,300	Dec. 18, 1917*	143	1,370	9.19	124.74	993,000	1,260	114.64	914,000		
1919	512	*13,800	Dec. 14, 1918	115	1,330	8.93	121.22	965,000	1,310	119.32	946,000		
1920	512	16,800	Nov. 15, 1919	-	1,130	7.58	103.64	824,000	1,150	104.72	831,000		
1921	532	*11,300	Feb. 11, 1921	226	1,550	10.4	140.84	1,120,000	1,680	153.17	1,220,000		
1922	552	-	-	80	1,060	7.11	96.85	769,000	-	-	-		
1929	692	-	-	-	-	-	-	-	-	-	-		
1930	707	*6,200	Feb. 5, 1930	78	811	5.44	73.89	588,000	866	78.81	627,000		

* Revised.

* Not previously published.

SNOHOMISH RIVER BASIN

Yearly discharge, in cubic feet per second, of North Fork Skykomish River at Index, Wash.--Con.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1931	722	*12,900	Jan. 27, 1931	145	998	6.70	90.80	722,000	1,050	95.52	759,000
1932	737	*28,000	Feb. 28, 1932	224	1,470	9.67	133.86	1,060,000	1,760	160.70	1,280,000
1933	752	*23,900	Nov. 13, 1932	-	1,704	11.4	155.22	1,234,000	1,353	175.93	1,399,000
1934	792	*28,400	Dec. 21, 1933	132	1,723	11.6	158.89	1,247,000	1,400	127.55	1,013,000
1935	792	*21,000	Oct. 24, 1934*	120	1,408	9.44	128.16	1,018,000	1,117	101.82	808,700
1936	812	*6,550	May 16, 1936*	100	1,052	7.06	96.17	764,100	1,074	96.19	780,100
1937	832	*8,180	Dec. 18, 1936*	84	944	6.34	86.02	683,500	1,136	103.42	822,500
1938	862	*16,400	Apr. 18, 1938*	110	1,055	7.08	96.11	764,200	-	-	-
1946	1062	-	-	-	-	-	-	-	-	-	-
1947	1092	*13,800	Dec. 11, 1946	169	1,211	8.13	110.29	876,500	1,277	116.37	924,900
1948	1122	*13,400	Oct. 19, 1947*	250	1,326	8.90	121.14	962,600	-	-	-

* Revised.

201. Skykomish River near Gold Bar, Wash.

Location.--Lat 47°50'15", long. 121°40'00", in SW¹/₄ sec. 9, T. 27 N., R. 9 E., on right bank 2 miles southeast of Gold Bar and 5 miles southeast from Wallace River and Startup.

Drainage area.--535 sq mi.

Gage.--Water-stage recorder. Datum of gage is 209.26 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--22 years (1928-50), 3,738 cfs.

Extremes.--1928-50: Maximum discharge, 88,700 cfs (revised) Dec. 21, 1933 (gage height, 21.3 ft); minimum, 382 cfs Oct. 9, 1938; minimum gage height, 2.73 ft Dec. 1, 1936.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	4,030	1,690	1,670	1,090	791	2,690	2,890	7,670	7,330	2,720	983	594	2,860
1930	803	678	2,610	1,580	6,100	3,400	5,430	4,350	3,940	1,740	722	662	2,620
1931	2,240	1,890	1,770	4,060	3,090	4,240	4,360	6,210	4,850	1,650	712	1,150	3,020
1932	2,020	3,860	2,510	3,230	5,570	6,400	6,050	6,970	7,980	4,230	1,520	1,140	4,280
1933	2,735	11,930	5,307	4,407	1,414	2,700	4,013	6,297	10,960	8,080	2,989	3,366	5,358
1934	6,658	5,895	14,460	8,635	3,709	6,841	6,879	5,259	2,960	1,391	754	976	5,385
1935	4,158	6,704	4,568	8,245	3,996	2,705	2,758	5,878	6,753	3,385	1,235	917	4,278
1936	1,003	1,630	2,023	3,397	1,230	2,994	5,986	10,700	7,776	2,339	888	926	3,412
1937	789	534	4,822	945	1,502	2,989	3,925	6,700	9,627	3,243	1,136	719	3,084
1938	1,757	7,504	5,094	3,507	1,460	2,548	6,002	6,345	5,188	1,848	690	535	3,543
1939	1,424	3,898	5,125	5,463	2,139	3,007	5,109	7,646	6,089	3,948	1,260	830	3,840
1940	2,001	3,439	6,119	2,706	3,707	4,055	4,034	5,403	2,595	990	659	515	3,019
1941	2,237	2,479	3,386	2,336	1,767	2,020	2,567	3,425	2,169	971	612	2,542	2,210
1942	4,693	3,439	4,896	1,395	1,695	1,975	4,284	4,963	5,931	2,511	918	612	3,135
1943	1,095	4,667	4,205	2,765	2,570	3,534	6,493	6,155	7,498	5,090	1,347	773	3,849
1944	1,251	1,904	4,785	2,303	2,030	2,515	3,638	5,474	4,029	1,388	696	1,247	2,681
1945	1,805	2,980	3,573	6,042	4,533	2,469	2,951	8,368	4,903	1,896	849	1,777	3,507
1946	3,068	4,365	3,639	3,367	2,445	3,152	4,793	9,618	8,551	4,403	1,310	806	4,135
1947	2,903	2,857	6,932	4,743	4,779	3,865	5,624	7,457	5,617	2,569	1,039	1,176	4,144
1948	5,977	5,626	4,526	2,745	2,590	2,114	3,771	8,863	11,060	3,594	1,862	1,765	4,542
1949	2,796	3,843	2,764	1,553	3,143	3,608	5,162	10,620	7,549	4,666	1,972	1,691	4,100
1950	3,626	6,725	5,246	3,471	3,506	5,030	4,289	6,865	11,900	7,761	2,845	1,274	5,225

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	248,000	101,000	103,000	67,000	43,900	165,000	172,000	472,000	436,000	167,000	60,400	35,300	2,070,000
1930	49,400	40,300	160,000	84,800	339,000	209,000	323,000	267,000	234,000	107,000	44,400	39,400	1,900,000
1931	138,000	112,000	109,000	250,000	172,000	281,000	259,000	382,000	289,000	101,000	43,800	68,400	2,190,000
1932	124,000	230,000	154,000	199,000	303,000	394,000	360,000	429,000	475,000	260,000	93,500	67,800	3,110,000
1933	168,000	1,000	326,000	302,711,000	78,560	166,000	238,000	387,200	652,300	496,800	183,800	200,300	3,879,000
1934	409,400	350,800	891,000	543,300	206,000	420,600	409,300	323,400	54,700	85,500	46,350	58,060	3,898,000
1935	255,700	398,900	260,900	507,000	222,000	166,300	164,100	361,400	401,800	208,200	75,940	54,570	3,097,000
1936	61,660	97,020	124,000	206,900	70,770	184,100	356,200	659,000	462,700	143,800	54,580	55,080	2,477,000
1937	48,620	31,790	239,500	59,140	63,430	183,800	233,600	412,000	572,800	199,400	69,820	42,770	2,233,000
1938	108,000	446,500	313,100	205,600	61,100	100,560	700,557,000	390,700	203,008,000	113,600	42,440	31,850	2,565,000
1939	87,560	232,000	315,100	335,900	18,800	84,900	304,000	470,200	356,300	42,800	77,480	49,410	2,780,000
1940	123,000	204,600	376,300	166,400	213,200	249,300	240,000	332,200	154,400	60,880	40,540	30,640	2,191,000

Monthly and yearly runoff, in acre-feet, of Skykomish River near Gold Bar, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	137,600	147,500	208,200	143,600	98,120	124,200	152,700	210,600	129,100	59,680	37,650	151,200	1,600,000
1942	300,900	204,700	501,000	85,790	94,210	121,500	254,900	506,400	352,900	154,400	56,440	36,400	2,270,000
1943	67,320	277,700	258,500	170,000	42,800	217,300	386,300	378,500	446,100	100,310	82,810	46,010	2,786,000
1944	76,930	113,300	294,200	141,600	116,800	154,700	216,500	356,600	239,700	85,330	42,800	127,700	1,946,000
1945	111,000	177,300	219,700	317,500	251,700	151,800	175,600	513,900	291,800	116,600	52,190	105,800	2,539,000
1946	188,600	259,700	223,700	207,000	135,800	193,800	285,200	591,400	508,800	270,700	80,560	47,940	2,993,000
1947	178,500	170,000	246,200	291,600	265,400	237,600	346,600	458,500	334,200	201,570	90,630	69,970	3,000,000
1948	367,500	334,700	400,278,400	168,800	49,400	130,000	224,400	545,000	657,900	221,000	115,700	105,000	3,998,000
1949	172,000	228,700	169,900	83,170	174,600	221,800	507,200	653,000	449,200	286,900	21,300	100,600	2,968,000
1950	235,300	400,200	322,600	213,400	194,700	309,300	255,200	422,100	707,900	471,700	75,000	75,800	3,783,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692	18,800	Oct. 9, 1928	447	2,860	5.35	72.52	2,070,000	2,580	65.49	1,870,000
1930	707	15,800	Feb. 5, 1930	398	2,620	4.90	66.49	1,900,000	2,770	70.30	2,010,000
1931	722	35,100	Jan. 28, 1931	517	3,020	5.64	76.56	2,190,000	3,220	81.78	2,330,000
1932	737	*83,300	Feb. 26, 1932	725	4,280	8.00	108.81	3,110,000	5,240	133.21	3,800,000
1933	752	*72,500	Nov. 13, 1932	705	5,358	10.0	135.99	3,879,000	5,975	151.59	4,326,000
1934	767	*88,700	Dec. 21, 1933	640	5,385	10.1	136.61	3,898,000	4,396	111.58	4,363,000
1935	792	*62,400	Oct. 24, 1934	634	4,278	8.00	108.49	3,097,000	3,376	85.65	2,444,000
1936	812	19,400	May 16, 1936	538	3,412	6.36	86.80	2,477,000	3,541	90.08	2,571,000
1937	832	25,300	Dec. 18, 1936	425	3,084	5.78	78.22	2,233,000	3,762	95.40	2,723,000
1938	862	47,200	Apr. 18, 1938	443	3,543	6.62	89.90	2,565,000	3,321	81.76	2,332,000
1939	882	28,900	Jan. 1, 1939	388	3,840	7.18	97.47	2,780,000	3,936	99.90	2,850,000
1940	902	*a26,000	Dec. 15, 1939	445	3,019	5.64	76.79	2,191,000	2,729	69.41	1,981,000
1941	932	21,600	Nov. 28, 1940	495	2,210	4.13	56.07	1,600,000	2,843	67.04	1,913,000
1942	962	21,100	Dec. 2, 1941	530	3,135	5.86	79.54	2,270,000	2,854	72.43	2,086,000
1943	982	35,000	Nov. 23, 1942	433	3,849	7.19	97.65	2,786,000	3,684	93.48	2,667,000
1944	1012	*71,600	Dec. 3, 1943	480	2,681	5.01	68.21	1,946,000	2,713	69.04	1,970,000
1945	1042	47,400	Jan. 7, 1945	570	3,507	6.56	88.99	2,539,000	3,734	94.73	2,703,000
1946	1062	34,500	Oct. 25, 1945	591	4,135	7.73	104.90	2,983,000	4,276	108.51	3,096,000
1947	1092	40,200	Dec. 11, 1946	548	4,144	7.75	105.16	3,000,000	4,429	112.37	3,206,000
1948	1122	45,300	Oct. 19, 1947	789	4,542	8.49	115.57	3,298,000	5,977	101.20	2,867,000
1949	1152	22,300	Nov. 23, 1948	640	4,100	7.68	104.03	2,968,000	4,635	117.62	3,356,000
1950	1182	56,500	Nov. 27, 1949	830	5,225	9.77	132.59	3,783,000	-	-	-

* Revised.

* Not previously published.

a Estimated.

202. Wallace River at Gold Bar, Wash.

Location.--Lat 47°51'50", long. 121°41'45", in NE¼ sec. 6, T. 27 N., R. 9 E., on left bank 30 ft downstream from county bridge, a quarter of a mile north of Gold Bar, and 1½ miles upstream from Olney Creek.

Drainage area.--19.8 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 200 ft (from topographic map). Dec. 9, 1928, to Sept. 30, 1933, staff gage 50 ft upstream at different datum.

Average discharge.--9 years (1928-33, 1946-50), 157 cfs.

Extremes.--1928-33, 1946-50: Maximum discharge, 2,740 cfs (revised) Feb. 26, 1932 (gage height, 8.5 ft, revised, from graph based on gage readings, site and datum then in use); minimum observed, 9.6 cfs Aug. 27, Sept. 3-5, 1930 (gage height, 0.32 ft, site and datum then in use).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	*165	*73.0	*89.4	48.3	30.0	139	125	203	244	52.0	19.1	16.6	*101
1930	71.4	32.6	138	76.4	279	163	163	129	117	35.0	12.2	45.4	104
1931	166	95.8	105	240	117	177	192	147	154	41.6	14.9	116	130
1932	149	177	140	170	225	385	263	224	222	140	41.0	56.1	183
1933	186	615	234	256	60.3	128	151	224	307	163	41.4	161	211
1946	-	-	-	-	-	-	-	-	-	-	25.0	24.3	-
1947	153	164	305	220	205	144	238	169	193	51.5	25.3	53.0	160
1948	231	292	230	156	142	96.7	171	335	294	81.2	106	106	187
1949	103	195	121	60.2	131	185	197	294	176	138	53.3	62.5	143
1950	199	229	201	181	226	240	196	244	354	160	73.6	42.1	196

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet, of Wallace River at Gold Bar, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	*10,100	*4,340	*5,500	2,970	1,670	8,550	7,440	12,500	14,500	3,200	1,170	988	*72,900
1930	4,390	1,940	8,480	4,700	15,500	10,000	9,700	7,930	6,960	2,030	750	2,700	75,100
1931	10,200	5,700	6,460	14,800	6,500	10,900	11,400	9,040	9,160	2,560	916	6,900	94,500
1932	9,160	10,500	8,610	10,500	12,900	23,700	15,800	13,800	13,200	8,610	2,520	3,340	132,000
1933	11,400	36,600	14,400	15,700	3,350	7,870	8,980	13,800	18,300	10,000	2,550	9,580	153,000
1946	-	-	-	-	-	-	-	-	-	5,900	1,540	1,440	-
1947	9,420	9,740	18,750	13,560	11,360	8,820	14,150	10,370	11,470	3,150	1,560	3,150	115,500
1948	14,220	17,360	14,160	9,590	8,140	5,940	10,200	20,600	17,510	4,990	6,520	6,320	*135,600
1949	6,330	11,580	7,430	3,700	7,290	11,350	11,700	18,050	10,440	8,470	3,270	3,720	103,300
1950	12,210	13,620	12,370	11,160	12,580	14,780	11,850	15,000	21,690	9,840	4,520	2,510	141,900

† Corrected.

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692	-	-	*11	*101	*5.10	*69.13	*72,900	93.6	64.24	67,800
1930	707	*1,670	Feb. 1, 1930	9.6	104	5.25	71.14	75,100	114	78.27	82,600
1931	722	1,630	Jan. 27, 1931	11	130	6.57	89.48	94,500	139	95.09	100,000
1932	752	*2,740	Feb. 26, 1932	24	183	9.24	125.44	132,000	229	157.77	167,000
1933	752	*2,690	Nov. 12, 16, 1932	18	211	10.7	144.43	153,000	-	-	-
1946	1082	-	-	-	-	-	-	-	-	-	-
1947	1092	1,580	Oct. 25, 1946	18	160	8.08	109.38	115,500	170	116.79	123,300
1948	1122	1,380	Oct. 19, 1947	28	187	9.44	128.37	*135,600	159	109.06	115,200
1949	1152	1,460	Nov. 23, 1948	19	143	7.22	97.66	103,300	161	110.04	116,200
1950	1182	1,500	Mar. 4, 1950	11	196	9.90	134.40	141,900	-	-	-

* Revised.

† Corrected.

* Not previously published.

203. Olney Creek near Gold Bar, Wash.

Location.--Lat 47°56'40", long. 121°42'30", in SW¼ sec. 6, T. 28 N., R. 9 E., on left bank 5½ miles north of Gold Bar and 7¼ miles (revised) upstream from mouth.

Drainage area.--8.03 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 970 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 4,020 cfs Oct. 25, 1946 (gage height, 6.30 ft, from rating curve extended above 310 cfs on basis of slope-area determination at peak flow of flood of Feb. 9, 1951, at gage height, 6.10 ft); minimum, 5.6 cfs Aug. 26-29, 1947 (gage height, 1.28 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	34.0	8.69	11.7	-
1947	108	79.2	144	104	100	70.2	124	63.9	91.9	27.0	14.7	33.6	79.9
1948	112	131	117	77.0	78.4	47.4	93.1	145	111	38.2	67.6	57.0	90.0
1949	42.2	112	59.0	22.8	75.3	98.4	93.7	128	71.5	68.2	23.9	35.4	69.1
1950	84.4	107	122	69.0	115	116	107	105	134	61.7	34.2	29.2	90.2

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	2,090	534	696	-
1947	6,640	4,710	8,860	6,390	5,570	4,320	7,370	3,930	5,470	1,660	906	2,000	57,830
1948	6,880	7,800	7,190	4,730	4,510	2,920	5,890	8,890	6,600	2,350	4,160	3,390	*65,310
1949	2,590	6,660	3,630	1,400	4,180	6,050	5,580	7,880	4,280	4,190	1,470	2,110	50,000
1950	5,190	6,990	7,530	4,250	6,380	7,120	6,390	8,440	7,990	3,800	2,110	1,730	65,320

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1082	-	-	-	-	-	-	-	-	-	-
1947	1092,1182	4,020	Oct. 25, 1946	5.6	79.9	9.95	135.00	57,830	82.2	138.89	59,490
1948	1122,1182	1,080	Oct. 2, 1947	14	90.0	11.2	152.53	*65,310	77.6	131.51	58,320
1949	1152,1182	1,030	Nov. 23, 1948	7.8	69.1	6.81	116.75	50,000	77.7	131.29	56,230
1950	1182	1,070	Oct. 9, 1949	7.2	90.2	11.2	152.48	65,320	-	-	-

† Corrected.

Note.--Station discontinued Nov. 30, 1950. October 1950: 96.9 cfs; 5,960 acre-ft. November 1950: 120 cfs; 7,170 acre-ft.

204. Olney Creek near Startup, Wash.

Location.--Lat 47°55'35", long. 121°43'10", in SE $\frac{1}{4}$ sec. 12, T. 28 N., R. 8 E., on left bank 5 miles northeast of Startup and 6 miles upstream from mouth.

Drainage area.--9.95 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 830 ft (from topographic map).

Average discharge.--8 years (1922-26, 1929-33), 84.1 cfs.

Extremes.--1922-26, 1929-33: Maximum discharge, 2,400 cfs Feb. 26, 1932 (gage height, 7.50 ft); minimum, 3.8 cfs Oct. 16, 1925; minimum gage height, 0.61 ft Aug. 26, 1933.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	59.0	43.8	108	161	38.6	68.7	108	87.9	83.3	17.3	7.63	11.5	68.5
1924	35.0	67.6	132	126	178	42.0	87.0	68.2	52.3	15.1	22.1	41.2	71.7
1925	157	125	169	164	136	81.7	107	86.4	52.1	11.5	11.3	7.24	92.2
1926	88.5	81.2	229	102	131	64.9	37.0	70.6	24.6	8.94	17.9	44.8	74.9
1929	-	-	-	-	-	112	85.7	126	112	23.3	10.3	10.6	-
1930	33.2	20.0	97.3	49.3	169	95.8	108	62.6	55.0	14.7	6.80	28.8	80.9
1931	87.0	55.2	63.0	154	60.8	122	112	54.3	96.8	23.0	7.71	86.2	76.9
1932	91.7	119	88.2	114	141	258	164	105	90.9	68.1	25.7	30.5	108
1933	122	315	158	145	37.4	113	93.1	135	143	70.0	26.7	107	122
1934	111	97.0	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	3,630	2,610	8,640	9,900	2,140	4,220	6,430	5,400	4,960	1,060	469	684	48,100
1924	2,150	4,020	8,120	7,750	10,200	2,580	5,180	4,190	3,110	928	1,400	2,450	52,100
1925	9,650	7,440	10,400	10,100	7,550	5,020	6,370	5,310	3,100	707	695	431	66,800
1926	5,440	4,830	14,100	6,270	7,280	3,990	2,200	4,340	1,460	550	1,100	2,670	54,200
1929	-	-	-	-	-	6,890	4,980	7,750	6,660	1,430	633	631	-
1930	2,040	1,190	5,980	3,030	9,390	5,860	6,430	3,850	3,270	904	418	1,710	44,100
1931	5,350	3,280	3,870	9,470	3,380	7,500	6,660	3,340	5,760	1,410	474	5,130	55,600
1932	5,640	7,080	5,420	7,010	8,110	15,900	9,760	6,460	5,410	4,190	1,580	1,810	78,400
1933	7,500	18,700	9,720	8,920	2,080	6,950	5,540	8,300	8,510	4,300	1,640	6,370	88,500
1934	6,820	5,770	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1923	572	*1,450	Jan. 10, 1923	5.5	68.5	6.68	90.88	48,100	68.4	93.51	49,600
1924	592	1,520	Feb. 12, 1924	7.0	71.7	7.21	98.50	52,100	89.9	123.21	65,300
1925	612	1,450	Dec. 10, 1924	5.5	92.2	9.27	128.00	66,800	87.9	119.99	63,700
1926	632	1,600	Oct. 27, 1925	3.8	74.9	7.53	102.25	54,200	-	-	-
1927	632	-	-	-	-	-	-	-	-	-	-
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	1,730	Feb. 1, 1930	6.2	80.9	6.12	83.16	44,100	65.4	89.36	47,400
1931	722	945	Sept. 13, 1931	5.4	76.9	7.73	104.96	55,600	84.6	115.63	61,300
1932	737	2,400	Feb. 26, 1932	12	108	10.9	147.78	78,400	132	181.42	96,200
1933	752	2,100	Nov. 16, 1932	12	122	12.3	167.22	88,500	-	-	-
1934	752	-	-	-	-	-	-	-	-	-	-

* Revised.

205. May Creek near Gold Bar, Wash.

Location.--Lat 47°51'30", long. 121°36'30", in NE $\frac{1}{4}$ sec. 2, T. 27 N., R. 9 E., on left bank half a mile downstream from Lake Isabel and 4 miles east of Gold Bar.

Drainage area.--4.07 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,800 ft (from topographic map). Prior to Dec. 31, 1932, staff gages 20 ft upstream at different datums. Jan. 1, 1933, to Dec. 31, 1934, staff gage at present site at different datum.

Average discharge.--8 years (1928-34, 1945-47), 37.1 cfs.

Extremes.--1928-34, 1945-47: Maximum discharge, 726 cfs Oct. 25, 1946 (gage height, 4.9 ft), from rating curve extended above 435 cfs by logarithmic plotting; minimum observed, 1.0 cfs Sept. 4-6, 1934.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of May Creek near Gold Bar, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	-	7.19	-
1929	42.3	19.0	15.8	9.40	5.98	18.8	23.4	72.2	73.9	21.8	2.95	2.28	25.8
1930	4.91	8.38	29.7	12.9	58.4	29.1	45.1	35.1	46.6	12.1	1.70	5.92	23.8
1931	34.7	21.4	26.5	58.2	30.6	40.1	47.1	58.3	61.6	18.7	2.30	23.9	35.3
1932	28.2	35.6	28.6	30.4	*34.2	73.1	52.1	62.1	72.8	47.2	11.8	8.14	*40.0
1933	32.0	142	65.1	42.4	10.2	17.4	27.0	54.5	89.0	58.9	19.5	30.9	49.2
1934	50.3	46.1	*117	72.5	29.9	44.7	44.0	35.3	10.7	4.53	2.29	11.6	*39.3
1935	27.0	68.0	45.3	-	-	-	-	-	-	-	-	-	-
1946	*62.3	52.7	29.5	38.4	22.7	28.4	39.5	77.5	71.0	40.4	7.1	4.61	*39.6
1947	43.5	36.8	73.7	52.1	53.9	37.7	84.2	59.6	65.1	18.7	4.52	15.3	43.7

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	-	428	-
1929	2,600	1,130	972	578	332	1,160	1,390	4,440	4,400	1,340	181	136	18,700
1930	302	499	1,850	793	3,240	1,790	2,680	2,160	2,770	744	105	352	17,300
1931	2,130	1,270	1,630	3,580	1,700	2,470	2,800	3,580	3,670	1,150	141	1,420	25,500
1932	1,610	2,120	1,640	1,870	*1,970	4,490	3,100	3,820	4,330	2,900	726	484	*29,100
1933	1,970	8,450	4,000	2,610	566	1,070	1,610	3,350	5,300	3,620	1,200	1,840	35,600
1934	3,090	2,750	*7,200	4,460	1,660	2,750	2,620	2,170	634	278	141	689	*28,440
1935	1,660	4,040	2,780	-	-	-	-	-	-	-	-	-	-
1946	*3,830	3,140	1,810	2,360	1,260	1,750	2,350	4,770	4,220	2,480	438	275	*28,680
1947	2,870	2,190	4,530	3,200	2,990	2,320	3,820	3,660	3,870	1,150	278	911	31,590

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1928	692	-	-	-	-	-	-	-	-	-	-
1929	692	138	Oct. 9, 1928	1.6	25.8	6.34	85.94	18,700	22.9	76.36	16,600
1930	707	*100	Feb. 19, 1930*	1.1	23.8	5.85	79.51	17,300	27.2	90.59	19,700
1931	722	*219	Jan. 28, 1931*	1.5	35.3	8.67	117.69	25,500	35.8	119.26	25,900
1932	1346,752	*330	Feb. 26, 1932*	5.0	*40.0	*9.83	*133.91	*29,100	*52.5	*175.71	*36,100
1933	752	475	Dec. 2, 1932	5.0	49.2	12.1	163.98	35,600	*47.2	*157.47	*34,200
1934	1346,767	*525	Dec. 21, 1933*	1.0	*39.3	*9.66	*131.00	*28,440	33.0	110.05	23,880
1935	767	-	-	-	-	-	-	-	-	-	-
1946	1062	428	Oct. 25, 1945	*3	*39.6	*9.73	*132.14	*28,680	40.5	134.98	29,290
1947	1092	726	Oct. 25, 1946	1.4	43.7	10.7	145.62	31,590	-	-	-

* Revised.

* Not previously published.

206. Skykomish River at Sultan, Wash.

Location.--Lat 47°51'40", long. 121°48'50", in NW¼ sec. 5, T. 27 N., R. 8 E., on right bank at county bridge at Sultan a quarter of a mile upstream from Sultan River.

Drainage area.--618 sq mi.

Gage.--Staff gage. Altitude of gage is 100 ft (from topographic map).

Extremes.--1910-11: Maximum discharge observed, 19,600 cfs Nov. 21, 1910 (gage height, 18.0 ft), discharge may have exceeded 40,000 cfs this day; minimum discharge, 624 cfs Sept. 26, 1910, discharge measurement.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	6,010	7,220	*4,030	2,920	1,240	2,500	3,150	5,780	6,420	3,160	1,170	2,190	*3,830

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	370,000	430,000	*248,000	180,000	68,900	154,000	187,000	355,000	382,000	194,000	71,900	130,000	*2,770,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet		Mean	Runoff in acre-feet		
		Discharge	Date						Inches	Acre-feet	
1911	1346,312	-	-	-	900	*3,830	*2,770,000	-	-	-	-

* Revised.

207. Sultan River near Startup, Wash.

Location.--Lat 47°58'30", long. 121°46'30", in NE¹/₄ sec. 28, T. 29 N., R. 8 E., on left bank ¹/₂ miles upstream from intake of Everett water-supply system and 7¹/₂ miles south of Startup.

Drainage area.--75 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 750 ft (from river-profile map).

Average discharge.--16 years (1934-50), 753 cfs.

Extremes.--1934-50: Maximum discharge, 29,400 cfs Dec. 3, 1943 (gage height, 16.4 ft), from rating curve extended above 2,900 cfs on basis of slope-area determination of peak flow of Feb. 9, 1951; minimum, 48 cfs Sept. 25, 27, 29, 30, 1942; minimum gage height, 3.32 ft Sept. 22, 23, 24, 1938.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1934	-	-	-	-	-	-	-	663	260	245	101	281	-
1935	1,077	1,561	1,127	1,809	832	612	595	916	860	523	209	243	864
1936	288	512	600	975	355	750	1,281	1,728	1,124	343	129	237	694
1937	235	120	1,573	143	368	806	1,084	1,209	1,518	392	195	136	650
1938	621	1,904	1,222	803	284	573	1,500	951	482	172	68.4	65.9	721
1939	604	1,053	1,514	1,303	408	652	1,089	1,417	1,032	661	153	174	842
1940	714	844	1,401	584	967	994	739	741	284	113	107	72.1	630
1941	907	723	891	657	370	393	586	730	381	134	75.0	78.2	537
1942	1,154	743	1,066	349	458	538	863	887	1,241	445	103	58.7	660
1943	401	1,541	1,065	536	700	726	978	985	870	570	172	119	704
1944	460	477	1,190	617	405	608	745	978	550	186	103	670	581
1945	526	928	751	1,545	954	586	691	1,346	515	262	89.6	502	724
1946	1,200	1,064	879	835	562	776	1,111	1,447	1,421	648	209	152	860
1947	683	800	1,797	1,353	1,320	820	1,190	877	926	364	156	305	880
1948	1,418	1,076	1,135	607	736	543	904	1,630	1,310	418	478	597	904
1949	545	1,032	539	219	710	892	1,081	1,529	912	738	324	447	746
1950	1,022	1,380	1,289	780	911	1,277	1,025	1,316	1,767	940	545	276	1,044

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1934	-	-	-	-	-	-	-	40,790	15,470	15,090	6,190	16,710	-
1935	66,230	92,890	69,310	111,200	46,200	37,650	35,390	56,300	51,190	32,160	12,830	14,470	625,800
1936	17,710	30,480	36,870	59,930	20,430	46,100	76,240	106,200	66,890	21,070	7,900	14,090	503,900
1937	14,480	7,160	96,750	8,790	20,460	49,550	64,520	74,360	90,310	24,130	11,990	8,090	470,600
1938	38,160	13,300	75,120	49,370	15,750	35,260	89,240	58,440	28,700	10,590	4,210	3,920	522,100
1939	37,140	62,670	93,100	80,110	22,640	40,110	64,810	87,120	61,410	40,670	9,420	10,380	608,500
1940	43,920	50,220	86,130	35,900	55,630	61,110	43,980	45,580	16,870	6,970	6,590	4,290	457,200
1941	55,800	43,000	54,770	40,400	20,550	24,150	22,960	44,880	22,680	8,250	4,610	46,560	388,600
1942	70,940	44,240	65,560	21,430	25,450	33,080	51,340	54,550	73,830	27,330	6,360	3,490	477,600
1943	24,630	79,820	65,500	32,950	38,900	44,610	58,170	60,550	51,800	35,060	10,570	7,090	509,600
1944	28,280	28,360	73,190	37,970	23,290	37,390	44,350	60,150	32,720	10,230	6,330	39,870	422,200
1945	32,350	55,240	46,190	94,990	52,980	36,010	41,110	82,790	30,640	16,130	5,510	29,880	523,800
1946	73,810	63,340	54,060	51,360	31,200	47,720	66,120	88,960	84,570	39,640	12,870	9,020	622,900
1947	41,980	47,580	110,500	83,190	73,310	50,400	70,820	53,930	55,090	22,370	9,560	18,170	636,900
1948	87,170	64,000	69,770	37,290	42,310	33,360	53,800	100,200	77,940	25,670	29,400	35,510	656,400
1949	33,530	61,380	33,130	13,460	39,440	54,870	64,310	93,990	54,250	45,400	19,920	26,580	540,300
1950	62,820	82,140	79,250	47,980	50,600	78,500	60,990	80,920	105,100	57,780	33,500	16,440	756,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff
		Discharge	Date				Inches	Acres-feet		
1934	767	-	-	-	-	-	-	-	-	-
1935	792,1182	27,000	Oct. 24, 1934	95	864	11.5	156.49	625,800	666	120.85
1936	812,1182	5,800	May 16, 1936	80	694	9.25	126.01	503,900	740	134.32
1937	832,1182	14,600	Dec. 6, 1936	90	650	8.67	117.56	470,600	799	144.64
1938	862,1182	19,000	Apr. 17, 1938	55	721	9.61	130.55	522,100	675	122.07
1939	882,1182	11,600	(a)	61	842	11.2	152.35	608,500	825	149.23
1940	902,1182	8,600	Oct. 4, 1939	54	630	8.40	114.29	457,200	593	107.62
1941	932,1182	11,600	Oct. 10, 1940	51	537	7.16	97.15	388,600	574	103.95
1942	962,1182	7,100	June 15, 1942	48	660	8.80	119.41	477,600	645	116.72
1943	982,1182	19,000	Oct. 31, 1942	69	704	9.39	127.43	509,600	649	117.39
1944	1012,1182	29,400	Dec. 3, 1943	51	581	7.75	105.54	422,200	587	106.52
1945	1042,1182	20,000	Jan. 7, 1945	62	724	9.65	130.96	523,800	803	145.32
1946	1062	-	-	102	860	11.5	155.72	622,900	873	157.93
1947	1092	-	-	88	880	11.7	159.21	636,900	909	164.43
1948	1122,1182	14,600	Oct. 19, 1947	137	904	12.1	164.11	656,400	776	140.89
1949	1152,1182	10,400	Nov. 23, 1948	107	746	9.95	135.08	540,300	879	159.12
1950	1182	18,200	Mar. 4, 1950	127	1,044	13.9	198.99	756,000	-	-

† Corrected.
a Oct. 12, 1938, May 28, 1939.

208. Sultan River near Sultan, Wash.

Location.--Lat 47°55'40" long. 121°47'50" (revised), in E½ sec. 8, T. 28 N., R. 8 E., on left bank at head of Horseshoe Bend, a quarter of a mile downstream from Miners Creek, 4½ miles north of Sultan, and 6 miles upstream from mouth.

Drainage area.--88 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 420 ft (from river-profile map). Prior to Oct. 29, 1915, at Camp Habecker, 1½ miles upstream at different datum.

Average discharge.--17 years (1911-26, 1929-31), 780 cfs.

Extremes.--1911-26, 1929-31: Maximum discharge, 24,600 cfs Dec. 12, 1921 (gage height, 18.5 ft, from high-water mark in well), from rating curve extended above 16,000 cfs; minimum, 2.7 cfs Aug. 25, 1931, result of diversion.

Remarks.--City of Everett diverted water 2 miles above gage, in varying amounts from 3 cfs in 1916 to possibly 80 cfs in 1931, for municipal use; practically entire flow diverted July to September 1931. No regulation prior to October 1930. Possible slight regulation thereafter by sluicing at diversion dam.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	-	-	-	458	-
1912	226	1,810	923	1,050	928	263	529	936	761	458	304	328	706
1913	698	1,340	837	633	782	568	934	1,300	1,320	940	304	574	850
1914	992	1,060	455	1,190	780	990	978	794	806	289	123	593	753
1915	845	1,360	465	499	633	508	1,090	524	367	233	95.4	94.1	558
1916	998	1,060	1,040	348	1,250	1,370	1,000	1,050	1,110	936	304	376	901
1917	203	1,010	440	679	903	332	1,020	1,500	2,110	2,000	342	212	827
1918	270	433	4,500	1,820	929	803	958	900	781	266	366	106	1,020
1919	860	902	1,850	1,330	643	695	1,360	1,340	811	489	149	156	881
1920	354	2,000	1,200	1,720	437	749	667	781	784	270	131	1,310	866
1921	1,270	764	1,090	1,180	1,680	1,090	1,000	1,220	1,320	572	233	695	1,000
1922	1,050	1,320	1,910	227	195	313	763	1,560	1,100	286	177	375	776
1923	757	468	1,330	1,810	378	554	916	944	824	367	112	108	718
1924	372	756	1,240	993	2,010	378	708	841	549	196	161	207	695
1925	1,320	1,210	1,570	1,400	1,400	629	994	1,150	669	272	132	66.5	899
1926	408	685	1,850	657	1,030	720	550	628	232	70.0	118	381	625
1927	*919	-	-	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	747	737	1,300	1,120	337	126	76.8	-
1930	238	188	830	365	1,660	802	878	668	675	238	75.2	185	559
1931	760	436	466	1,250	557	988	986	698	811	149	5.40	415	627

* Not previously published; estimated on the basis of records for South Fork of Skykomish River near Index.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	-	-	-	27,300	-
1912	13,900	108,000	56,800	64,600	53,400	16,200	31,500	57,600	45,300	28,200	18,700	19,500	514,000
1913	42,900	79,700	51,500	38,900	43,400	34,900	55,600	79,900	78,600	57,800	18,700	34,200	616,000
1914	61,000	63,100	28,000	73,200	43,300	60,900	58,200	48,800	48,000	17,800	7,560	35,300	545,000
1915	52,000	80,900	29,800	30,700	35,200	31,200	64,900	32,200	21,800	14,300	5,870	5,600	404,000
1916	61,400	63,100	64,000	21,400	71,900	84,200	59,500	64,600	66,000	57,600	18,700	22,400	655,000
1917	12,500	80,100	27,100	41,800	50,200	20,400	80,700	92,200	226,000	73,800	21,000	12,600	598,000
1918	16,600	29,500	277,000	112,000	51,600	49,400	55,800	55,300	46,500	16,400	23,700	6,310	740,000
1919	52,900	53,700	115,000	81,800	35,700	42,700	80,900	82,400	48,300	26,800	9,160	9,280	639,000
1920	21,800	119,000	73,800	106,000	25,100	46,100	39,700	48,000	46,700	16,600	8,060	76,000	629,000
1921	78,100	45,500	67,000	72,600	93,300	67,000	59,500	75,000	78,600	35,200	14,300	41,400	728,000
1922	64,600	78,600	17,000	14,000	10,800	19,200	45,400	95,900	65,500	17,600	10,900	22,300	552,000
1923	46,500	27,900	61,800	11,000	21,000	34,100	54,500	56,000	49,000	22,600	6,890	6,430	520,000
1924	22,900	45,000	76,200	61,100	16,000	23,200	42,100	51,700	32,700	12,100	9,900	12,300	505,000
1925	81,200	72,000	96,500	86,100	77,800	38,700	59,100	70,700	39,800	16,700	8,120	3,960	651,000
1926	25,100	40,800	114,000	52,700	57,200	44,300	32,700	38,600	13,800	4,300	7,260	22,700	453,000
1927	*56,500	-	-	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	45,900	43,900	79,900	66,600	20,700	7,750	4,570	-
1930	14,600	11,200	51,000	22,400	92,200	49,300	52,200	41,100	40,200	14,600	4,620	11,000	404,000
1931	46,700	25,900	28,700	76,900	30,900	60,800	58,700	42,900	48,300	9,160	332	24,700	454,000

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Sultan River near Sultan, Wash.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1911	442	-	-	-	-	-	-	-
1912	442	*14,000	Nov. 18, 1911	-	708	514,000	701	509,000
1913	442	-	-	-	850	619,000	821	594,000
1914	442	-	-	83	753	545,000	768	556,000
1915	442	-	-	71	558	404,000	594	430,000
1916	442	-	-	124	901	655,000	780	566,000
1917	462	8,700	Nov. 9, 1916	90	827	598,000	1,130	822,000
1918	482	20,600	Dec. 18, 1917	79	1,020	740,000	879	637,000
1919	512	13,200	Dec. 4, 1918	79	881	639,000	875	634,000
1920	512	13,100	Nov. 15, 1919	54	866	629,000	833	605,000
1921	532	14,400	Feb. 11, 1921	112	1,000	728,000	1,100	797,000
1922	552	24,600	Dec. 12, 1921	92	776	562,000	632	458,000
1923	572	15,600	Jan. 6, 1923	52	718	520,000	701	508,000
1924	592	21,200	Feb. 12, 1924	69	695	505,000	841	611,000
1925	612	13,700	Dec. 10, 1924	45	899	651,000	802	581,000
1926	632	*10,600	Dec. 23, 1925	32	625	453,000	-	-
1927	632	11,100	Oct. 16, 1926	-	-	-	-	-
1929	692	-	-	-	-	-	-	-
1930	707	7,190	Feb. 1, 1930	41	559	404,000	592	429,000
1931	722	10,300	Jan. 27, 1931	2.9	627	454,000	-	-
1932	722	-	-	-	-	-	-	-

* Revised.

‡ Not previously published.

209. McCoy Creek near Sultan, Wash.

Location.--Lat 47°49'50", long. 121°49'40", in NE $\frac{1}{4}$ sec. 18, T. 27 N., R. 8 E., on left bank $\frac{1}{4}$ miles upstream from mouth and 2 $\frac{1}{4}$ miles south of Sultan.

Drainage area.--6.17 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 380 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 588 cfs Feb. 17, 1949, from rating curve extended above 150 cfs; maximum gage height, 3.27 ft Mar. 4, 1950; minimum discharge, 1.2 cfs Sept. 15, 16, 18, 1950; minimum gage height, 0.60 ft Sept. 10, 1949.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	9.45	3.00	2.72	-
1947	17.9	46.0	59.1	46.7	64.8	24.7	29.6	8.47	16.2	7.08	2.80	6.70	27.2
1948	29.8	57.7	56.1	44.8	37.6	26.3	29.1	31.8	18.1	6.70	10.9	12.0	30.1
1949	18.9	58.8	38.4	17.2	64.0	39.6	22.2	24.0	4.16	5.06	4.01	5.09	24.8
1950	19.9	30.9	48.2	50.7	62.1	62.7	33.1	19.6	13.6	3.64	2.97	2.54	29.0

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	581	185	162	-
1947	1,100	2,740	3,640	2,870	3,600	1,520	1,760	521	965	436	172	399	19,720
1948	1,830	3,440	3,450	2,760	2,160	1,620	1,730	1,960	1,080	412	671	715	21,830
1949	1,160	3,500	2,360	1,060	3,550	2,440	1,320	1,480	247	311	247	303	17,980
1950	1,220	1,840	2,970	3,120	3,450	3,850	1,970	1,200	808	224	183	151	20,990

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	-	-	-	-	-	-	-	-	-	-
1947	1092	386	Feb. 2, 1947	1.6	27.2	4.41	59.90	19,720	29.0	63.68	20,960
1948	1122	255	Oct. 19, 1947	3.6	30.1	4.88	66.31	21,830	27.7	61.16	20,130
1949	1152	588	Feb. 17, 1949	1.6	24.8	4.02	54.63	17,980	23.5	51.61	16,990
1950	1182	548	Mar. 4, 1950	1.4	29.0	4.70	63.60	20,990	-	-	-

Note.--Station discontinued Nov. 29, 1950. October 1950: 25.7 cfs; 1,580 acre-ft. November 1950: 49.8 cfs; 2,950 acre-ft.

210. Elwell Creek near Sultan, Wash.

Location (revised).--Lat 47°50'10", long. 121°51'00", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 12, T. 27 N., R. 7 E., on left bank 500 ft upstream from mouth and 2 $\frac{1}{2}$ miles southwest of Sultan.

Drainage area.--22.9 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge, 130 cfs July 8 (gage height, 2.68 ft); minimum, 5.8 cfs Sept. 4 (gage height, 1.43 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	37.3	8.80	13.9	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	2,290	541	830	-		

211. Roesiger Creek near Machias, Wash.

Location.--Lat 47°57'50", long. 121°55'00", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 28, T. 29 N., R. 7 E., on right bank 20 ft downstream from county road crossing, half a mile downstream from Roesiger Lake, and 6 $\frac{1}{2}$ miles southeast of Machias.

Drainage area.--3.94 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map). Prior to Aug. 6, 1947, at site above road crossing at datum 1.57 ft higher.

Extremes.--1946-48: Maximum discharge, 157 cfs about Nov. 11, 1947 (gage height, 1.97 ft, from recorded range in stage); minimum, 0.02 cfs Sept. 13, 1946.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	5.51	0.185	0.057	-
1947	2.69	18.9	30.3	22.2	22.4	8.21	17.8	4.07	1.97	1.34	.215	.370	10.8
1948	7.59	38.1	23.7	17.3	22.5	18.0	16.6	13.3	8.21	2.48	1.89	5.25	14.5
1949	-	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	339	11	3.4	-
1947	165	1,120	1,960	1,370	1,240	505	1,060	250	117	82	13	22	7,800
1948	467	2,270	1,460	1,070	1,290	1,110	990	821	489	153	116	312	10,550
1949	-	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1946	1062	-	-	-	-	-	-	-	-	-	-
1947	1092	-	-	-	-	-	-	-	-	-	-
1948	1122	69	Dec. 12, 1946	0.07	10.9	2.74	37.16	7,800	12.2	42.10	8,860
1949	1122	157	(a)	.55	14.5	3.68	50.16	10,550	-	-	-
		-	-	-	-	-	-	-	-	-	-

a About Nov. 11, 1947.

212. Woods Creek below Roesiger Creek, near Monroe, Wash.

Location.--Lat 47°56'40", long. 121°53'40", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 3, T. 28 N., R. 7 E., near right bank on county bridge, a quarter of a mile downstream from Roesiger Creek, and 7 miles northeast of Monroe.

Drainage area.--19.0 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 410 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge, 152 cfs (revised) Oct. 25 (revised) (gage height, 3.14 ft, revised), from rating curve extended above 44 cfs; minimum, 6.0 cfs Sept. 11-13, 28-30 (gage height, 1.37 ft).

Remarks.--Minor diversion for domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second, of Woods Creek below Roesiger Creek, near Monroe, Wash.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	22.5	7.74	6.70	#23.3		

* Not previously published; partly estimated on the basis of records for Woods Creek near Monroe.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	1,380	476	399	#1,430		

* Not previously published; partly estimated on the basis of records for Woods Creek near Monroe.

213. Carpenter Creek near Machias, Wash.

Location.--Lat 47°57'50", long. 121°58'10", in NE $\frac{1}{4}$ sec. 36, T. 29 N., R. 6 E., on right bank 40 ft upstream from county bridge and 4 miles southeast of Machias.

Drainage area.--8.89 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 290 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge, 83 cfs (revised) Oct. 25 (revised), (gage height, 2.60 ft, revised), from rating curve extended above 21 cfs; minimum, 1.1 cfs Sept. 11 (gage height, 0.93 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	9.00	2.21	1.80	#12.9		

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	553	136	107	#793		

* Not previously published; partly estimated on the basis of records for nearby streams.

214. Woods Creek near Monroe, Wash.

Location.--Lat 47°52'20", long. 121°55'10", in W $\frac{1}{2}$ sec. 33, T. 28 N., R. 7 E., on left bank 200 ft downstream from West Fork and 2 $\frac{1}{2}$ miles northeast of Monroe.

Drainage area.--55.0 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 1,710 cfs Feb. 26, 1950 (gage height, 7.18 ft), from rating curve extended above 770 cfs; minimum, 12.5 cfs Sept. 6, 1949.

Remarks.--Several small diversions for domestic use above station. No regulation.

Monthly and yearly discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	56.5	21.5	19.8	-
1947	56.9	222	358	283	273	115	209	56.6	47.5	29.7	19.3	24.6	140
1948	138	436	341	310	265	201	232	201	116	48.5	38.6	49.2	198
1949	109	246	282	133	335	203	93.5	87.1	29.0	23.5	17.6	19.2	130
1950	55.6	204	300	309	458	440	255	115	46.4	26.1	20.1	20.6	186

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	3,470	1,320	1,180	-
1947	3,500	13,210	22,030	17,420	15,160	7,060	12,450	3,480	2,820	1,830	1,190	1,460	101,600
1948	8,490	25,950	20,970	19,080	15,250	12,560	13,850	12,340	6,910	2,990	2,360	2,930	145,500
1949	6,690	14,640	17,350	8,160	18,620	12,490	5,560	5,350	1,730	1,450	1,080	1,140	94,260
1950	3,420	12,120	18,450	18,970	25,450	27,060	15,190	7,070	2,760	1,600	1,240	1,230	134,600

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary		Maximum	Minimum	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date							Inches	Acre-feet	
1946	1062	-	-	-	-	-	-	-	-	-	-	-
1947	1092	-	1,020	Jan. 24, 1947	16	140	2.55	34.63	101,600	163	40.32	118,300
1948	1122	-	1,590	Nov. 11, 1947	18	198	3.60	48.93	143,500	175	43.22	126,700
1949	1152	-	1,360	Feb. 17, 22, 1949	14	130	2.36	32.14	94,260	124	30.55	89,570
1950	1182	-	1,710	Feb. 26, 1950	16	186	3.36	45.88	134,600	-	-	-

215. Middle Fork Snoqualmie River near North Bend, Wash.

Location.--Lat 47°29'20", long. 121°45'35", in SE $\frac{1}{4}$ sec. 10, T. 23 N., R. 8 E., on right bank 50 ft downstream from county road bridge, $\frac{1}{4}$ miles southeast of North Bend, and $\frac{2}{3}$ miles upstream from mouth.

Drainage area.--169 sq mi. Prior to 1945, 173 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 460 ft (from river-profile map). Aug. 10, 1907, to Sept. 2, 1912, and Feb. 15, 1929, to Sept. 30, 1932, staff gages, and Sept. 2, 1912, to Aug. 6, 1915, water-stage recorder at several sites and datums 2 miles downstream. Aug. 7, 1915, to June 2, 1926, water-stage recorder at site a quarter of a mile downstream from described site at different datum.

Average discharge.--22 years (1907-26, 1929-32), 1,183 cfs.

Extremes.--1907-26, 1929-32, 1945: Maximum discharge (revised), 26,700 cfs Nov. 23, 1909 (gage height, 14.6 ft, from graph based on gage readings, site and datum then in use); minimum, 102 cfs Oct. 24, 1925.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	310	485	-
1908	278	819	1,120	593	507	1,700	1,400	1,700	2,200	1,200	400	231	1,010
1909	686	1,060	933	1,370	845	631	997	1,510	2,040	895	298	340	966
1910	552	3,500	1,550	1,210	842	2,340	1,710	1,880	1,070	554	256	214	1,310
1911	1,840	2,300	1,100	800	390	590	719	1,400	1,350	799	403	727	1,040
1912	369	1,590	1,840	1,370	429	856	1,960	2,810	745	356	716	1,220	-
1913	685	1,560	1,040	1,100	1,000	1,410	2,200	2,550	1,600	526	672	1,290	-
1914	1,720	1,410	808	1,710	846	1,300	1,550	1,680	1,320	576	240	460	1,140
1915	909	2,090	429	548	542	842	1,490	852	598	448	228	196	762
1916	1,370	1,610	1,460	602	1,730	2,150	1,570	1,750	2,600	2,070	735	497	1,510
1917	247	1,180	686	953	1,340	533	1,260	2,040	3,380	2,650	697	344	1,270
1918	371	703	5,020	2,810	1,350	1,030	1,540	1,750	2,130	760	765	254	1,550
1919	1,390	1,180	2,520	2,210	703	954	1,580	2,040	1,840	975	349	325	1,310
1920	462	2,120	1,490	2,230	709	929	1,040	1,330	1,520	678	312	1,320	1,180
1921	1,660	1,080	1,400	1,650	2,070	1,440	1,370	1,970	2,510	1,140	414	959	1,470
1922	1,140	1,520	2,650	378	356	435	1,120	2,500	2,590	675	284	588	1,190
1923	690	790	1,730	2,590	540	906	1,550	1,930	1,950	1,060	330	209	1,200
1924	730	986	1,600	1,340	2,670	617	1,120	2,190	1,270	528	289	334	1,130
1925	1,400	1,510	2,050	1,640	1,550	771	1,540	2,150	1,350	576	241	173	1,250
1926	479	834	2,520	1,150	1,160	1,050	965	1,050	580	310	320	550	914
1929	-	-	-	-	-	1,220	1,110	2,290	2,340	872	265	185	-
1930	237	245	1,250	604	2,340	1,160	1,450	1,400	1,190	489	194	210	887
1931	1,020	785	575	1,400	1,130	1,620	1,490	1,660	1,530	426	190	458	1,020
1932	1,090	1,470	976	1,360	*1,760	2,220	1,770	1,970	2,230	1,310	394	351	*1,410
1945	-	-	-	-	-	-	-	-	-	575	232	1,005	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	19,100	28,900	-
1908	17,100	48,700	69,900	36,500	29,200	105,000	83,300	105,000	31,000	73,800	24,600	15,700	737,000
1909	42,200	63,100	57,400	84,200	46,900	38,800	59,300	92,800	21,000	55,000	19,300	20,700	699,000
1910	33,900	208,000	95,300	74,400	46,800	144,000	102,000	116,000	63,700	34,100	16,700	12,700	947,000
1911	113,000	137,000	67,600	49,200	21,700	36,300	42,800	86,100	80,300	49,100	24,800	43,300	751,000
1912	22,700	181,000	85,500	113,000	78,800	26,400	50,900	121,000	95,800	45,800	21,900	42,600	885,000
1913	42,100	92,800	64,000	64,000	61,100	61,500	63,900	135,000	158,000	98,400	32,500	40,000	933,000
1914	106,000	83,900	49,700	105,000	47,000	79,900	92,200	103,000	78,600	35,400	14,800	27,400	823,000
1915	55,900	124,000	26,400	33,700	30,100	51,800	68,700	52,400	35,600	27,500	14,000	11,700	552,000
1916	64,200	95,800	89,800	37,000	99,500	132,000	93,400	108,000	155,000	127,000	45,200	29,600	1,100,000
1917	15,200	70,200	42,200	58,600	74,400	32,800	75,000	125,000	100,000	163,000	42,900	20,500	921,000
1918	22,800	41,800	309,000	173,000	76,800	63,300	91,600	108,000	127,000	46,700	46,900	15,100	1,120,000
1919	85,500	70,200	143,000	136,000	39,000	58,700	94,600	125,000	97,600	60,000	21,500	19,300	950,000
1920	28,400	126,000	91,600	137,000	40,800	57,100	61,900	81,800	90,400	41,700	19,200	78,600	854,000
1921	102,000	64,300	88,100	100,115,000	88,500	81,500	121,000	149,000	70,100	25,500	57,100	1,060,000	-
1922	70,100	90,400	163,000	23,200	19,800	26,700	66,600	154,000	154,000	41,500	17,500	35,000	862,000
1923	42,400	47,000	106,000	159,000	30,000	55,700	92,200	119,000	100,115,000	65,200	20,300	12,400	865,000
1924	44,900	58,700	98,400	82,400	154,000	37,900	66,600	135,000	75,600	32,500	17,800	19,900	824,000
1925	86,100	89,800	126,000	101,000	86,100	47,400	91,600	132,000	80,300	35,400	14,800	10,300	901,000
1926	29,500	49,800	155,000	70,700	64,400	64,600	57,400	64,600	34,500	19,100	19,700	32,700	662,000
1929	-	-	-	-	-	75,000	66,000	141,000	139,000	53,600	16,300	11,000	-
1930	14,600	14,600	76,900	37,100	130,000	71,300	86,300	86,100	70,800	30,100	11,800	12,500	642,000
1931	62,700	46,700	35,400	86,100	62,800	99,600	88,700	102,000	91,000	26,200	11,700	27,100	740,000
1932	67,000	87,500	60,000	84,600	*101,000	136,000	105,000	121,000	133,000	80,600	24,200	20,900	*1,020,000
1945	-	-	-	-	-	-	-	-	-	35,370	14,270	59,820	-

* Revised.

Yearly discharge, in cubic feet per second, of Middle Fork Snoqualmie River near North Bend, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1907	412	-	-	-	-	-	-	-	-	-	-
1908	412,492	-	-	154	1,010	5.84	79.49	737,000	1,050	82.63	765,000
1909	412	*8,100	June 1, 1909	176	965	5.58	75.75	699,000	1,210	94.88	874,000
1910	412,492	*26,700	Nov. 23, 1909	174	1,310	7.57	102.76	947,000	1,280	100.45	927,000
1911	412,492	-	-	372	1,040	6.01	81.56	751,000	998	78.32	723,000
1912	412	*22,900	Nov. 18, 1911	200	1,220	7.05	95.96	885,000	1,100	86.57	795,000
1913	412,492	*4,910	Feb. 16, 1913	300	1,290	7.46	101.27	933,000	1,350	105.88	974,000
1914	412	*11,100	Oct. 10, 1913	169	1,140	6.59	89.45	823,000	1,090	85.52	790,000
1915	412	8,100	Nov. 2, 1914	150	762	4.40	59.73	552,000	850	66.65	615,000
1916	442	*9,450	Mar. 9, 1916	268	1,510	8.73	118.83	1,100,000	1,310	103.04	954,000
1917	462	6,820	June 4, 1917	177	1,270	7.34	99.63	921,000	1,610	126.38	1,170,000
1918	482	*25,200	Dec. 18, 1917	184	1,550	8.96	121.63	1,120,000	1,450	113.75	1,050,000
1919	512	*15,200	Dec. 14, 1918	194	1,310	7.57	102.76	950,000	1,240	97.33	898,000
1920	512	*10,200	Nov. 15, 1919	186	1,180	6.82	92.70	854,000	1,190	95.33	861,000
1921	532	*12,300	Dec. 30, 1920	275	1,470	8.50	115.15	1,060,000	1,560	122.84	1,130,000
1922	552	*22,000	Dec. 12, 1921	-	1,190	6.88	93.45	862,000	1,010	79.63	734,000
1923	572	*14,200	Dec. 24, 1922	165	1,200	6.94	93.95	865,000	1,200	94.60	872,000
1924	592	*22,000	Feb. 12, 1924	182	1,130	6.53	89.19	824,000	1,270	99.98	924,000
1925	612	*11,700	Dec. 11, 1924	135	1,250	7.23	97.55	901,000	1,150	90.28	833,000
1926	632	*10,500	Jan. 5, 1926	102	914	5.28	71.77	662,000	-	-	-
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	*7,900	Feb. 1, 1930	132	887	5.13	69.58	642,000	941	73.77	681,000
1931	722	*9,150	Jan. 28, 1931	147	1,020	5.90	80.20	740,000	1,120	87.75	810,000
1932	1346,737	*25,600	Feb. 26, 1932	236	*1,410	*8.15	*110.73	*1,020,000	-	-	-
1945	1042	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published.

216. North Fork Snoqualmie River near Snoqualmie Falls, Wash.

Location (revised).--Lat 47°37'10", long. 121°42'35" in SW¼ sec. 30, T. 25 N., R. 9 E., on right bank 1 mile upstream from Calligan Creek, 7½ miles northeast of town of Snoqualmie Falls, 8½ miles northeast of Snoqualmie, and 9½ miles upstream from confluence with Middle Fork.

Drainage area.--65 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,150 ft (from river-profile map).

Average discharge.--20 years (1929-49), 492 cfs (revised).

Extremes.--1929-49: Maximum discharge (revised), 13,000 cfs Feb. 26, 1932 (gage height, 17.5 ft), from rating curve extended above 2,200 cfs by logarithmic plotting; minimum observed, 30 cfs Sept. 17-19, 1929.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	511	243	-	-	-	-	-	-	-	43.5	-
1930	119	130	-	-	980	449	539	473	398	115	45.0	76.6	335
1931	492	290	260	675	398	682	577	539	520	122	52.4	225	403
1932	467	542	408	537	*708	1,070	946	884	906	483	144	171	*605
1933	393	1,460	751	833	203	465	544	845	1,140	682	226	521	673
1934	866	668	1,856	1,310	432	743	519	424	145	97.5	67.3	135	609
1935	*906	787	717	1,072	499	403	387	564	602	302	139	110	*542
1936	160	413	407	718	243	519	792	1,248	804	230	76.5	176	483
1937	123	85.4	870	124	297	468	859	858	1,090	280	144	98.9	424
1938	351	1,127	775	582	201	357	*874	636	359	97.6	47.7	44.2	*455
1939	206	620	936	784	320	453	634	837	767	409	81.1	107	514
1940	371	560	887	362	612	665	542	583	216	70.3	57.4	47.5	414
1941	386	435	548	393	238	234	285	478	319	96.8	54.8	574	337
1942	648	478	731	259	286	327	536	599	852	279	87.6	57.1	429
1943	138	939	883	394	554	482	718	713	866	344	118	101	503
1944	297	300	*740	365	325	1362	558	789	464	140	83.5	501	*410
1945	245	567	508	750	563	382	491	1,062	484	168	71.0	424	475
1946	481	818	654	573	423	492	674	988	973	404	100	97.3	557
1947	496	560	*1,131	740	702	510	823	609	590	212	88.3	174	*552
1948	678	1,106	735	460	422	293	505	1,126	1,119	347	291	304	615
1949	369	732	414	193	507	571	698	1,150	685	454	196	157	510

* Revised.

† Corrected.

Monthly and yearly runoff, in acre-feet, of North Fork Snoqualmie River near Snoqualmie Falls, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929													
1930	7,320	7,740	31,400	14,900	54,400	27,600	32,100	29,100	23,700	7,070	2,770	2,590	243,000
1931	30,300	17,300	16,000	41,500	22,100	41,900	34,300	33,100	30,900	7,500	3,220	13,400	292,000
1932	28,700	32,300	25,100	33,000	40,700	65,800	56,300	54,400	53,900	29,700	8,850	10,200	439,000
1933	24,200	86,900	46,200	51,200	11,300	28,500	32,400	52,000	67,800	41,900	13,900	51,000	487,000
1934	53,260	39,730	114,100	80,570	24,010	45,680	30,880	26,070	8,610	6,000	4,140	8,050	441,100
1935	*55,720	46,850	44,110	65,930	27,710	24,760	23,050	34,690	35,830	18,540	8,530	6,570	*392,300
1936	9,810	24,580	25,000	44,160	13,980	31,910	47,110	76,720	47,860	14,150	4,710	10,460	350,400
1937	7,550	5,080	53,510	7,650	16,520	28,790	39,220	52,750	64,880	15,980	8,820	5,890	306,600
1938	21,580	67,070	47,640	35,780	11,170	21,930	*52,030	39,100	21,350	6,000	2,940	2,630	*329,200
1939	12,870	36,900	57,580	48,190	17,770	27,830	37,740	51,490	45,640	25,150	4,990	6,380	372,300
1940	22,800	33,300	54,540	22,240	35,200	40,910	32,240	35,840	12,870	4,320	3,530	2,630	300,500
1941	23,730	25,910	33,700	24,170	13,200	14,410	16,930	29,400	18,990	5,950	3,370	34,130	243,900
1942	39,630	28,460	44,960	15,950	15,910	20,130	31,890	36,860	50,690	17,130	5,390	3,400	310,600
1943	8,490	55,860	54,320	24,200	30,790	29,660	42,720	43,850	39,650	21,180	7,270	5,980	364,000
1944	18,230	17,840	45,480	22,440	18,690	22,230	33,200	48,490	27,600	8,590	5,130	29,780	*297,700
1945	15,030	33,740	31,260	46,130	31,260	23,490	29,240	65,300	28,780	10,350	4,370	25,250	344,200
1946	29,570	48,670	40,190	35,220	23,470	30,240	40,110	60,750	57,880	24,810	6,180	5,790	402,900
1947	30,510	33,300	69,530	45,520	38,970	31,330	48,940	37,450	35,130	13,010	5,430	10,370	*399,500
1948	41,710	65,790	45,170	28,300	24,300	18,010	30,070	69,220	66,600	21,330	17,890	18,070	446,500
1949	22,660	43,580	25,470	11,870	28,170	35,110	41,510	70,730	40,750	27,920	12,040	9,320	369,100

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	707										
1930	707	*4,930	Feb. 1, 1930	34	335	5.15	70.03	243,000	359	74.95	260,000
1931	722	*4,430	Jan. 28, 1931	42	403	6.20	84.15	292,000	434	90.65	314,000
1932	1346,737	*13,000	Feb. 26, 1932	82	*605	*9.31	*126.68	*439,000	*703	*147.29	*510,000
1933	752	*8,730	Nov. 17, 1932	673	10.4	140.62	47,000	742	154.96	537,000	
1934	787	*9,860	Nov. 2, 1933	50	509	8.37	127.30	441,100	*526	*127.72	*380,700
1935	1346,792	*11,100	Oct. 25, 1934*	52	*542	*8.34	*113.08	*392,300	421	88.01	305,000
1936	812	*3,540	May 16, 1936	51	483	7.43	101.09	350,400	492	103.04	357,200
1937	832	*4,340	Dec. 6, 1936	56	424	6.52	88.45	306,600	520	108.61	376,800
1938	1346,862	*8,730	Apr. 17, 1938	33	*455	*7.00	*94.85	*329,200	*415	*86.50	*300,100
1939	862	*5,230	Dec. 7, 1938	38	514	7.91	107.46	372,300	519	108.48	375,800
1940	902	*4,070	Nov. 7, 1939	38	414	6.37	86.72	300,600	377	78.83	273,300
1941	932	*6,640	Nov. 28, 1940	41	337	5.18	70.35	243,900	378	78.99	273,800
1942	962	*4,070	Dec. 19, 1941	43	429	6.60	89.59	310,600	436	91.15	316,000
1943	982	*10,000	Nov. 23, 1942	45	503	7.74	105.01	364,000	*451	*94.31	*326,900
1944	1346,1012	*9,640	Dec. 3, 1943	47	*410	*6.31	*85.88	*297,700	408	85.44	296,200
1945	1042	*11,100	Jan. 7, 1945	56	475	7.31	99.29	344,200	528	110.36	382,600
1946	1062	*6,420	Oct. 25, 1945	62	557	8.57	116.21	402,900	*577	*120.52	*417,800
1947	1346,1092	*7,690	Dec. 11, 1946	59	*552	*8.49	*115.24	*399,500	579	120.81	418,800
1948	1122	*6,640	Oct. 19, 1947	90	615	9.46	128.78	446,500	531	111.20	385,500
1949	1152	*5,230	Nov. 23, 1948	71	510	7.85	106.47	369,100	-	-	-
1950	1152	*9,380	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; occurred about Nov. 27, 1949 or Mar. 4, 1950.

217. North Fork Snoqualmie River at cable bridge, near North Bend, Wash.

Location.--Lat 47°34'20", long. 121°42'50", in NE¼NE¼ sec. 13, T. 24 N., R. 8 E., on left bank 300 ft downstream from Hancock Creek, 600 ft upstream from cable bridge, 6 miles upstream from mouth, and 6 miles northeast of North Bend.

Drainage area.--85.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,020 ft (from river-profile map).

Extremes.--1913-15: Maximum discharge, 3,840 cfs Jan. 5, 1914 (gage height, 6.4 ft); minimum, 67 cfs Aug. 29 to Sept. 2, 1914 (gage height, 0.54 ft).

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	*550	*656	388	752	469	714	738	726	660	237	83.2	255	*519
1915	495	896	255	410	370	536	781	584	341	255	100	91.1	425

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	*33,800	*39,000	23,900	46,200	26,000	43,900	43,900	44,600	39,300	14,600	5,120	15,200	*376,000
1915	30,400	53,300	15,700	25,200	20,500	33,000	46,500	35,900	20,300	15,700	6,150	5,420	308,000

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second, of North Fork Snoqualmie River at cable bridge, near North Bend, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1914	412	3,840	Jan. 5, 1914	67	\$519	\$6.06	#82.27	\$376,000	523	82.86	378,000
1915	412	3,280	Apr. 2, 1915	74	425	4.96	67.48	308,000	-	-	-

* Not previously published.

218. North Fork Snoqualmie River near North Bend, Wash.

Location.--Lat 47°32'20", long. 121°44'20", in NE¼ sec. 26, T. 24 N., R. 8 E., on right bank 2 miles upstream from mouth and 3½ miles northeast of North Bend.
Records represent flow passing measuring section 1½ miles downstream.

Drainage area.--105 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 470 ft (from river-profile map). Prior to Sept. 2, 1912, staff gage and Sept. 2, 1912, to Sept. 26, 1916, water-stage recorder 2 miles downstream at different datum.

Average discharge.--28 years (1907-26, 1929-38), 698 cfs (revised).

Extremes.--1907-26, 1929-38: Maximum discharge (revised), 15,800 cfs Nov. 23 or 24, 1909 (gage height, 15.5 ft, from graph based on gage readings); from rating curve extended above 2,300 cfs by logarithmic plotting; minimum, 54 cfs Aug. 31, Sept. 1, 1930, Sept. 1, 1934.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	197	320	-
1908	189	672	770	466	353	1,200	900	1,100	1,200	477	174	159	639
1909	358	664	576	917	594	420	657	959	1,360	527	189	229	619
1910	373	2,100	1,170	773	630	1,640	1,240	1,170	577	202	61.2	82.8	836
1911	973	1,370	713	511	242	377	438	954	769	379	111	414	605
1912	203	1,770	760	1,000	823	223	466	1,020	734	374	247	407	667
1913	377	944	700	750	575	500	800	1,200	1,230	714	189	404	698
1914	861	849	312	979	754	1,040	1,000	934	804	283	86.6	310	683
1915	601	1,110	352	520	472	655	986	657	403	294	112	91.9	520
1916	691	840	954	380	1,110	1,410	933	990	1,230	975	286	246	837
1917	129	731	476	653	977	325	850	1,200	1,860	1,170	271	143	728
1918	195	393	*2,890	1,600	861	652	825	871	755	208	369	115	*816
1919	685	670	1,250	1,180	469	493	1,020	1,050	706	358	130	155	682
1920	287	1,180	882	1,240	410	522	638	771	788	255	110	721	650
1921	911	661	*800	1,060	1,070	898	880	1,170	1,240	484	149	439	812
1922	551	907	*1,520	251	210	264	280	1,230	1,260	277	131	363	*666
1923	459	459	947	1,380	416	566	930	1,030	999	372	123	80.4	649
1924	298	466	901	949	1,540	363	631	1,010	561	176	148	193	600
1925	815	958	1,240	1,090	*1,070	522	952	1,080	652	193	96.1	77.9	*728
1926	235	624	1,700	822	826	714	549	610	300	125	135	300	578
1929	-	-	-	-	-	690	660	1,430	1,280	334	107	78	-
1930	157	184	651	351	1,240	570	751	649	567	180	69.7	101	450
1931	569	408	366	898	612	971	854	701	669	189	83.2	306	552
1932	626	756	599	759	*928	1,550	1,510	1,400	1,370	695	197	241	*884
1933	840	2,250	1,080	1,160	281	693	756	1,150	1,530	627	283	695	963
1934	1,159	1,043	2,555	1,859	662	954	775	642	212	119	76.6	166	857
1935	*1,051	1,269	1,087	1,493	797	621	668	877	834	466	200	156	*794
1936	222	603	704	1,140	372	769	1,152	1,671	1,060	319	115	242	699
1937	167	125	1,202	229	428	792	1,026	1,319	1,551	374	216	168	634
1938	497	1,813	1,126	907	333	555	1,210	1,003	498	143	71.6	70.5	686

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	12,100	19,000	-
1908	11,600	40,000	47,300	28,700	20,300	73,800	53,600	67,600	71,400	29,300	10,700	9,460	464,000
1909	22,000	39,500	35,400	56,400	33,000	25,600	39,100	59,000	80,900	32,400	11,600	13,600	449,000
1910	22,900	25,000	71,900	47,500	55,000	101,000	73,800	71,900	34,300	12,400	4,990	4,930	606,000
1911	59,800	81,500	43,800	31,400	13,400	23,200	26,100	58,700	45,800	23,300	6,820	24,600	438,000
1912	12,500	105,000	46,700	61,500	47,300	13,700	27,700	62,700	43,700	23,000	15,200	24,200	484,000
1913	23,200	56,200	43,000	46,100	31,900	30,700	47,600	73,800	73,200	43,900	11,600	24,000	505,000
1914	52,900	50,500	19,200	80,200	41,900	64,000	59,500	57,400	47,800	17,400	5,320	18,400	495,000
1915	37,000	66,000	21,600	32,000	26,200	40,300	58,700	40,400	24,000	18,100	6,890	5,470	377,000
1916	42,500	50,000	58,700	23,400	63,800	86,700	55,500	60,900	73,200	60,000	17,600	14,600	607,000
1917	7,930	43,500	29,300	40,200	54,300	20,000	50,600	73,800	111,000	71,900	16,700	8,510	528,000
1918	12,000	23,400	*178,000	98,400	47,800	40,100	49,100	53,600	44,900	12,800	23,900	6,840	*591,000
1919	42,100	39,900	76,900	72,600	26,000	30,300	60,700	64,600	42,000	22,000	7,990	9,220	494,000
1920	17,600	70,200	54,200	76,200	23,600	32,100	38,000	47,400	46,900	15,700	6,760	42,900	472,000

* Revised.

SNOQUALMIE RIVER BASIN

Monthly and yearly runoff, in acre-feet, of North Fork Snoqualmie River near North Bend, Wash.--
Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	56,000	39,300	49,200	65,200	59,400	55,200	52,400	71,900	73,800	29,800	9,160	26,100	587,000
1922	33,900	54,000*	93,500	15,400	11,700	16,200	41,800	94,100	75,000	17,000	8,060	21,600	*482,000
1923	28,200	27,300	58,200	84,800	23,100	34,800	55,300	63,300	59,400	22,900	7,560	4,780	470,000
1924	18,300	27,700	55,400	58,400	88,600	22,300	37,500	62,100	33,400	10,800	9,100	11,500	435,000
1925	50,100	57,000	76,200	67,000*	59,400	32,100	56,600	66,400	38,800	11,900	5,910	4,640	*526,000
1926	14,400	37,100	105,000	50,500	45,900	43,900	32,700	37,500	17,900	7,690	8,300	17,800	419,000
1929	-	-	-	-	-	42,400	39,300	87,900	76,200	20,500	6,580	4,640	-
1930	9,650	10,900	40,000	21,600	68,900	35,000	44,700	39,900	33,700	11,100	4,290	6,010	326,000
1931	35,000	24,500	22,500	55,200	34,000	59,700	50,800	43,100	39,800	11,600	5,120	18,200	399,000
1932	39,500	45,000	36,800	46,700*	53,400	85,300	89,800	96,100	81,500	42,700	12,100	14,300	*642,000
1933	51,600	34,000	66,400	71,300	15,600	42,600	45,000	70,700	91,000	50,600	17,400	41,400	698,000
1934	71,240	62,050	157,100	114,300	36,760	58,690	46,100	39,490	12,630	7,300	4,710	9,860	620,200
1935	64,650	75,490	66,660	91,790	44,280	38,170	39,760	53,910	49,640	28,630	12,300	9,280	*574,800
1936	13,660	35,880	43,280	70,100	21,390	47,300	68,560	102,800	63,090	19,620	7,060	14,380	507,100
1937	10,280	7,420	73,690	14,100	23,780	48,700	61,060	81,130	92,280	22,970	13,300	9,970	459,900
1938	30,530	107,900	69,260	55,750	18,500	34,150	72,030	61,690	29,620	8,790	4,400	4,200	496,800

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1907	412	-	-	-	-	-	-	-	-	-	-
1908	412,492	-	-	131	639	6.09	82.89	464,000	636	82.49	462,000
1909	412	*6,450	June 2, 1909	131	619	5.90	80.09	449,000	790	102.08	572,000
1910	412,492	*15,800	Nov. 23 or 24, 1909	56	836	7.96	108.06	606,000	789	101.94	571,000
1911	412	*7,210	Nov. 21, 1910	63	605	5.78	78.19	439,000	577	74.66	418,000
1912	412	*13,200	Nov. 18 or 19, 1911	134	667	6.35	86.44	484,000	808	78.82	441,000
1913	412,492	-	-	144	698	6.65	90.27	505,000	698	90.27	505,000
1914	412	*5,980	Oct. 11, 1913	59	683	6.50	88.23	495,000	668	88.64	497,000
1915	412	4,270	Apr. 2, 1915	71	520	4.95	67.19	377,000	557	71.94	403,000
1916	442	*5,840	Mar. 9, 1916	78	837	7.97	106.49	607,000	739	95.82	536,000
1917	462	*3,950	June 24, 1917	81	728	6.93	94.07	528,000	*911	*117.80	*660,000
1918	1346,462	*13,300	Dec. 18, 1917	79	*816	*7.77	*105.43	*581,000	*741	*95.84	*536,000
1919	512	-	-	76	692	6.50	88.23	494,000	659	85.25	477,000
1920	512	*9,420	Nov. 15, 1919	71	650	6.19	84.15	472,000	653	84.64	474,000
1921	532	-	-	117	812	7.73	104.88	587,000	*663	*111.57	*624,000
1922	1346,552	*11,100	Dec. 12, 1921	89	*666	*6.34	*86.09	*482,000	573	74.07	415,000
1923	572	*8,980	Dec. 24, 1922	64	649	6.18	83.63	470,000	632	81.62	457,000
1924	592	*14,100	Feb. 12, 1924	56	800	5.71	77.74	455,000	712	92.36	517,000
1925	1346,612	*8,320	Dec. 10, 1924	65	*729	*6.93	*93.99	*526,000	*691	*89.15	*499,000
1926	632	*7,880	Dec. 23, 1925	56	578	5.50	74.74	419,000	-	-	-
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	4,610	Feb. 1, 1930	54	450	4.29	58.16	326,000	479	61.94	347,000
1931	722	4,610	Jan. 28, 1931	65	552	5.26	71.32	399,000	605	78.18	438,000
1932	1346,737	*15,400	Feb. 28, 1932	112	*894	*8.42	*114.67	*642,000	*1,070	*134.17	*774,000
1933	752	*11,100	Nov. 17, 1932	-	963	9.17	124.63	698,000	1,020	131.44	736,000
1934	767	*11,300	Dec. 9, 1933	54	857	8.16	110.65	620,200	*742	*95.89	*536,800
1935	1346,792	*12,800	Oct. 24 or 25, 1934	90	*794	*7.56	*102.66	*574,800	636	82.19	460,600
1936	812	3,730	May 16, 1936	85	699	6.66	90.59	507,100	697	90.34	505,900
1937	832	4,760	Dec. 6, 1936	100	634	6.04	81.95	458,900	794	102.74	575,000
1938	862	*9,860	Apr. 18, 1938	58	666	6.53	88.69	496,800	-	-	-

* Revised.

* Not previously published.

219. South Fork Snoqualmie River near Garcia, Wash.

Location.--Lat 47°25'00", long. 121°35'20", in SW $\frac{1}{4}$ sec. 6, T. 22 N., R. 10 E., on left bank at Bide-a-Wee Ranch, 150 ft downstream from Alice Creek, a quarter of a mile upstream from Fifteenmile Bridge, and $\frac{1}{4}$ miles southeast of Garcia.

Drainage area.--45.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,470 ft (from river-profile map). Prior to Nov. 6, 1913, staff gage at same site at datum 1.54 ft lower.

Average discharge.--5 years (1910-15), 275 cfs.

Extremes.--1910-15: Maximum discharge, 8,070 cfs (revised) Nov. 19, 1911 (gage height, 10.0 ft, described datum, from floodmarks), from rating curve extended above 1,200 cfs; minimum observed, 21 cfs several days in August and September 1910, and September 1911.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of South Fork Snoqualmie River near Garcia, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	*38.6	30.0	-
1911	521	650	168	212	71.4	111	279	570	438	135	41.2	141	279
1912	72.7	*1,080	240	279	259	65.3	265	712	433	111	73.9	100	*306
1913	120	409	189	369	307	108	298	690	717	274	72.5	89.7	303
1914	418	294	149	415	171	402	514	616	333	111	42.4	71.2	296
1915	209	575	97.6	58.8	90.2	268	553	206	104	76.9	40.2	38.1	192

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	*2,370	1,790	-
1911	32,000	38,700	10,300	13,000	3,970	6,820	16,600	35,000	26,100	8,300	2,530	8,390	202,000
1912	4,470	*64,300	14,800	17,200	14,900	4,020	15,800	43,800	25,800	6,820	4,540	5,950	*222,000
1913	7,380	24,300	11,600	22,700	17,000	6,640	17,700	42,400	42,700	16,800	4,460	5,340	219,000
1914	25,700	17,500	9,160	25,500	9,500	24,700	30,600	37,900	19,800	6,820	2,610	4,240	214,000
1915	12,900	34,100	6,000	3,620	5,010	16,500	32,900	12,700	6,190	4,730	2,470	2,270	139,000

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1910	412	-	-	-	-	-	-	-	-	-	-	-	-
1911	412	a4,670	Nov. 21, 1910	21	279	6.16	83.53	202,000	*282	*84.56	*204,000		
1912	1346, 412	*a3,070	Nov. 19, 1911	30	*306	*6.75	*92.01	*222,000	251	75.36	182,000		
1913	412	a2,220	Jan. 3, 1913	33	303	6.69	90.73	219,000	315	94.50	228,000		
1914	412	a2,920	Oct. 11, 1913	30	296	6.53	88.58	214,000	296	88.81	215,000		
1915	412	3,020	Apr. 2, 1915	28	192	4.24	57.67	139,000	-	-	-		

* Revised.

a Maximum observed.

220. South Fork Snoqualmie River at North Bend, Wash.

Location.--Lat 47°29'40", long. 121°47'20", in NE¹ sec. 9, T. 23 N., R. 8 E., on right bank at county road crossing at North Bend, 2 miles upstream from mouth.

Drainage area.--83 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 430 ft (from river-profile map). Prior to Sept. 1, 1912, staff gage and Sept. 1, 1912, to Oct. 1, 1916, water-stage recorder a quarter of a mile downstream at different datum. Oct. 2, 1916, to May 30, 1926, and Feb. 12, 1929, to Sept. 30, 1938, water-stage recorder a quarter of a mile upstream from described site at different datum.

Average discharge.--32 years (1907-26, 1929-38, 1945-49), 547 cfs.

Extremes.--1907-26, 1929-38, 1945-50: Maximum discharge recorded, 7,620 cfs Oct. 25, 1934 (gage height, 11.2 ft, site and datum then in use), from rating curve extended above 1,400 cfs, but may have been greater several days in November 1909 when water was over gage; minimum discharge, 63 cfs Oct. 22, 1925.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	171	176	-
1908	121	417	596	361	304	900	700	800	900	497	168	109	490
1909	220	526	416	518	423	378	475	705	807	312	109	152	419
1910	1841	1,400	508	341	268	1,120	717	609	270	128	84.8	76.8	477
1911	574	929	456	368	213	348	412	708	546	213	104	239	428
1912	144	973	435	739	690	311	450	842	553	223	151	185	473
1913	201	622	300	600	530	391	550	900	849	412	157	178	473
1914	527	499	321	732	476	693	762	710	506	258	117	163	480
1915	321	760	271	286	292	428	659	354	244	181	110	106	354
1916	450	644	660	342	680	961	797	967	1,120	798	310	184	659
1917	141	431	358	498	603	313	665	996	1,380	866	225	126	549
1918	125	210	2,050	1,250	745	577	776	763	670	232	246	118	648
1919	448	546	1,080	1,070	633	544	792	979	816	350	136	122	627
1920	164	775	580	954	666	428	535	584	548	227	122	395	502
1921	629	446	586	965	1,100	985	821	1,060	1,100	486	158	315	719
1922	420	554	1,290	279	178	190	503	1,080	1,040	359	136	160	518
1923	201	306	625	1,300	446	494	797	930	931	340	136	96.2	551
1924	192	325	684	625	1,280	552	524	797	392	163	106	121	476
1925	441	604	995	973	1,120	622	816	995	573	223	108	83.8	626
1926	140	328	993	607	667	690	610	515	220	100	130	210	433

Monthly and yearly mean discharge, in cubic feet per second, of South Fork Snoqualmie River at North Bend, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	533	584	1,110	1,020	414	177	97.3	-
1930	100	92.4	428	262	822	550	686	577	477	224	101	81.5	363
1931	288	273	213	477	484	713	823	794	575	279	115	149	431
1932	333	572	394	687	830	1,350	1,170	1,100	1,020	519	259	160	698
1933	402	1,620	990	1,060	382	549	662	922	1,250	625	238	421	761
1934	843	986	2,267	1,579	771	997	838	592	299	145	169	170	807
1935	632	939	792	1,233	718	564	488	733	648	363	165	107	615
1936	126	255	323	708	291	576	827	1,267	959	341	157	132	497
1937	118	98.7	699	218	359	560	723	964	1,141	423	215	153	473
1938	216	1,194	919	784	349	459	954	906	552	195	100	90.0	560
1945	-	-	-	-	-	-	-	-	-	264	134	292	-
1946	404	685	584	678	458	583	729	1,128	1,009	521	207	136	594
1947	373	481	1,308	852	610	643	829	721	1,009	521	207	136	594
1948	746	1,074	762	647	562	471	577	1,127	1,250	424	235	201	672
1949	337	613	569	311	510	622	801	1,271	844	480	235	148	562
1950	463	753	706	617	724	1,023	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	10,500	10,500	-
1908	7,440	24,800	36,600	22,200	17,500	55,300	41,700	49,200	53,600	30,600	10,300	6,490	356,000
1909	13,500	31,300	25,600	31,900	23,500	23,200	28,300	43,300	48,000	19,200	6,700	9,040	304,000
1910	11,300	83,300	31,200	21,000	16,000	68,900	42,700	37,400	16,100	7,870	5,210	4,570	346,000
1911	35,300	55,300	28,000	23,900	11,800	21,400	24,500	43,500	32,500	13,100	6,400	14,200	310,000
1912	8,850	57,900	26,700	45,400	39,700	19,100	26,800	51,800	32,900	13,700	9,280	11,000	343,000
1913	12,400	37,000	18,400	36,900	29,400	24,000	32,700	55,300	50,500	25,300	9,650	10,600	342,000
1914	32,400	29,700	19,700	45,000	26,400	42,600	45,300	43,700	30,100	15,900	7,190	9,700	348,000
1915	19,700	45,200	16,700	17,600	16,200	26,300	39,200	21,600	14,500	11,100	6,760	6,310	241,000
1916	27,700	38,300	40,600	21,000	39,100	59,100	47,400	59,500	66,600	49,100	19,100	10,900	478,000
1917	8,670	25,600	22,000	30,600	33,500	19,200	39,600	61,200	82,100	53,200	13,800	7,500	397,000
1918	7,890	12,500	128,000	76,900	41,400	35,500	46,200	46,900	39,900	14,300	15,100	7,020	469,000
1919	27,500	32,500	66,400	65,800	35,200	33,400	47,100	80,200	48,600	21,500	8,360	7,260	454,000
1920	10,100	46,100	35,700	58,700	38,300	30,600	31,800	35,900	32,600	14,000	7,500	23,500	365,000
1921	38,700	26,500	36,000	59,300	61,100	60,600	48,900	65,200	65,500	29,900	9,720	18,700	520,000
1922	25,800	33,000	79,300	17,200	9,890	11,700	29,900	66,400	61,900	22,100	8,360	9,520	375,000
1923	12,400	18,200	38,400	79,900	24,800	30,400	47,400	57,200	55,400	20,900	8,360	5,720	399,000
1924	11,800	19,300	40,800	38,400	73,600	33,900	31,200	49,000	23,300	10,000	6,520	7,200	345,000
1925	27,100	35,900	61,200	59,800	62,200	38,200	48,600	61,200	34,100	13,700	6,640	4,990	454,000
1926	8,610	19,500	61,100	37,300	37,000	42,400	36,300	31,700	13,100	6,150	7,990	12,500	314,000
1929	-	-	-	-	-	32,800	34,800	68,200	60,700	25,500	10,900	5,790	-
1930	6,150	5,500	26,300	16,100	45,700	33,800	40,800	35,500	28,400	13,800	6,210	4,850	263,000
1931	17,700	16,200	13,100	29,300	26,900	43,800	49,000	48,800	34,200	17,200	7,070	8,870	312,000
1932	20,500	34,000	24,200	41,900	47,700	83,000	69,600	67,600	60,700	31,900	15,900	9,520	507,000
1933	24,700	96,400	60,900	65,200	21,200	33,800	39,400	56,700	74,400	38,400	14,500	25,100	551,000
1934	51,850	58,670	39,400	97,090	42,600	61,310	49,870	36,420	17,780	8,950	10,380	10,120	584,600
1935	38,880	55,880	48,690	75,810	39,850	34,680	29,050	45,050	38,570	22,290	10,130	6,360	445,200
1936	7,740	15,200	19,840	43,560	16,740	35,400	49,190	77,880	67,090	20,980	9,650	7,870	361,100
1937	7,240	5,870	43,000	13,410	19,950	34,410	43,000	59,300	67,890	26,020	13,240	9,080	342,400
1938	13,290	71,060	56,490	48,180	19,360	28,230	56,750	55,700	32,850	12,020	6,150	5,360	405,400
1945	-	-	-	-	-	-	-	-	-	16,250	8,210	17,380	-
1946	24,840	40,740	35,930	41,670	25,450	35,820	43,400	69,350	60,020	32,020	12,720	8,070	430,000
1947	22,920	28,620	80,400	52,420	45,000	39,520	49,340	44,330	33,140	17,110	9,580	12,970	435,400
1948	45,870	63,930	46,850	39,780	32,320	28,960	34,320	69,300	74,380	26,100	14,440	11,960	488,200
1949	20,700	36,490	34,960	19,140	28,300	38,200	47,640	78,130	50,190	29,500	14,470	8,820	406,600
1950	28,450	48,790	43,540	39,710	40,230	62,910	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1907	412	-	-	-	-	-	-	-	-	-	-
1908	412,492	-	-	77	490	5.90	80.31	356,000	492	80.72	357,000
1909	412	*2,040	June 1, 1909	68	419	5.05	68.55	304,000	498	81.17	359,000
1910	412,492	-	-	71	477	5.75	78.05	346,000	467	76.42	338,000
1911	412	*4,440	Nov. 21, 1910	89	428	5.16	70.01	310,000	393	64.21	285,000
1912	412	*8,650	Nov. 18 or 19, 1911	107	473	5.70	77.56	343,000	437	71.73	317,000
1913	412,492	-	-	117	473	5.70	77.37	342,000	492	80.50	356,000
1914	412	*2,750	Oct. 11, 1913	88	460	5.78	78.56	348,000	480	78.46	347,000
1915	412	2,670	Nov. 3, 1914	81	334	4.02	54.54	241,000	368	60.13	266,000
1916	442	3,100	Mar. 10, 1916	115	659	7.94	108.14	478,000	590	96.78	428,000
1917	462	2,200	June 16, 1917	105	549	6.61	89.73	397,000	673	110.09	487,000
1918	492	*6,780	Dec. 18, 1917	90	648	7.81	106.01	469,000	621	101.54	450,000
1919	512	*5,820	Dec. 14, 1918	90	627	7.55	102.22	454,000	579	94.75	419,000
1920	512	3,570	Nov. 15, 1919	92	502	6.05	82.38	365,000	515	84.39	374,000

* Revised.

* Not previously published.

Yearly discharge, in cubic feet per second, of South Fork Snoqualmie River at North Bend, Wash.--
Continued

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1921	532	4,410	Dec. 30, 1920	130	719	8.86	117.52	520,000	769	125.83	557,000
1922	552	6,780	Dec. 12, 1921	110	518	6.24	84.70	375,000	423	69.23	306,000
1923	572	5,500	Jan. 7, 1923	88	551	6.64	90.12	399,000	555	90.81	402,000
1924	592	6,460	Feb. 12, 1924	80	476	5.73	78.02	345,000	547	89.70	397,000
1925	612	4,540	Dec. 12, 1924	73	626	7.54	102.42	454,000	578	94.48	419,000
1926	632	3,160	Dec. 23, 1925	65	433	5.22	70.86	314,000	-	-	-
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	1,900	Feb. 19, 1930	73	363	4.37	59.44	263,000	376	61.49	272,000
1931	722	2,810	Jan. 28, 1931	68	431	5.19	70.51	312,000	475	77.65	344,000
1932	737	7,600	Feb. 26, 1932	105	698	8.41	114.51	507,000	840	137.48	610,000
1933	752	7,100	Nov. 13, 1932	107	761	9.17	124.40	551,000	854	139.82	618,000
1934	767	7,430	Dec. 22, 1933	-	807	9.72	132.08	584,600	860	108.01	478,000
1935	792	7,620	Oct. 25, 1934	75	615	7.41	100.58	445,200	476	77.84	344,600
1936	812	2,420	May 16, 1936	88	497	5.99	81.58	361,100	516	84.59	374,500
1937	832	2,610	Dec. 19, 1936	87	475	5.70	77.35	342,400	590	96.49	427,100
1938	862	5,410	Apr. 18, 1938	-	560	6.75	91.59	405,400	-	-	-
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	5,200	Oct. 25, 1945	107	594	7.16	97.13	430,000	636	104.01	460,500
1947	1092	6,490	Dec. 11, 1946	102	601	7.24	98.36	435,400	635	103.93	460,100
1948	1122	4,320	Oct. 19, 1947	141	672	8.10	110.28	488,200	584	95.72	423,700
1949	1152	2,910	Nov. 24, 1948	109	562	6.77	91.84	406,600	595	97.38	431,100
1950	1162	-	-	-	-	-	-	-	-	-	-

221. Snoqualmie River near Snoqualmie, Wash. 1/

Location.--Lat 47°32'45", long. 121°50'35", in SW 1/4 sec. 19, T. 24 N., R. 8 E., on left bank an eighth of a mile downstream from Snoqualmie Falls, half a mile upstream from Tokul Creek, and 1 1/2 miles northwest of Snoqualmie.

Drainage area.--375 sq mi (revised).

Supplemental records available.--October 1904 to September 1905, and November to December 1906, gage heights only.

Gage.--Water-stage recorder. Altitude of gage is 120 ft (from river-profile map). Prior to Nov. 3, 1902, and Nov. 1 to Dec. 31, 1906, staff gages above and below Snoqualmie Falls at different datums. Nov. 3, 1902, to Sept. 3, 1905, staff gage at site 4 miles upstream and 300 ft downstream from South Fork at different datum.

Average discharge.--28 years (1898-99, 1902-4, 1907-32), 2,488 cfs.

Extremes.--1898-1900, 1902-4, 1926-27: Maximum discharge (revised), 24,400 cfs Jan. 3, 1903 (gage height, 19.6 ft, from floodmarks, site and datum then in use); minimum recorded (revised), 320 cfs July 8, 1926.

Remarks.--No diversion above station. After 1900, low-flow records collected below Snoqualmie Falls are affected by powerplant operation. Records August 1907 to May 1926 and March 1929 to September 1932 are the sum of flow in North, Middle and South Forks (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	4,480	4,710	2,040	691	1,030	-
1899	2,220	3,610	3,220	5,270	4,800	1,800	2,970	5,120	6,930	3,570	840	970	3,430
1900	-	-	-	3,790	2,760	3,620	2,570	3,060	2,810	-	-	-	-
1903	840	2,710	3,750	5,140	1,290	1,460	1,960	4,140	5,290	2,240	745	2,440	2,670
1904	2,240	3,250	3,240	3,350	1,380	1,970	4,210	3,300	3,590	1,780	700	580	2,470
1907	-	-	-	-	-	-	-	-	-	-	678	981	-
1908	588	1,910	2,490	1,420	1,160	3,800	3,000	3,600	4,300	2,170	742	499	2,140
1909	1,260	2,250	1,920	2,600	1,880	1,430	2,130	3,170	4,210	1,730	598	721	2,000
1910	1,110	7,000	7,250	2,320	1,780	5,100	3,670	3,680	1,920	884	422	374	12,620
1911	3,390	4,800	2,270	1,700	845	1,320	1,570	3,060	2,660	1,390	618	1,380	2,070
1912	716	5,780	2,580	3,580	2,880	963	1,770	3,820	2,900	1,340	754	1,310	2,360
1913	1,260	3,130	2,040	2,590	2,200	1,890	2,760	4,300	4,730	2,730	672	1,250	2,460
1914	3,110	2,760	1,440	3,420	2,080	3,030	3,310	3,320	2,630	1,120	444	933	2,300
1915	1,830	3,960	1,050	1,350	1,310	1,920	3,140	1,860	1,920	923	450	394	1,620
1916	2,510	3,090	3,070	1,320	3,520	4,520	3,300	3,710	4,950	3,840	1,330	927	3,000
1917	517	2,340	1,520	2,100	2,920	1,170	2,780	4,240	6,820	4,690	1,190	813	2,550
1918	691	1,310	9,960	5,660	2,990	2,260	3,140	3,380	3,560	4,200	1,400	487	*5,010
1919	2,220	2,400	4,650	4,460	1,800	1,990	3,400	4,070	3,160	1,680	615	602	2,620
1920	913	4,080	2,950	4,420	1,780	1,950	2,210	2,680	2,860	1,160	544	2,440	2,330

* Revised; supersedes estimates published in Water-Supply Papers 492 and 870.

† Corrected.

1/ Published as Snoqualmie River near Snoqualmie Falls, 1904-6.

Monthly and yearly mean discharge, in cubic feet per second, of Snoqualmie River near Snoqualmie, Wash.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	3,200	2,190	2,790	3,680	4,240	3,320	3,070	4,200	4,850	2,110	721	1,710	3,000
1922	2,110	2,980	5,460	908	744	869	2,320	5,110	4,890	1,310	551	1,110	2,370
1923	1,350	1,560	3,300	5,270	1,400	1,970	3,280	3,890	3,860	1,770	569	368	2,400
1924	1,220	1,780	3,160	2,910	5,490	1,530	2,280	4,000	2,220	867	543	648	2,210
1925	2,660	3,070	4,280	3,700	*3,740	1,920	3,310	4,220	2,580	992	445	335	2,600
1926	854	1,790	5,210	2,580	2,650	2,450	2,120	2,180	1,100	536	585	1,060	1,920
1927	2,850	2,300	2,740	2,450	2,780	2,050	2,780	4,730	5,290	2,030	830	2,390	2,760
1928	3,640	6,660	3,310	6,030	1,460	3,380	2,440	4,720	2,550	1,100	425	416	3,020
1929	2,320	1,240	1,110	785	604	2,440	2,350	4,830	4,640	1,620	549	360	1,910
1930	494	521	2,350	1,220	4,400	2,280	2,890	2,630	2,250	893	365	392	1,700
1931	1,880	1,470	1,150	2,780	2,230	3,300	3,170	3,160	2,770	894	368	911	2,000
1932	2,050	2,800	1,970	2,820	*3,520	5,120	4,450	4,470	4,620	2,520	850	752	*2,990

* Revised; supersedes estimates published in Water-Supply Papers 492 and 870.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	275,000	280,000	125,000	42,500	61,300	-
1899	136,000	215,000	198,000	324,000	267,000	111,000	177,000	315,000	412,000	220,000	51,600	57,700	2,480,000
1900	-	-	-	233,000	153,000	235,000	153,000	188,000	167,000	-	-	-	-
1903	51,600	161,000	229,000	316,000	71,600	89,800	117,000	255,000	315,000	138,000	45,800	145,000	1,930,000
1904	138,000	193,000	199,000	205,000	79,400	121,000	251,000	203,000	214,000	109,000	43,000	34,500	1,790,000
1907	-	-	-	-	-	-	-	-	-	-	41,700	58,400	-
1908	36,200	114,000	153,000	87,300	66,700	234,000	179,000	221,000	258,000	133,000	45,600	29,700	1,580,000
1909	77,500	134,000	18,000	172,000	103,000	87,900	127,000	195,000	251,000	106,000	36,600	42,900	1,450,000
1910	68,200	117,000	199,000	143,000	97,800	514,000	218,000	225,000	114,000	54,400	25,900	22,500	1,900,000
1911	208,000	274,000	140,000	105,000	46,900	81,200	93,400	188,000	158,000	85,500	38,000	82,100	1,500,000
1912	44,000	544,000	199,000	220,000	166,000	59,200	105,000	235,000	73,000	82,400	46,400	78,000	1,710,000
1913	77,500	166,000	125,000	147,000	122,000	116,000	164,000	264,000	281,000	168,000	53,600	74,400	1,780,000
1914	191,000	164,000	88,500	210,000	116,000	186,000	137,000	204,000	156,000	68,900	27,300	55,900	1,680,000
1915	113,000	226,000	64,800	83,000	72,800	188,000	167,000	114,000	73,800	56,600	27,700	23,400	1,170,000
1916	154,000	184,000	189,000	81,200	202,000	278,000	196,000	228,000	295,000	236,000	81,800	55,200	2,180,000
1917	31,800	139,000	93,500	129,000	162,000	71,900	165,000	261,000	294,000	288,000	73,200	36,500	1,840,000
1918	42,500	78,000	152,000	348,000	166,000	139,000	187,000	208,000	192,000	73,800	86,100	29,000	*2,180,000
1919	155,000	143,000	286,000	274,000	100,000	102,000	122,000	202,000	250,000	188,000	37,800	55,800	1,900,000
1920	56,100	243,000	181,000	272,000	102,000	120,000	132,000	165,000	178,000	110,000	71,300	43,000	1,690,000
1921	197,000	130,000	172,000	226,000	235,000	204,000	183,000	258,000	289,000	130,000	44,300	102,000	2,170,000
1922	130,000	177,000	336,000	55,800	41,300	54,700	136,000	514,000	291,000	80,600	33,900	66,000	*1,720,000
1923	83,000	92,800	203,000	324,000	77,800	121,000	195,000	239,000	231,000	109,000	36,200	23,000	1,730,000
1924	75,000	106,000	194,000	179,000	316,000	94,100	136,000	246,000	327,000	53,300	33,400	38,600	1,600,000
1925	164,000	183,000	263,000	228,000	208,000	118,000	197,000	259,000	154,000	61,000	27,400	19,900	1,880,000
1926	52,500	107,000	200,000	159,000	147,000	151,000	126,000	134,000	65,500	33,000	36,000	63,100	1,390,000
1927	175,000	137,000	160,000	169,000	151,000	54,000	126,000	165,000	291,000	155,000	51,000	142,000	2,000,000
1928	224,000	396,000	204,000	371,000	84,000	208,000	145,000	290,000	152,000	67,600	26,100	24,800	2,190,000
1929	143,000	73,800	68,200	48,300	33,500	150,000	140,000	297,000	276,000	99,600	33,800	21,400	1,380,000
1930	30,400	31,000	143,000	35,000	275,000	44,000	140,000	172,000	162,000	33,000	54,900	22,400	1,230,000
1931	116,000	87,500	70,700	171,000	124,000	203,000	189,000	194,000	165,000	55,000	23,900	54,200	1,450,000
1932	126,000	167,000	121,000	173,000	202,000	515,000	265,000	275,000	275,000	135,000	52,300	44,700	*2,170,000

* Revised; supersedes estimates published in Water-Supply Papers 492 and 870.

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1898	412	-	-	-	-	-	-	-	-	-	-
1899	412,492	-	-	-	3,430	9.15	124.20	2,480,000	-	-	-
1900	412	-	-	-	-	-	-	-	-	-	-
1903	412	24,400	Jan. 3, 1903	388	2,670	7.12	96.65	1,930,000	2,790	100.99	2,020,000
1904	412,492	*15,200	Jan. 14, 1904	-	2,470	6.59	89.70	1,790,000	-	-	-
1907	492	-	-	-	-	-	-	-	-	-	-
1908	492	-	-	-	2,140	5.71	77.72	1,560,000	2,180	79.08	1,580,000
1909	492	-	-	-	2,000	5.33	72.35	1,450,000	2,500	90.54	1,810,000
1910	492	-	-	-	†2,620	†6.99	†94.88	1,900,000	2,540	91.90	1,840,000
1911	492	-	-	-	2,070	5.52	74.93	1,500,000	1,970	71.26	1,430,000
1912	492	-	-	-	2,360	6.29	85.62	1,710,000	2,140	77.72	1,550,000
1913	492	-	-	-	2,460	6.56	89.05	1,780,000	2,530	91.63	1,830,000
1914	492	-	-	-	2,300	6.13	83.21	1,660,000	2,260	81.85	1,630,000
1915	492	-	-	-	1,620	4.32	58.64	1,170,000	1,770	64.07	1,280,000
1916	492	-	-	-	3,000	8.00	108.90	2,180,000	2,640	95.82	1,920,000
1917	492	-	-	-	2,550	6.80	92.31	1,840,000	*3,190	†115.52	*2,320,000
1918	492	-	-	-	*3,010	†8.03	†99.03	*2,180,000	2,810	101.67	2,030,000
1919	492	-	-	-	2,620	6.93	94.98	1,900,000	2,480	89.73	1,790,000
1920	870	-	-	-	2,330	6.21	84.58	1,690,000	2,360	85.46	1,710,000

* Revised.

† Corrected.

* Not previously published.

Yearly discharge, in cubic feet per second, of Snoqualmie River near Snoqualmie, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches Acre-feet	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1921	870	-	-	-	3,000	8.00	108.44	2,170,000	3,190	115.70	2,310,000
1922	870	-	-	-	2,370	6.32	85.54	*1,720,000	2,010	72.62	1,450,000
1923	870	-	-	-	2,400	6.40	86.76	1,730,000	2,390	86.60	1,730,000
1924	870	-	-	-	2,210	5.89	80.15	1,600,000	2,530	91.83	1,840,000
1925	870	-	-	-	2,600	6.93	93.94	1,880,000	*2,420	*87.63	1,750,000
1926	632,870	-	-	-	1,920	5.12	69.68	1,390,000	1,930	69.73	1,390,000
1927	652	16,500	Oct. 16, 1926	504	2,780	7.36	100.02	2,000,000	3,240	117.23	2,340,000
1928	870	-	-	-	3,020	8.05	109.69	2,190,000	2,280	82.69	1,650,000
1929	870	-	-	-	1,910	5.09	69.26	1,380,000	1,800	65.25	1,300,000
1930	870	-	-	-	1,700	4.53	61.52	1,230,000	1,800	64.98	1,300,000
1931	870	-	-	-	2,000	5.33	72.60	1,450,000	2,200	79.50	1,590,000
1932	870	-	-	-	*2,990	*7.97	*108.61	*2,170,000	-	-	-

* Revised.

222. Tokul Creek near Snoqualmie, Wash.

Location.--Lat 47°33'20", long. 121°50'15", in NW¼ sec. 19, T. 24 N., R. 8 E., on right bank 50 ft downstream from highway bridge, half a mile upstream from mouth, and 1½ miles north of Snoqualmie.

Drainage area.--34 sq mi (revised), approximately. At site 1907-14, 33 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 180 ft (from river-profile map). July 21, 1907, to Oct. 31, 1914, staff gage 1 mile upstream at datum about 340 ft higher. Mar. 20, 1929, to Sept. 30, 1931, staff gage three-eighths of a mile downstream from described site at different datum.

Average discharge.--8 years (1908-14, 1929-31), 103 cfs.

Extremes.--1907-14, 1929-31, 1945: Maximum discharge not determined, probably occurred during period Nov. 19-29, 1909 when water was over gage; minimum, 13 cfs Sept. 16-20, 1909.

Remarks.--Some diversion for industrial use and municipal supply of community of Snoqualmie Falls above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	23.6	25.5	-
1908	24.3	75.7	*133	*118	115	-	-	-	-	34.5	25.0	21.3	-
1909	*46	*86	109	204	227	175	96.2	86.1	39.1	19.9	16.3	17.9	*93.0
1910	22.1	*267	228	161	230	359	198	100	46.7	26.3	20.0	21.6	*139
1911	130	346	186	199	157	128	86.2	172	54.7	32.4	20.7	45.5	130
1912	28.1	131	195	159	164	82.0	88.9	75.3	61.1	63.7	63.5	77.4	98.9
1913	82.4	201	137	205	142	117	93.1	67.5	52.9	54.3	36.8	42.8	102
1914	104	150	103	211	141	102	91.2	54.1	53.5	36.0	25.9	28.3	91.5
1915	49.8	-	-	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	162	81.3	123	39.5	26.3	24.1	-	-
1930	26.9	33.5	142	118	180	98.7	82.4	85.2	72.4	36.5	25.4	23.0	76.4
1931	54.9	95.4	87.8	176	147	151	177	60.0	65.7	51.5	30.1	38.0	94.1
1945	-	-	-	-	-	-	-	-	-	36.5	28.8	52.3	-

* Only monthly figures revised; revised daily figures not available.

* Not previously published; estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	1,450	1,520	-
1908	1,490	4,500	*8,180	*7,260	6,620	-	-	-	-	2,120	1,540	1,270	-
1909	*2,830	*5,120	6,700	12,500	12,600	10,800	5,720	5,420	2,330	1,220	1,000	1,070	*67,300
1910	1,360	*15,900	14,000	9,900	12,800	22,100	11,800	6,150	2,780	1,620	1,230	1,290	*101,000
1911	7,990	20,700	11,400	12,200	8,780	7,870	5,130	10,600	3,250	1,990	1,270	2,710	93,800
1912	1,730	7,800	12,100	9,780	9,430	5,040	5,290	4,630	3,640	3,920	3,900	4,610	71,900
1913	5,070	12,000	8,420	12,600	7,890	7,190	5,540	4,150	3,150	3,340	2,260	2,550	74,200
1914	6,400	8,930	6,330	13,000	7,830	6,270	5,430	3,330	3,180	2,210	1,590	1,680	66,200
1915	3,060	-	-	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	9,640	7,320	5,000	7,320	2,430	1,620	1,430	-
1930	1,650	1,990	8,730	7,260	10,000	6,070	4,900	5,240	4,310	2,240	1,560	1,370	55,300
1931	3,380	5,680	5,400	10,800	8,160	9,280	10,500	3,690	3,910	3,170	1,850	2,260	68,100
1945	-	-	-	-	-	-	-	-	-	2,240	1,770	3,110	-

* Revised.

* Not previously published; estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second, of Tokul Creek near Snoqualmie, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1907	412	-	-	-	-	-	-	-	-	-	-
1908	412	-	-	-	-	-	-	-	-	-	-
1909	1346, 412	312	Jan. 20, 1909	13	*93.0	*2.82	*38.25	*67,300	*116	*47.69	*83,900
1910	412	-	-	16	*139	*4.21	*57.31	*101,000	152	62.36	110,000
1911	412	-	-	16	130	3.94	53.39	93,800	104	42.82	75,400
1912	412	242	Nov. 20, 1911	27	98.9	3.00	40.80	71,900	104	43.02	75,700
1913	412	-	-	33	102	3.09	42.10	74,200	97.1	39.91	70,300
1914	412	350	Jan. 7, 1914	24	91.5	2.77	37.63	66,200	-	-	-
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	343	Dec. 15, 1929	22	76.4	2.25	30.49	55,300	79.3	31.64	57,400
1931	722	368	Apr. 2, 1931	21	94.1	2.77	37.58	68,100	-	-	-
1945	1042	-	-	-	-	-	-	-	-	-	-

* Revised.

† Not previously published.

223. Raging River near Fall City, Wash.

Location.--Lat 47°32'25", long. 121°54'30" (revised), on west line sec. 27, T. 24 N., R. 7 E., on left bank at highway crossing 2 miles southwest of Fall City and 2½ miles upstream from mouth.

Drainage area.--30.6 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 250 ft (from topographic map).

Average discharge.--5 years (1945-50), 161 cfs.

Extremes.--1945-50: Maximum discharge, 2,200 cfs Feb. 17, 1949 (gage height, 5.60 ft), from rating curve extended above 1,300 cfs on basis of contracted-opening determination of peak flow of Feb. 9, 1951, at gage height, 6.76 ft; minimum, 8.8 cfs Sept. 9, 10, 1949.

Remarks.--Some small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	17.3	13.0	93.3	-
1946	101	376	224	293	291	237	148	53.1	99.4	52.5	16.2	17.1	158
1947	84.9	236	387	254	226	141	171	38.0	78.9	28.9	15.0	39.8	141
1948	266	347	256	306	293	179	164	166	117	47.0	42.5	60.9	187
1949	92.3	314	307	112	328	230	110	97.8	26.2	21.3	14.1	13.1	138
1950	101	224	334	263	410	389	255	99.6	44.9	18.1	22.6	26.4	183

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	1,060	799	5,550	-
1946	6,200	22,490	13,760	18,030	16,190	14,550	8,780	3,260	5,920	3,230	998	1,020	114,400
1947	5,220	14,030	23,760	15,640	12,550	9,680	10,160	2,340	4,890	1,780	824	2,370	102,200
1948	16,360	20,680	15,720	18,820	16,830	11,030	9,790	10,220	6,950	2,890	2,610	3,620	135,500
1949	5,670	18,710	18,860	6,890	18,230	14,170	6,560	6,010	1,560	1,310	867	780	99,620
1950	6,210	13,310	20,550	17,400	22,750	23,890	15,170	6,120	2,670	1,110	1,390	1,570	132,100

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	1,380	Dec. 28, 1945	12.5	158	5.16	70.12	114,400	159	70.47	115,000
1947	1092	1,650	Dec. 11, 1946	10.5	141	4.61	62.60	102,200	155	68.56	111,900
1948	1122	1,850	Oct. 19, 1947	17.5	167	6.11	85.03	135,500	174	77.20	128,000
1949	1152	2,200	Feb. 17, 1949	8.8	138	4.51	81.03	99,620	133	59.09	96,450
1950	1182	2,050	Mar. 4, 1950	11	183	5.98	80.96	132,100	-	-	-

224. Patterson Creek near Fall City, Wash.

Location.--Lat 47°35'00", long. 121°56'25", in NW¼ sec. 8, T. 24 N., R. 7 E., on left bank 2 miles upstream from mouth and 2¼ miles northwest of Fall City.

Drainage area.--18.2 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 90 ft (from topographic map).

Extremes.--1947-50: Maximum discharge, 480 cfs Feb. 17, 1949 (gage height, 4.81 ft), from rating curve extended above 130 cfs; minimum, 7.1 cfs Aug. 23, 24, 27, 1947.

Remarks.--Some small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	30.3	35.6	13.5	19.0	10.1	8.57	10.8	-
1948	37.3	76.1	55.3	73.0	68.5	50.9	40.1	43.8	29.6	14.5	13.3	16.5	43.1
1949	19.3	57.9	51.5	32.0	94.5	39.0	25.4	21.5	12.7	10.2	9.11	10.9	31.6
1950	14.5	30.7	50.2	88.6	83.1	88.9	49.2	27.1	13.8	11.8	11.6	12.7	40.0

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	-	-	-	1,860	2,120	833	1,130	618	527	644	-
1948	2,290	4,530	3,400	4,490	3,940	3,130	2,360	2,690	1,780	889	819	990	31,300
1949	1,190	3,450	3,170	1,970	5,250	2,400	1,510	1,320	754	630	560	649	22,850
1950	895	1,830	3,090	5,450	4,620	5,460	2,930	1,660	823	727	713	758	28,960

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1947	1092	-	-	-	-	-	-	-	-	-	-	-
1948	1122	330	Oct. 19, 1947	10	45.1	2.37	32.24	31,300	39.8	29.75	28,890	-
1949	1152	480	Feb. 17, 1949	8.0	31.6	1.74	23.55	22,850	28.8	21.49	20,860	-
1950	1182	379	Jan. 22, 1950	10.5	40.0	2.20	29.82	28,960	-	-	-	-

225. Patterson Creek, eight-tenths mile above mouth, near Fall City, Wash. 1/

Location.--Lat 47°35'15", long. 121°55'40", on line between secs. 4 and 9, T. 24 N., R. 7 E., 50 ft upstream from county bridge, 0.8 mile upstream from mouth, and 2 miles northwest of Fall City.

Drainage area.--21.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 80 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge not determined, probably occurred Sept. 20 during period of no gage-height record; minimum, 7.3 cfs Aug. 8 (gage height, 1.33 ft).

Remarks.--Some small diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945	-	-	-	-	-	-	10.1	8.50	18.0	-	-	-

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945	-	-	-	-	-	-	624	523	1,070	-	-	-

1/ Published as Patterson Creek near Fall City, 1945.

226. Griffin Creek near Tolt, Wash.

Location.--Lat 47°37'00", long. 121°54'30", in SE $\frac{1}{4}$ sec. 28, T. 25 N., R. 7 E., on right bank 300 ft upstream from bridge on State Highway 15B, half a mile upstream from mouth, and 2 miles south of Tolt.

Drainage area.--17.1 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Average discharge.--5 years (1945-50), 48.3 cfs.

Extremes.--1945-50: Maximum discharge, 522 cfs Oct. 19, 1947 (gage height, 4.01 ft), from rating curve extended above 280 cfs; minimum, 2.4 cfs Sept. 13, 1949; minimum gage height, 0.75 ft Aug. 22, 23, 1945.

Remarks.--Several small diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	4.82	3.51	15.8	-
1946	18.2	117	64.4	76.5	87.6	84.6	38.4	11.6	22.6	13.9	5.37	5.62	45.1
1947	18.2	77.5	105	99.5	89.2	37.3	67.2	14.1	20.5	9.89	4.41	8.46	45.6
1948	66.4	123	88.9	119	102	55.6	48.5	58.9	39.2	17.9	14.6	17.0	62.4
1949	26.8	117	75.1	39.8	101	62.0	23.9	20.9	7.40	4.64	3.28	4.12	40.0
1950	14.1	64.0	74.3	87.0	116	114	59.1	33.0	8.72	4.85	4.56	4.77	48.4

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	296	216	938	-
1946	1,120	6,940	3,960	4,700	4,870	5,200	2,290	713	1,340	856	330	335	32,650
1947	1,120	4,610	6,440	6,120	4,950	2,290	4,000	868	1,220	608	271	503	33,000
1948	4,080	7,310	5,460	7,300	5,880	3,420	2,880	3,620	2,330	1,100	896	1,010	45,290
1949	1,650	6,960	4,620	2,450	5,630	3,810	1,420	1,280	441	285	202	245	28,990
1950	869	3,810	4,570	5,350	6,470	7,020	3,510	2,030	519	298	280	284	35,010

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Runoff Acre-feet	Mean	Runoff	
		Discharge	Date							Inches	Acre-feet
1945	1042	-	-	-	-	-	-	-	-	-	-
1946	1062	209	Feb. 6, 1946	4.5	45.1	2.64	35.81	32,650	45.3	35.98	32,800
1947	1092	306	Dec. 15, 1946	3.4	45.6	2.67	36.19	33,000	52.1	41.34	37,680
1948	1122	522	Oct. 19, 1947	7.0	62.4	3.65	49.67	45,290	57.4	45.67	41,670
1949	1152	393	Feb. 17, 1949	2.6	40.0	2.34	31.78	28,990	34.5	27.43	25,010
1950	1182	462	Mar. 4, 1950	3.8	48.4	2.83	38.39	35,010	-	-	-

227. Tolt River near Tolt, Wash.

Location (revised).--Lat 47°41'45", long. 121°49'30", in S $\frac{1}{2}$ NE $\frac{1}{4}$ sec. 31, T. 26 N., R. 8 E., on right bank 500 ft downstream from the forks, a quarter of a mile upstream from Stossel Creek, and 5 miles northeast of Tolt.

Drainage area.--79.7 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 348 ft above mean sea level (from river-profile survey). Aug. 10 to Oct. 30, 1928, staff gage and Oct. 31, 1928, to Jan. 3, 1932, water-stage recorder 350 ft upstream at datum 7.1 ft higher.

Average discharge.--16 years (1928-31, 1937-50), 574 cfs (revised).

Extremes.--1928-32, 1937-50: Maximum discharge, 12,700 cfs (revised) Jan. 7, 1945 (gage height, 12.14 ft), from rating curve extended above 5,700 cfs on basis of slope-area determination of peak flow of Feb. 9, 1951 at gage height, 12.92 ft; minimum, 63 cfs Sept. 25, 26, 1940.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Tolt River near Tolt, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	-	90.6	-
1929	679	333	344	246	163	671	574	882	785	228	162	100	433
1930	166	155	606	404	*1,260	581	587	509	411	148	82.9	121	*413
1931	462	395	421	794	512	848	671	417	460	189	95.1	293	463
1932	470	674	582	-	-	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	-	-	-	-	-	121	-
1938	343	1,417	990	841	362	504	1,058	625	275	121	84.2	77.3	558
1939	255	1,017	1,172	*1,207	581	642	731	829	905	424	138	167	*665
1940	450	664	1,029	534	869	898	609	560	216	128	97.2	72.9	510
1941	451	589	689	560	329	289	289	488	361	145	93.1	529	399
1942	787	529	916	398	485	498	553	624	867	295	145	94.2	517
1943	329	1,029	1,085	543	740	646	866	735	582	296	136	113	530
1944	335	376	862	519	481	482	712	894	458	162	125	587	499
1945	356	755	711	1,086	706	657	715	1,102	424	173	113	472	605
1946	553	1,097	839	869	719	800	782	888	909	378	151	131	675
1947	536	752	1,460	1,084	1,044	654	979	509	613	268	142	219	686
1948	891	1,535	1,024	687	710	509	709	1,208	942	339	409	398	763
1949	465	1,101	689	355	730	816	794	1,078	551	397	196	226	615
1950	663	900	1,036	859	1,070	1,189	886	917	1,064	506	302	193	797

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	-	5,390	-
1929	41,800	19,800	21,200	15,100	9,050	41,300	34,200	54,200	46,700	14,000	9,960	5,950	313,000
1930	10,200	9,220	37,300	24,800	*70,000	35,700	34,900	31,300	24,500	9,100	5,100	7,200	*299,000
1931	28,400	23,500	25,900	48,800	28,400	52,100	39,900	25,600	27,400	11,600	5,850	17,400	335,000
1932	28,900	40,100	35,800	-	-	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	-	-	-	-	-	7,220	-
1938	21,090	84,320	60,860	51,710	20,110	30,960	62,980	38,430	16,360	7,460	5,180	4,600	404,100
1939	15,700	60,540	72,050	*74,200	32,270	39,500	43,480	50,970	47,910	26,100	8,490	9,910	*481,100
1940	27,670	39,510	63,260	32,810	49,970	55,200	36,250	34,450	12,840	7,870	5,980	4,340	370,200
1941	27,730	35,050	42,360	34,450	18,290	17,770	17,200	28,780	21,470	8,920	5,730	31,490	289,200
1942	48,380	31,450	56,310	24,450	26,960	30,530	33,490	38,340	51,610	18,170	8,910	5,610	374,200
1943	20,250	61,220	66,730	33,380	41,100	39,710	51,560	45,270	34,630	18,180	8,380	6,730	427,100
1944	20,570	22,350	53,020	31,900	27,660	29,650	42,390	54,960	27,240	9,960	7,670	34,930	362,300
1945	21,890	44,920	43,740	66,760	39,190	40,400	42,570	67,740	25,230	10,640	6,970	28,110	438,200
1946	33,980	65,290	51,600	53,410	39,940	49,220	46,500	54,580	54,080	23,240	9,310	7,800	488,000
1947	32,950	44,760	89,780	66,680	57,960	40,210	58,260	31,320	36,450	16,500	8,740	13,010	496,600
1948	54,760	79,340	82,970	42,250	40,850	31,290	42,180	74,280	56,040	20,850	25,150	23,670	553,600
1949	28,590	65,530	42,350	21,820	40,540	50,170	47,250	66,310	32,800	24,380	12,070	13,450	445,300
1950	40,790	53,530	63,720	52,810	59,420	73,130	52,720	56,410	63,320	31,140	18,590	11,470	577,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1928	692	-	-	-	-	-	-	-	-	-	-
1929	692	*4,090	Oct. 9, 1928	72	433	5.43	73.67	315,000	397	67.55	287,000
1930	1286,707	-	-	68	*413	*5.18	*70.35	*299,000	*442	*75.32	*320,000
1931	722	3,250	Oct. 26, 1930	76	463	5.81	78.80	335,000	500	85.15	362,000
1932	737	-	-	-	-	-	-	-	-	-	-
1937	862	-	-	-	-	-	-	-	-	-	-
1938	862	*10,600	Apr. 18, 1938	64	558	7.00	95.06	404,100	533	90.83	386,100
1939	1286,882	4,800	Nov. 16, 1938	67	*665	8.34	*113.18	*481,100	640	108.98	463,300
1940	902	4,680	Nov. 7, 1939	63	510	6.40	87.08	370,200	475	81.13	344,800
1941	932	8,250	Nov. 28, 1940	77	399	5.01	68.04	289,200	442	75.34	320,200
1942	962	5,190	Dec. 19, 1941	79	517	6.49	88.03	374,200	534	90.87	386,300
1943	962	*12,300	Oct. 31, 1942	82	590	7.40	100.49	427,100	518	88.19	374,900
1944	1012	9,210	Dec. 2, 1943	91	499	6.26	85.23	362,300	519	88.67	376,900
1945	1042	*12,700	Jan. 7, 1945	97	605	7.59	103.08	438,200	661	112.56	478,500
1946	1062	4,960	Oct. 25, 1945	98	675	8.47	115.03	489,000	698	118.94	505,600
1947	1092	8,450	Oct. 25, 1946	104	686	8.81	116.33	495,600	727	123.78	526,200
1948	1122	7,720	Oct. 19, 1947	122	763	9.57	130.25	553,600	679	115.99	493,000
1949	1152	7,250	Nov. 23, 1948	99	615	7.72	104.75	445,300	645	109.83	466,800
1950	1182	10,600	Mar. 4, 1950	104	797	10.0	135.76	577,000	-	-	-

* Revised.

228. Snoqualmie River near Tolt, Wash.

Location.--Lat 47°39'55", long. 121°55'30" in W $\frac{1}{2}$ sec. 9, T. 25 N., R. 7 E., on left bank 100 ft downstream from highway bridge, 1 mile northwest of Tolt, and 2 miles downstream from Tolt River.

Drainage area.--608 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is at mean sea level, unadjusted. Prior to Dec. 20, 1933, chain or wire-weight gage and Dec. 20, 1933, to Sept. 30, 1939, water-stage recorder at datum 42.96 ft higher.

Since Dec. 21, 1933, auxiliary water-stage recorder $1\frac{1}{4}$ miles upstream from base gage.

Average discharge.--22 years (1928-50), 3,673 cfs.

Extremes.--1928-50: Maximum discharge (revised), 59,500 cfs Feb. 27, 1932; maximum elevation observed, 59.93 ft Nov. 13, 1932; minimum discharge recorded, 239 cfs Aug. 21, 1945, but may have been less sometime during period of faulty intake action Sept. 13 or 14, 1949; minimum daily discharge, 396 cfs Sept. 24, 1938; minimum elevation recorded, 43.30 ft Sept. 11, 1930.

Remarks.--Several small diversions for irrigation and domestic use above station. Low flow regulated by powerplant at Snoqualmie Falls.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	4,470	1,980	2,140	1,260	873	3,850	3,470	6,360	5,960	1,930	693	521	2,810
1930	761	792	3,930	1,920	6,780	3,510	4,040	3,430	3,000	963	492	547	2,480
1931	2,760	2,230	1,870	5,290	3,420	4,720	4,850	4,280	3,500	1,200	509	1,250	2,990
1932	2,830	4,400	5,530	5,180	5,540	9,980	6,800	5,620	5,450	3,320	1,340	1,180	4,590
1933	3,080	12,800	6,840	6,960	2,380	4,560	4,060	5,730	7,740	4,000	1,420	3,020	5,190
1934	5,760	8,712	14,530	9,550	4,003	5,122	4,244	3,178	1,587	1,067	773	1,106	4,823
1935	4,434	6,381	5,319	8,530	3,974	3,282	2,842	3,626	3,584	2,126	1,001	779	3,827
1936	994	2,681	3,199	6,055	2,207	4,228	4,934	7,847	5,570	1,881	716	963	3,445
1937	871	667	5,688	1,291	3,233	4,052	5,414	5,646	6,856	2,197	1,059	794	3,144
1938	1,909	8,851	6,019	4,814	2,065	2,946	5,962	4,585	2,780	1,090	583	435	3,509
1939	1,196	3,942	6,105	6,376	5,516	3,711	4,112	5,031	4,906	2,811	902	851	3,624
1940	2,325	3,509	6,277	3,019	4,640	5,089	4,043	4,422	1,803	840	626	517	3,091
1941	2,012	2,925	3,894	2,941	2,001	1,933	2,230	3,072	2,250	966	523	3,032	2,314
1942	4,309	3,401	5,929	2,222	2,648	2,646	3,677	4,117	6,035	2,206	899	576	3,224
1943	1,018	6,979	6,000	3,110	3,772	3,638	5,546	4,921	4,881	2,713	1,023	791	3,689
1944	1,869	2,101	5,123	2,511	2,658	2,721	3,869	5,224	3,263	1,153	734	2,563	2,815
1945	1,664	3,402	3,883	6,161	4,960	3,740	4,144	6,588	3,626	1,472	615	2,574	3,551
1946	3,309	6,693	4,835	4,861	3,862	4,315	4,655	6,333	6,233	3,081	1,028	811	4,166
1947	3,059	4,081	6,890	6,198	5,674	3,833	5,601	4,265	3,994	1,846	899	1,614	4,137
1948	5,811	8,282	5,634	4,632	3,981	3,207	4,037	7,238	7,372	2,740	2,015	1,933	4,737
1949	2,739	5,494	4,168	2,118	4,264	4,546	4,747	7,191	4,541	3,087	1,528	1,228	3,798
1950	3,520	5,279	5,427	4,729	5,545	7,093	5,235	5,872	7,850	4,410	2,133	1,109	4,844

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year	
1929	275,000	118,000	132,000	77,500	48,500	237,000	206,000	391,000	355,000	119,000	42,600	31,000	2,030,000	
1930	46,800	47,100	242,000	118,000	377,000	216,000	240,000	211,000	179,000	59,200	30,300	32,500	1,800,000	
1931	170,000	133,000	115,000	325,000	190,000	290,000	289,000	263,000	208,000	73,800	31,300	74,400	2,160,000	
1932	174,000	262,000	217,000	319,000	319,000	614,000	405,000	346,000	324,000	204,000	82,400	70,200	3,340,000	
1933	189,000	762,000	408,000	428,000	132,000	268,000	242,000	352,000	461,000	246,000	87,300	80,000	3,780,000	
1934	554,200	399,400	693,500	587,200	222,300	141,900	252,600	195,400	93,240	65,610	47,560	65,820	3,492,000	
1935	272,600	79,700	105,240	502,200	70,200	160,169	100,222	90,215	50,130	70,610	61,550	46,360	2,770,000	
1936	61,100	159,600	196,700	372,300	126,900	260,000	293,600	482,500	331,400	115,600	44,030	57,310	2,501,000	
1937	53,550	39,690	549,700	79,370	179,600	249,000	322,200	347,200	408,000	135,100	65,140	47,250	2,276,000	
1938	117,400	626,700	703,700	1,002,960	114,700	181,200	354,800	281,900	651,400	67,010	35,830	29,360	2,540,000	
1939	73,550	234,500	305,750	400,392	100,195	302,280	202,440	700,809	300,291	900,172	50,440	50,640	2,824,000	
1940	142,900	208,800	386,000	185,600	266,900	312,900	240,600	271,900	107,300	51,620	38,470	30,790	2,244,900	
1941	123,700	174,000	239,400	180,900	111,200	118,900	132,700	188,900	133,900	59,380	32,180	80,400	1,676,000	
1942	264,900	202,400	564,500	363,600	147,100	162,700	218,800	253,100	359,100	135,600	55,280	34,270	2,334,000	
1943	62,610	145,300	668,900	191,200	209,500	223,700	330,000	302,600	290,660	800	62,900	47,070	2,671,000	
1944	114,900	125,000	515,000	154,400	152,900	167,300	230,300	203,210	1,200	194,200	70,880	45,110	2,520,000	
1945	102,300	202,400	238,800	78,800	269,900	229,900	202,460	600,405	1,002,150	800	90,540	37,850	2,571,000	
1946	203,500	398,300	297,500	298,900	214,500	265,300	277,000	408,370	900,189	400	63,180	48,290	3,016,000	
1947	189,100	242,800	534,300	81,100	133,150	102,350	700	322,300	237,700	113,500	55,270	96,060	2,995,000	
1948	357,500	492,800	546,400	284,800	229,000	197,200	240,445	100,438	700	168,500	23,900	115,000	3,439,000	
1949	168,400	326,900	256,500	300,130	200,236	807,279	602,820	500,442	1,020,700	200	69,800	93,930	73,050	2,750,000
1950	216,400	154,100	333,700	290,800	308,000	436,100	311,500	561,100	467,100	271,200	231,100	65,960	3,507,000	

† Corrected.

Yearly discharge, in cubic feet per second, of Snoqualmie River near Tolt, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Runoff	
		Discharge	Date				Inches	Acre-feet	Mean	Inches Acre-feet
1929	692,870	-	-	-	2,810	4.62	62.71	2,030,000	2,550	56.88 1,840,000
1930	707	14,800	(a)	415	2,480	4.08	55.46	1,800,000	2,600	57.98 1,880,000
1931	722	27,400	Jan. 28, 1931	415	2,990	4.92	66.65	2,160,000	3,310	73.90 2,400,000
1932	757	*59,500	Feb. 27, 1932*	620	4,590	7.55	102.85	3,340,000	5,570	124.65 4,040,000
1933	752	*59,000	Nov. 15, 1932	560	5,190	8.54	115.62	3,760,000	5,580	124.68 4,040,000
1934	767	41,000	Dec. 10, 1933	618	4,823	7.95	107.68	3,492,000	3,901	87.09 2,824,000
1935	792	47,100	Oct. 25, 1934	542	3,827	6.29	85.43	2,770,000	3,050	68.10 2,208,000
1936	812	16,100	May 16, 1936	441	3,445	5.67	77.13	2,501,000	3,480	77.92 2,527,000
1937	832	17,200	Apr. 15, 1937	535	3,144	5.17	70.19	2,276,000	3,933	87.80 2,847,000
1938	862	38,800	Apr. 18, 1938	396	3,509	5.77	78.34	2,540,000	3,052	68.14 2,210,000
1939	882	22,800	Dec. 8, 1938	450	3,624	5.96	80.92	2,624,000	3,699	82.59 2,678,000
1940	902	18,900	Dec. 16, 1939	420	3,091	5.08	69.20	2,244,000	2,815	63.01 2,043,000
1941	932	20,000	Nov. 29, 1940	446	2,314	3.81	51.67	1,676,000	2,721	60.76 1,970,000
1942	962	19,700	Dec. 19, 1941	467	3,224	5.30	71.99	2,334,000	3,245	72.45 2,349,000
1943	982	30,300	Nov. 24, 1942	416	3,689	6.07	82.37	2,671,000	3,286	73.37 2,379,000
1944	1012	48,400	Dec. 3, 1943	526	2,815	4.63	63.02	2,044,000	2,799	62.67 2,032,000
1945	1042	32,000	Jan. 8, 1945	453	3,551	5.84	79.29	2,571,000	4,043	90.25 2,927,000
1946	1062	23,500	Oct. 26, 1945	623	4,166	6.85	93.00	3,016,000	4,257	95.05 3,082,000
1947	1092	32,600	Dec. 11, 1946	640	4,137	6.80	92.37	2,995,000	4,457	99.50 3,227,000
1948	1122	24,800	(b)	1,010	4,737	7.79	106.05	3,439,000	4,124	92.33 2,994,000
1949	1152	20,200	Nov. 24, 1948	672	3,798	6.25	84.80	2,750,000	3,954	88.27 2,862,000
1950	1182	30,100	Mar. 4, 1950	650	4,844	7.97	108.15	3,507,000	-	-

* Revised.

† Corrected.

a Dec. 14, 1929, Feb. 5, 1930.

b Oct. 19, Nov. 8, 1947.

229. Harris Creek near Tolt, Wash.

Location.--Lat 47°40'40", long. 121°54'30", in SE $\frac{1}{4}$ sec. 4, T. 25 N., R. 7 E., on right bank $\frac{1}{2}$ mile upstream from mouth and 1.8 miles north of Tolt.

Drainage area.--9.57 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 80 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge, 15 cfs Sept. 30, caused by destruction of beaver dam upstream, (gage height, 0.97 ft); minimum, 2.3 cfs Aug. 21, 22, Sept. 1-3 (gage height, 0.59 ft).

Remarks.--Several small diversions for irrigation and domestic use above station. Flow affected at times by removal of beaver dams above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	3.45	2.95	4.32	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	212	181	257	-		

230. Ames Creek near Tolt, Wash.

Location.--Lat 47°39'40", long. 121°57'55", in SW $\frac{1}{4}$ sec. 7, T. 25 N., R. 7 E., on right bank $2\frac{1}{2}$ miles upstream from mouth and $2\frac{1}{2}$ miles west of Tolt.

Drainage area.--3.17 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Extremes.--June to October 1945: Maximum discharge, 14 cfs Sept. 20 (gage height, 1.60 ft); minimum, 1.4 cfs July 24, 27 (gage height, 1.18 ft).

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	1.85	1.99	2.64	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945						-	114	122	157	-		

231. Cherry Creek near Duvall, Wash.

Location.--Lat 47°44'40", long. 121°56'35", in NW¼ sec. 17, T. 26 N., R. 7 E., on left bank 2 miles east of Duvall and 2 miles (revised) upstream from mouth.

Drainage area.--19.9 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 90 ft (from topographic map).

Extremes.--1945-48: Maximum discharge, 918 cfs Feb. 2, 1947 (gage height, 3.65 ft); minimum, 2.2 cfs Aug. 26, 27, 1947.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	5.60	4.51	10.1	-
1946	12.4	111	8.59	116	107	70.7	35.5	12.9	3.66	17.2	3.65	3.95	50.6
1947	18.2	114	153	115	165	41.6	76.3	13.6	27.4	13.0	3.69	6.79	61.5
1948	68.4	182	132	131	104	64.0	66.5	63.5	41.3	18.3	18.4	19.9	75.6
1949	36.8	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	-	-	-	-	-	-	345	277	604	-
1946	763	6,580	5,280	7,110	5,930	4,350	2,110	793	2,170	1,060	225	235	36,610
1947	1,120	6,800	9,390	7,090	9,150	2,560	4,540	834	1,630	799	227	404	44,540
1948	4,210	10,860	8,100	8,060	5,990	3,940	3,960	3,910	2,460	1,120	1,130	1,180	54,920
1949	2,260	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1945	1042	-	-	-	-	-	-	-	-	-	-	-
1946	1062	512	Feb. 27, 1946	2.8	50.6	2.54	34.51	36,610	56.8	38.91	41,130	
1947	1092	918	Feb. 2, 1947	2.2	61.5	3.09	41.95	44,540	69.6	47.47	50,400	
1948	1122	689	Oct. 19, 1947	4.4	75.6	3.80	51.72	54,920	-	-	-	
1949	1122	-	-	-	-	-	-	-	-	-	-	

232. Evans Creek near Snohomish, Wash.

Location.--Lat 47°50'30", long. 122°05'00", in SW¼NE¼ sec. 7, T. 27 N., R. 6 E., on right bank 300 ft upstream from county bridge, half a mile upstream from mouth, and 5 miles south of Snohomish.

Drainage area.--2.75 sq mi.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 20 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge not determined (revised), probably occurred Oct. 25 during period of missing gage-height record; minimum, 2.7 cfs Aug. 26.

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	3.86	3.23	3.28	4.45		

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	237	198	195	274		

* Not previously published; partly estimated on the basis of records for nearby streams.

233. French Creek near Monroe, Wash.

Location.--Lat 47°53'40", long. 122°00'40", on west line SW $\frac{1}{4}$ sec. 23, T. 28 N., R. 6 E., on right bank at highway crossing 3 miles northwest of Monroe.

Drainage area.--7.09 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 35 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge, 16 cfs (regulated) Aug. 9, Oct. 25; maximum gage height, 1.77 ft Oct. 25; minimum discharge, 0.34 cfs Aug. 9, 10, 17 (gage height, 1.14 ft).

Remarks.--City of Everett at times wastes water from filtration plant into French Creek above station causing minor regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1946						-	3.07	1.11	1.05	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1946						-	189	68	62	-			

234. Pilchuck River below Worthy Creek, near Granite Falls, Wash.

Location.--Lat 48°01'20", long. 121°53'10", in SE $\frac{1}{4}$ sec. 3, T. 29 N., R. 7 E., on right bank three-quarters of a mile downstream from Worthy Creek and 5 $\frac{1}{2}$ miles southeast of Granite Falls.

Drainage area.--41.7 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge, 294 cfs June 30 (gage height, 3.46 ft), from rating curve extended above 140 cfs; minimum, 40 cfs Sept. 2, 3, 29 (gage height, 1.65 ft).

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1946						-	123	52.6	56.9	-			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1946						-	7,570	3,230	3,380	-			

235. Pilchuck River near Granite Falls, Wash.

Location.--Lat 48°03'15", long. 121°57'25", in SE $\frac{1}{4}$ sec. 30, T. 30 N., R. 7 E., on right bank 200 ft upstream from county road bridge and 2 miles southeast of Granite Falls.

Drainage area.--53.5 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 340 ft (from topographic map). May 31 to Oct. 12, 1911, staff gage at different datum. Jan. 14, 1943, to July 9, 1946, staff gage at present datum.

Average discharge.--7 years (1943-50), 350 cfs.

Extremes.--1911, 1943-50: Maximum discharge, 11,800 cfs (revised) Oct. 25, 1945 (gage height, 10.4 ft, revised, from graph based on gage readings), from rating curve extended above 2,400 cfs on basis of slope-area determination at gage height 8.00 ft; minimum, 31 cfs Sept. 9, 10, 11, 1944; minimum gage height, 1.89 ft Aug. 23, 24, 1945.

Remarks.--City of Snohomish diverts about 5 cfs, 5 miles above station, for municipal use. Slight regulation at low flow; cause unknown.

Monthly and yearly mean discharge, in cubic feet per second, of Pilchuck River near Granite Falls, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	172	91.0	53.4	239	-
1912	-	-	-	-	-	-	-	-	-	-	-	-	-
1943	-	-	-	255	447	314	362	322	199	108	51.8	40.2	-
1944	181	195	*408	292	264	321	309	*428	170	54.7	53.9	259	*245
1945	172	552	312	766	478	487	409	386	162	72.0	55.3	304	345
1946	*542	645	357	560	579	588	336	229	407	152	58.7	61.9	*375
1947	343	455	733	593	535	282	472	170	294	103	57.0	131	346
1948	446	680	608	475	516	359	471	454	321	144	180	214	403
1949	235	554	509	178	550	547	342	321	151	151	90.6	132	312
1950	386	517	721	455	775	739	550	321	290	148	97.0	86.0	422

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	10,200	5,600	3,280	14,200	-
1912	-	-	-	-	-	-	-	-	-	-	-	-	-
1943	-	-	-	15,710	24,800	19,330	21,520	19,820	11,870	6,640	3,180	2,390	-
1944	11,110	11,590	*25,080	17,970	15,180	19,750	18,400	*25,290	10,110	3,360	3,320	15,430	*177,600
1945	10,580	32,830	19,210	47,100	26,540	29,930	24,360	23,700	9,680	4,430	3,400	18,110	249,800
1946	*33,340	38,370	21,960	34,440	32,180	36,170	20,000	14,100	24,210	9,320	3,610	3,680	*271,400
1947	21,100	27,090	45,090	36,450	29,700	17,340	28,080	10,430	17,480	6,360	3,510	7,800	250,400
1948	27,390	39,250	37,360	29,180	29,670	22,040	28,000	27,900	19,100	8,830	11,070	12,710	292,500
1949	14,450	32,970	31,280	10,920	30,550	33,630	20,370	19,750	9,010	9,310	5,570	7,870	225,700
1950	23,760	30,740	44,510	28,000	43,030	45,440	32,700	19,730	17,280	9,110	5,960	5,120	305,200

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1911	312	-	-	-	-	-	-	-	-
1912	312	-	-	-	-	-	-	-	-
1943	982	-	-	-	-	-	*239	*173,000	
1944	1286, 1012	*4,290	May 24, 1944	31	*245	*177,600	*265	*192,400	
1945	1042	*8,900	Jan. 7, 1945	46	345	249,800	*368	*280,900	
1946	1286, 1062	*11,800	Oct. 25, 1945	48	*375	*271,400	374	271,000	
1947	1092	*7,520	Oct. 25, 1946	40	346	250,400	361	261,200	
1948	1122	*5,620	Oct. 19, 1947	62	403	292,500	368	287,200	
1949	1152	4,560	Feb. 17, 1949	44	312	225,700	340	245,800	
1950	1182	5,420	Feb. 24, 1950	41	422	305,200	-	-	

* Revised.

236. Little Pilchuck Creek near Lake Stevens, Wash.

Location.--Lat 48°02'00" long. 122°03'00", in NW¹/₄NW¹/₄ sec. 4, T. 29 N., R. 6 E., on right bank just downstream from highway crossing 1½ miles northeast of Lake Stevens, and 2 miles upstream from Stevens Creek.

Drainage area.--17.5 sq mi.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 200 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 322 cfs Nov. 11, 1947; maximum gage height, 4.65 ft Feb. 26, 1950; minimum discharge, 1.3 cfs Aug. 24, 1946, Sept. 13, 22, 1950 (gage height, 0.74 ft).

Remarks.--Several small diversions for domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	7.53	1.81	1.88	-
1947	6.67	39.2	71.7	55.0	50.2	26.3	45.4	6.73	7.04	3.35	2.06	2.56	26.2
1948	13.9	102	82.8	62.7	67.9	41.3	43.5	45.9	24.6	6.55	3.83	4.76	41.5
1949	32.9	53.9	85.9	30.0	88.4	49.9	20.2	21.8	2.66	2.55	2.34	2.37	32.4
1950	5.78	30.6	70.4	63.3	105	82.9	41.3	12.1	4.05	2.12	1.85	1.78	34.7

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	463	111	112	-
1947	410	2,530	4,410	3,380	2,790	1,620	2,700	414	419	206	127	152	18,960
1948	853	6,080	5,090	3,660	3,900	2,540	2,590	2,820	1,460	403	235	283	30,110
1949	2,020	3,210	5,280	1,840	4,910	3,070	1,200	1,340	158	157	144	141	23,470
1950	355	1,820	4,330	3,890	5,840	5,100	2,460	745	241	130	114	106	25,130

Yearly discharge, in cubic feet per second, of Little Pilchuck Creek near Lake Stevens, Wash.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1946	1062	-	-	-	-	-	-	-
1947	1092	199	Dec. 12, 1946	1.7	26.2	18,950	32.9	23,830
1948	1122	322	Nov. 11, 1947	1.9	41.5	30,110	39.4	28,600
1949	1152	284	()	1.6	32.4	23,470	26.9	19,460
1950	1182	312	Feb. 26, 1950	1.5	34.7	25,130	-	-

a Feb. 17 or Feb. 22, 1949.

237. Stevens Creek at Lake Stevens, Wash.

Location.--Lat 48°01'00", long. 122°03'10", in E $\frac{1}{2}$ sec. 8, T. 29 N., R. 6 E., on left bank at county bridge, a third of a mile east of town of Lake Stevens, and three-quarters of a mile upstream from mouth.

Drainage area.--15.3 sq mi.

Gage.--Staff gage. Altitude of gage is 210 ft (from topographic map).

Extremes.--1946-50: Maximum discharge observed, 136 cfs Mar. 6, 1950 (gage height, 2.72 ft); no flow Aug. 26 to Sept. 25, 1950.

Remarks.--Several small diversions for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	5.96	0.68	0.38	-
1947	2.23	14.9	56.0	44.4	53.6	35.0	31.8	15.3	6.11	2.28	.50	-	21.7
1948	5.13	46.6	61.3	65.9	55.7	46.7	42.6	44.3	41.6	15.3	6.39	3.64	36.2
1949	19.4	24.7	59.4	36.3	50.9	49.0	24.7	21.0	3.54	.91	.30	.16	24.1
1950	1.19	18.4	46.6	66.3	75.8	85.3	43.8	15.6	5.07	1.59	.15	.03	29.8

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	367	42	23	-
1947	137	887	3,450	2,730	2,980	2,150	1,890	938	363	140	38	30	15,730
1948	315	2,770	3,770	4,050	3,200	2,870	2,530	2,720	2,480	942	393	217	26,260
1949	1,190	1,470	3,650	2,230	2,830	3,010	1,470	1,290	210	56	18	9.5	17,430
1950	73	1,090	2,870	4,080	4,210	5,250	2,610	961	302	98	9.3	1.6	21,550

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1946	1062	-	-	-	-	-	-	-
1947	1092	95	Jan. 26, 1947	0.2	21.7	15,730	25.0	18,110
1948	1122	107	Feb. 26, 1948	.2	36.2	26,260	35.4	25,710
1949	1152	127	Feb. 22, 1949	.1	24.1	17,430	20.9	15,160
1950	1182	136	Mar. 6, 1950	0	29.8	21,550	-	-

238. Dubuque Creek near Lake Stevens, Wash.

Location (revised).--Lat 47°58'25", long. 122°01'40", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 22, T. 29 N., R. 6 E., on left bank 300 ft upstream from Panther Creek and $2\frac{1}{2}$ miles southeast of town of Lake Stevens.

Drainage area.--9.10 sq mi (revised).

Gage.--Water-stage recorder and wooden control. Altitude of gage is 150 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 390 cfs Feb. 22, 1949, Mar. 6, 1950, from rating curve extended above 100 cfs on basis of critical-depth determination of peak flow at gage height, 4.35 ft; maximum gage height, 4.70 ft Nov. 11, 1947; minimum discharge, 0.2 cfs on many days during July 1949, August and September 1950.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	0.693	0.756	-	-
1947	3.27	25.1	39.0	37.6	36.9	12.1	26.3	3.06	2.80	0.96	.49	.76	15.5
1948	15.3	61.7	46.8	41.3	41.5	16.9	20.1	22.7	10.7	1.96	1.43	2.88	23.5
1949	*11.2	29.3	34.2	12.8	66.8	22.1	7.13	7.86	.61	.75	.47	.81	*15.8
1950	5.81	21.1	33.5	41.3	71.1	59.5	17.6	7.17	1.80	.51	.27	.50	21.4

* Revised.

Monthly and yearly runoff, in acre-feet, of Dubuque Creek near Lake Stevens, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	-	43	45	-
1947	201	1,490	2,400	2,310	2,050	746	1,560	188	167	59	30	45	11,250
1948	939	3,670	2,880	2,540	2,390	1,040	1,190	1,390	639	120	88	171	17,060
1949	*686	1,750	2,110	775	3,710	1,360	424	483	36	46	29	48	*11,460
1950	357	1,250	2,060	2,540	3,950	3,660	1,050	441	107	31	17	30	15,490

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	-	-	-	-	-	-	-	-	-	-
1947	1152	200	Feb. 2, 1947	0.4	15.5	1.70	23.16	11,250	20.2	30.16	14,640
1948	1152	397	Nov. 11, 1947	.3	23.5	2.58	35.14	17,060	*19.4	*29.07	*14,110
1949	1346, 1152	390	Feb. 22, 1949	.2	*15.8	*1.74	*23.61	*11,460	14.6	21.82	10,580
1950	1182	390	Mar. 6, 1950	.2	21.4	2.35	31.89	15,490	-	-	-

* Revised.

Note.--Station discontinued Dec. 1, 1950. October 1950: 3.60 cfs; 221 acre-ft. November 1950: 23.8 cfs; 1,420 acre-ft.

239. Panther Creek near Lake Stevens, Wash.

Location (revised).--Lat 47°59'25", long. 122°01'40", in NW¼NW¼ sec. 22, T. 29 N., R. 6 E., on right bank 300 ft upstream from mouth and 2½ miles southeast of town of Lake Stevens.

Drainage area.--5.93 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 140 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge, 107 cfs (regulated) July 6 (gage height, 3.35 ft); minimum, 1.1 cfs Sept. 13, Oct. 3, 4 (gage height, 1.42 ft).

Remarks.--City of Everett frequently wastes large quantities of water into Panther Creek from their industrial water-supply pipe line several miles above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	24.3	32.3	11.0	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	1,500	1,990	652	-		

240. Snohomish River at Snohomish, Wash.

Location (revised).--Lat 47°54'40", long. 122°05'50", in SE¼ sec. 13, T. 28 N., R. 5 E., on downstream end of drawrest of bridge No. 205 on State Highway 1A in Snohomish.

Drainage area.--1,720 sq mi (revised), approximately.

Gage.--Water-stage recorder. Datum of gage is 10 ft below mean sea level, datum of 1929. Auxiliary water-stage recorder, 2½ miles downstream from base gage.

Extremes.--1941-50: Maximum discharge (revised), 70,000 cfs Dec. 15, 1946, obtained from auxiliary gage height and stage-fall relation curve for period of no base gage-height record; maximum gage height recorded, 27.5 ft Nov. 27, 1949. Maximum stage known, 35 ft at base gage and 31 ft at auxiliary gage in 1906, from flood profile furnished by Corps of Engineers.

Remarks.--Station operated for flood flows only; discharges below 10,000 cfs not generally computed. Large diurnal fluctuation because of tides; discharge computed by using fall as factor. No appreciable regulation or diversion at stages for which discharges are published.

Monthly and yearly mean discharge, in cubic feet per second, of Snohomish River at Snohomish, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	15,290	-	-	-	10,570	12,240	16,120	-	-	-	-
1943	-	16,360	14,620	-	9,370	-	15,670	13,590	14,080	-	-	-	-
1944	-	-	-	-	-	-	-	13,580	-	-	-	-	-
1945	-	-	-	-	-	-	-	18,670	10,520	-	-	-	-
1946	-	15,650	-	-	-	-	-	19,140	18,880	-	-	-	-
1947	-	-	-	-	15,500	-	15,280	-	-	-	-	-	-
1948	-	19,400	-	-	-	-	-	21,000	23,010	-	-	-	-
1949	-	-	-	-	-	-	-	12,600	21,880	14,420	-	-	-
1950	-	-	-	-	-	18,530	13,960	15,900	23,800	14,700	-	-	-

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1942	-	-	940.3	-	-	-	629.2	752.7	959.0	-	-	-	-
1943	-	973.5	898.9	-	520.2	-	932.2	835.9	838.0	-	-	-	-
1944	-	-	-	-	-	-	-	835.2	-	-	-	-	-
1945	-	-	-	-	-	-	-	1,148	626.1	-	-	-	-
1946	-	931.0	-	-	-	-	-	1,177	1,123	-	-	-	-
1947	-	-	-	-	860.5	-	909.4	-	-	-	-	-	-
1948	-	1,155	-	-	-	-	-	1,291	1,369	-	-	-	-
1949	-	-	-	-	-	-	-	749.8	1,345	858.2	-	-	-
1950	-	-	-	-	-	1,159	830.8	977.5	1,416	904.0	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1941	932	-	-	-	-	-	-	-	-
1942	962	33,400	Dec. 19, 1941	-	-	-	-	-	-
1943	962	56,600	Nov. 24, 1942	-	-	-	-	-	-
1944	1012	64,600	Dec. 3, 1943	-	-	-	-	-	-
1945	1042	61,000	Jan. 7, 1945	-	-	-	-	-	-
1946	1062	55,800	Oct. 25, 1945	-	-	-	-	-	-
1947	1092	*870,000	Dec. 15, 1946*	-	-	-	-	-	-
1948	1122, 1152	58,700	Oct. 19, 1947	-	-	-	-	-	-
1949	1152	*844,000	Nov. 24, 1948	-	-	-	-	-	-
1950	1182	*867,000	Nov. 27, 1949	-	-	-	-	-	-

* Revised.

* Not previously published.

* Computed by using fall obtained from stage-fall curve; only one gage operating.

Note.--Monthly figures for this station not previously published.

241. Wood Creek near Everett, Wash.

Location.--Lat 47°55'25", long. 122°11'00", on east line sec. 8, T. 28 N., R. 5 E., on left bank 300 ft upstream from county road crossing and 2 miles southeast of Everett.

Drainage area.--1.96 sq mi.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 25 ft (from topographic map).

Extremes.--1946-48: Maximum discharge, 35 cfs Feb. 2, 1947 (gage height, 1.54 ft), from rating curve extended above 9 cfs; minimum, 1.8 cfs Oct. 17, 1947 (gage height, 0.78 ft), apparently result of temporary jam of small debris above gage.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	4.85	4.69	4.74	-
1947	5.00	5.37	6.35	6.20	9.45	5.08	5.42	4.74	4.73	4.08	4.01	3.93	5.34
1948	4.38	5.07	5.68	6.45	6.72	6.52	6.36	7.10	5.44	4.78	5.16	4.93	5.72

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	298	286	282	-
1947	307	320	390	381	525	313	322	292	281	251	247	234	3,860
1948	269	302	349	397	386	401	378	437	324	294	318	294	4,150

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1946	1062	-	-	-	-	-	-	-	-
1947	1092	35	Feb. 2, 1947	3.8	5.34	3,860	5.20	3,770	-
1948	1122	26	Oct. 18, 1947	3.8	5.72	4,150	-	-	-

242. Allen Creek at Marysville, Wash.

Location (revised).--Lat 48°03'05", long. 122°09'45", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 28, T. 30 N., R. 5 E., on left bank at highway crossing half a mile east of Marysville and 1 mile upstream from mouth.

Drainage area.--7.93 sq mi.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 15 ft (from topographic map).

Extremes.--June to October 1946: Maximum discharge, 11 cfs June 30 (gage height, 1.32 ft); minimum, 1.8 cfs Aug. 16, 19, 21 (gage height, 0.92 ft).

Remarks.--Several small diversions above station for irrigation and domestic use. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	3.72	2.42	2.56	-		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1946						-	228	149	152	-		

243. Quilceda Creek near Marysville, Wash.

Location.--Lat 48°06'20", long. 122°09'40", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 9, T. 30 N., R. 5 E., on right bank 300 ft downstream from Middle Fork and 3 $\frac{1}{2}$ miles north of Marysville.

Drainage area.--13.9 sq mi.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 35 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 155 cfs Feb. 22, 1949; maximum gage height, 5.72 ft Feb. 26, 1950; minimum discharge, 3.4 cfs Aug. 22, Sept. 3, 17, 1950; minimum gage height, 1.52 ft Aug. 21-24, 1946, July 23, Aug. 14, 18-29, 1947.

Remarks.--Several diversions for irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	8.26	4.76	4.40	-
1947	7.56	24.0	47.6	39.8	33.2	19.9	27.8	9.08	9.57	6.33	4.91	5.90	19.6
1948	12.5	49.9	57.2	48.4	50.9	31.6	33.0	38.8	23.3	11.5	8.24	7.70	31.0
1949	29.8	47.7	64.7	26.3	59.8	41.2	22.5	18.6	7.49	7.94	5.61	5.11	27.9
1950	7.20	20.6	*43.1	49.7	64.8	49.7	31.6	14.2	9.46	6.85	4.90	4.40	*25.3

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	508	293	262	-
1947	465	1,430	2,930	2,450	1,840	1,220	1,650	559	570	389	302	351	14,160
1948	768	2,970	3,520	2,980	2,930	1,950	1,960	2,380	1,360	707	507	458	22,510
1949	1,830	2,840	3,980	1,610	3,320	2,530	1,340	1,140	446	488	345	304	20,170
1950	443	1,220	*2,650	3,060	3,600	3,060	1,880	872	563	421	301	262	*18,330

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1946	1062	-	-	-	-	-	-	-	-	-	-		
1947	1092	121	Dec. 11, 1946	4.4	19.6	1.41	19.10	14,160	22.9	22.37	16,590		
1948	1122	135	Feb. 26, 1948	4.4	31.0	2.23	30.36	22,510	32.9	32.24	23,900		
1949	1152	155	Feb. 22, 1949	4.4	27.9	2.01	27.23	20,170	*21.9	*21.39	*15,840		
1950	1286, 1182	143	Feb. 26, 1950	3.5	*25.3	*1.82	*24.74	*18,330	-	-	-		

* Revised.

244. South Fork Stillaguamish River at Silverton, Wash.1/

Location.--Lat 48°04'20", long. 121°34'50", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 24, T. 30 N., R. 9 E., on right bank just downstream from Marble Gulch and three-quarters of a mile southwest of Silverton.

Drainage area.--38.4 sq mi.

Gage.--Vertical staff gage. Altitude of gage is 1,450 ft (from river-profile map).

Extremes.--1929-32: Maximum discharge (revised), 11,800 cfs Feb. 26, 1932 (gage height, 8.7 ft, from graph based on gage readings), from rating curve extended above 2,100 cfs; minimum, 24 cfs Sept. 1, 2, 1930.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	564	212	75.9	40.3	-
1930	111	77.8	358	125	780	297	456	332	348	134	38.9	72.2	257
1931	324	193	219	620	289	507	492	551	580	173	44.9	231	350
1932	286	478	371	509	702	584	606	628	648	459	166	115	462

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	33,600	13,000	4,670	2,400	-
1930	6,820	4,630	22,000	7,690	43,300	18,300	27,100	20,400	20,700	8,240	2,390	4,300	186,000
1931	19,900	11,500	13,500	38,100	16,000	31,200	29,300	32,600	34,500	10,600	2,760	13,700	254,000
1932	17,600	28,400	22,800	31,300	40,400	35,900	36,100	38,600	38,600	28,200	10,200	6,840	335,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1929	692	-	-	-	-	-	-	-	-	-	-	-
1930	707	-	-	24	257	6.69	90.78	185,000	273	96.36	197,000	
1931	722	*5,940	Jan. 27, 1931	32	350	9.11	123.84	254,000	383	135.49	278,000	
1932	737	*11,800	Feb. 26, 1932*	58	462	12.0	163.70	335,000	-	-	-	

* Revised.

245. South Fork Stillaguamish River below Bender Creek, near Silverton, Wash.

Location (revised).--Lat 48°04'10", long. 121°35'50", in NW $\frac{1}{4}$ sec. 24, T. 30 N., R. 9 E., on right bank half a mile upstream from Marten Creek and $\frac{1}{4}$ miles west of Silverton.

Drainage area.--40.7 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,400 ft (from river-profile map).

Extremes.--June to September 1950: Maximum discharge, 4,000 cfs Aug. 15 (gage height, 3.53 ft), from rating curve extended above 1,400 cfs; minimum, 72 cfs Sept. 20, 21 (gage height, 0.18 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1950									-	639	345	143

Monthly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1950									-	39,280	21,190	8,510

1/ Published as South Fork Stillaguamish River near Silverton, 1929-30.

246. South Fork Stillaguamish River near Silverton, Wash.

Location (revised).--Lat 48°04'00", long. 121°36'20", in SE $\frac{1}{4}$ sec. 23, T. 30 N., R. 9 E., on right bank a quarter of a mile downstream from Marten Creek and 2 miles southwest of Silverton.

Drainage area.--44.5 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 1,360 ft (from river-profile map).

Average discharge.--7 years (1910-17), 396 cfs.

Extremes.--1910-17: Maximum discharge (revised), 7,990 cfs Nov. 18, 1911 (gage height, 8.5 ft, from graph based on gage readings), from rating curve extended above 3,300 cfs; minimum observed, 29 cfs Sept. 7, 23-26, 29, 30, 1915 (gage height, 0.70 ft).

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	-	70.5	-
1911	*787	*1,010	*681	358	86.8	250	334	*674	*533	323	93.2	260	*451
1912	125	*1,130	*380	*572	*495	127	244	*553	371	239	190	188	*385
1913	180	400	209	89.2	122	189	389	*741	*744	588	253	178	*341
1914	240	800	300	*784	*298	*544	500	418	*540	207	74.0	*331	*403
1915	381	678	129	196	216	354	575	264	154	116	39.8	43.4	261
1916	493	427	666	170	612	643	633	693	770	628	217	185	511
1917	128	502	206	247	380	126	510	762	991	789	253	189	423
1918	200	217	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	-	4,200	-
1911	*48,400	*60,100	*41,900	22,000	4,820	15,400	19,900	*41,400	*31,700	19,900	5,730	15,500	*327,000
1912	7,890	*67,200	23,400	*35,200	28,500	7,810	14,500	*34,000	22,100	14,700	11,700	11,200	*278,000
1913	11,100	23,800	12,900	5,460	6,780	11,600	23,100	*45,600	44,300	36,200	15,600	10,600	*247,000
1914	14,800	35,700	18,400	*48,200	*16,800	33,400	29,800	25,700	*32,100	12,700	4,550	19,700	*292,000
1915	23,400	40,200	7,930	12,100	12,000	21,800	34,200	16,200	9,160	7,130	2,450	2,580	189,000
1916	30,300	25,400	41,000	10,500	35,200	39,500	37,700	42,600	45,800	38,600	13,300	11,000	371,000
1917	7,870	29,900	12,700	15,200	21,100	7,750	30,300	46,900	59,000	48,500	15,600	11,200	306,000
1918	12,300	12,900	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1910	362	-	-	-	-	-	-	-	-	-	-
1911	1346,362	*7,190	Nov. 20, 1910	47	*451	*10.13	*137.73	*327,000	*379	*115.57	*275,000
1912	1346,362	*7,990	Nov. 18, 1911	47	*583	*8.61	*117.00	*278,000	*313	*95.78	*228,000
1913	8362,492	-	-	62	*341	*7.68	*103.98	*247,000	*370	*112.92	*268,000
1914	*332,492	*7,830	Jan. 6, 1914	35	*403	*9.08	*122.94	*292,000	*407	*124.08	*294,000
1915	412	*3,810	Nov. 3, 1914*	29	261	5.87	79.73	189,000	296	90.30	214,000
1916	442	*5,080	Dec. 9, 1915	48	511	11.5	156.32	371,000	447	136.80	325,000
1917	462	-	-	37	423	9.51	128.91	306,000	-	-	-
1918	462	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published.

a See also Water-Supply Paper 1346 for revised records.

247. Boardman Creek near Silverton, Wash.

Location.--Lat 48°04'00", long. 121°40'30", in SW $\frac{1}{4}$ sec. 20, T. 30 N., R. 9 E., on left bank at road crossing 200 ft upstream from mouth and 5 miles west of Silverton.

Drainage area.--8.52 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,220 ft (from river-profile map).

Extremes.--June to September 1950: Maximum discharge, 1,460 cfs Aug. 15 (gage height, 3.93 ft), from rating curve extended above 240 cfs by logarithmic plotting; minimum, 5.4 cfs Sept. 23, 24 (gage height, 0.84 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						221	122	66.6	30.4			

Monthly runoff, in acre-feet, of Boardman Creek near Silverton, Wash.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						13,150	7,470	4,090	1,810			

248. Benson Creek near Granite Falls, Wash.

Location.--Lat 48°05'30", long. 121°46'30" in NE¼ sec. 16, T. 30 N., R. 8 E., on left bank 600 ft upstream from mouth and 9 miles east of Granite Falls.

Drainage area.--2.7 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 930 ft (from river-profile map).

Extremes.--June to September 1950: Maximum discharge, 37 cfs June 22 (gage height, 1.82 ft); minimum, 0.8 cfs Sept. 21, 22.

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						12.6	3.95	3.24	2.42			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						750	243	199	144			

249. South Fork Stillaguamish River near Granite Falls, Wash.

Location.--Lat 48°06'10", long. 121°56'40" in SW¼NW¼ sec. 8, T. 30 N., R. 7 E., on right bank a quarter of a mile upstream from county road bridge, 1½ miles upstream from Canyon Creek, and 2 miles northeast of town of Granite Falls.

Drainage area.--119 sq mi.

Supplemental records available.--December 1902 to July 1903, gage heights only, at Robe 8 miles upstream.

Gage.--Water-stage recorder. Altitude of gage is 310 ft (from river-profile map). Prior to Aug. 31, 1928, staff gage 8 miles upstream at different datum.

Average discharge.--22 years (1928-50), 1,024 cfs (revised).

Extremes.--1928-50: Maximum discharge, 38,800 cfs (revised) Feb. 26, 1932 (gage height, 19.7 ft, from graph based on gage readings), from rating curve extended above 6,200 cfs; minimum, 55 cfs Sept. 23, 24, 1938; minimum gage height, 2.99 ft Aug. 19-21, 1941.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	-	117	153
1929	1,220	668	724	349	183	1,010	945	1,570	1,320	375	156	99.6	721
1930	256	203	1,170	458	2,230	980	1,080	808	796	253	91.4	231	702
1931	917	616	739	1,890	943	1,600	1,430	1,020	1,230	340	111	738	964
1932	863	1,440	1,290	1,360	*2,310	2,220	1,920	1,430	1,350	1,000	295	319	*1,310
1933	1,010	3,330	1,640	1,580	560	1,260	1,130	1,570	2,010	1,190	454	1,140	1,410
1934	1,596	1,326	3,917	2,641	1,006	1,819	969	1,067	458	367	161	496	1,325
1935	1,172	2,197	1,512	*2,931	1,080	898	751	1,107	1,025	610	253	368	*1,160
1936	382	720	842	1,396	642	1,142	1,582	2,118	1,373	458	171	310	929
1937	247	162	2,104	243	589	1,136	1,573	1,474	1,908	481	267	148	862
1938	871	2,477	1,812	1,175	450	821	1,632	1,222	586	205	77.7	78.4	952
1939	857	1,579	1,893	1,926	675	902	1,319	1,631	1,166	851	201	210	1,086
1940	853	1,127	2,021	888	1,439	1,456	1,010	901	318	140	142	98.8	865
1941	1,116	1,053	1,272	968	580	514	454	988	427	146	97.7	902	711
1942	1,384	1,162	1,536	513	673	737	1,057	1,033	1,413	584	146	91.7	861
1943	431	1,779	1,468	771	1,048	1,065	1,511	1,158	994	703	217	161	939
1944	650	657	1,324	960	653	798	959	1,236	615	207	131	907	759
1945	755	1,431	907	2,037	1,320	1,037	915	1,598	767	300	110	640	983
1946	1,268	1,583	1,386	1,575	1,129	1,199	1,461	1,741	1,628	684	230	200	1,174
1947	1,191	1,322	2,140	1,573	1,652	982	1,452	1,042	1,056	540	209	416	1,120
1948	1,878	1,411	1,684	1,040	1,078	694	1,208	1,932	1,560	486	533	800	1,192
1949	821	1,490	928	386	1,148	1,291	1,440	2,013	1,162	902	426	562	1,045
1950	1,360	2,114	1,918	1,292	1,855	1,960	1,530	1,568	2,007	1,028	646	352	1,466

* Revised.

Monthly and yearly runoff, in acre-feet, of South Fork Stillaguamish River near Granite Falls, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	7,190	9,100	-
1929	75,000	39,700	44,500	21,500	10,200	62,100	56,200	96,500	78,600	23,100	9,590	5,930	523,000
1930	15,700	12,100	71,900	28,200	124,000	60,300	64,300	49,700	47,400	15,600	5,620	13,700	509,000
1931	56,400	36,700	45,400	116,000	52,400	98,400	85,100	62,700	73,200	20,900	6,820	43,900	698,000
1932	53,100	85,700	79,300	83,600	135,000	136,000	114,000	87,900	80,300	61,500	18,100	19,000	*952,000
1933	62,100	98,000	101,000	97,200	31,100	77,500	67,200	96,500	120,000	73,200	27,900	87,800	1,020,000
1934	98,100	78,300	90,000	102,400	55,800	11,800	57,640	65,620	25,920	22,540	9,900	29,540	959,200
1935	72,050	130,700	92,980	180,200	60,000	55,240	44,690	68,090	60,970	37,530	15,570	21,920	*839,900
1936	23,510	42,840	51,750	85,810	36,910	70,220	94,160	130,300	81,720	28,160	10,540	18,460	674,400
1937	15,180	9,630	129,400	14,920	32,700	69,860	93,580	90,610	113,500	29,570	16,410	8,780	624,100
1938	53,570	47,400	11,400	72,230	24,990	50,470	97,110	75,120	34,880	12,630	4,780	5,660	689,200
1939	52,720	82,050	16,400	118,400	37,480	55,450	78,470	100,300	69,360	51,090	12,370	12,510	766,600
1940	52,480	67,050	124,300	54,610	82,750	89,510	60,090	55,410	16,930	8,590	8,760	5,980	629,400
1941	68,620	62,630	78,200	59,550	32,230	31,600	27,000	60,760	25,380	8,980	6,010	53,670	514,600
1942	85,080	69,130	94,430	31,570	37,380	45,300	62,900	63,490	84,090	35,880	8,960	5,460	623,700
1943	26,510	105,800	90,280	47,430	58,190	65,490	89,920	71,200	59,160	43,230	13,310	9,570	680,100
1944	39,950	39,080	81,440	59,040	37,560	49,090	57,090	75,990	36,610	12,730	8,050	53,990	550,600
1945	46,420	85,170	55,780	125,200	73,290	63,770	54,460	98,260	45,620	18,420	6,790	38,090	711,300
1946	77,940	94,170	85,250	96,820	62,680	73,750	86,910	107,000	96,870	42,090	14,130	11,920	849,500
1947	73,230	78,630	131,600	96,740	91,750	60,400	86,370	64,060	62,840	27,680	12,840	24,780	810,900
1948	115,500	83,980	103,500	63,660	62,030	42,660	71,910	118,800	92,810	29,890	32,780	47,590	865,400
1949	50,460	88,650	57,060	23,710	63,780	79,380	85,680	123,800	69,120	55,430	26,210	33,430	756,700
1950	63,600	125,800	117,900	79,440	103,000	120,500	91,030	96,410	119,400	63,230	39,740	20,960	1,061,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1928	692	-	-	-	-	-	-	-	-	-	-
1929	692	*13,800	Oct. 9, 1928	77	721	6.06	82.44	523,000	640	73.02	463,000
1930	707	*9,790	Feb. 1, 1930	68	702	5.90	80.06	509,000	756	86.17	547,000
1931	722	*14,500	Jan. 27, 1931	86	964	8.10	99.92	698,000	1,070	122.40	778,000
1932	1286,737	*38,900	Feb. 26, 1932	175	*1,310	*11.0	*149.86	*952,000	*1,510	*172.49	*1,090,000
1933	752	*26,200	Nov. 13, 1932	131	1,410	11.8	160.69	1,020,000	1,490	169.51	1,080,000
1934	767	*21,700	Dec. 21, 1933	89	1,325	11.1	151.05	959,200	1,156	131.93	837,000
1935	1286,792	*28,200	Jan. 24, 1935	109	*1,160	*9.75	*132.35	*839,900	*915	*104.32	*662,300
1936	812	7,620	May 16, 1936	114	929	7.81	106.18	674,400	979	111.90	710,500
1937	832	*17,200	Dec. 6, 1936	92	862	7.24	98.35	624,100	1,081	123.19	782,500
1938	862	*18,700	Apr. 18, 1938	56	952	8.00	108.57	689,200	867	98.98	628,000
1939	902	*15,100	Oct. 12, 1938	76	1,086	9.13	123.95	786,600	1,076	122.78	779,500
1940	902	*11,500	Dec. 15, 1939	79	865	7.27	98.99	628,400	818	93.58	594,000
1941	932	*9,790	Oct. 10, 1940	74	711	5.97	81.09	514,600	765	87.26	553,800
1942	962	8,340	Dec. 19, 1941	78	861	7.24	98.25	623,700	826	94.16	597,600
1943	982	*14,200	Nov. 23, 1942	105	939	7.89	107.17	680,100	854	97.37	618,000
1944	1012	*24,000	Dec. 3, 1943	74	759	6.38	86.76	550,600	796	91.00	577,600
1945	1042	*23,000	Jan. 7, 1945	76	983	8.26	112.07	711,300	1,079	123.10	781,300
1946	1062	*18,100	Oct. 25, 1945	123	1,174	9.87	133.87	849,500	1,210	137.98	875,600
1947	1092	*25,800	Oct. 25, 1946	128	1,120	9.41	127.76	810,900	1,147	130.83	830,400
1948	1122	*21,700	Oct. 19, 1947	164	1,192	10.0	136.34	865,400	1,045	119.52	758,600
1949	1152	9,810	Oct. 7, 1948	155	1,045	8.78	119.23	756,700	1,228	139.89	887,800
1950	1162	-	-	148	1,466	12.3	167.19	1,061,000	-	-	-

* Revised.

250. Canyon Creek near Granite Falls, Wash.

Location.--Lat 48°07'15", long. 121°55'45", in NE¹ sec. 5, T. 30 N., R. 7 E., on left bank at Canyon Creek Lodge, 3 miles upstream from mouth, and 3 miles northeast of town of Granite Falls.

Drainage area.--56.8 sq mi (revised). At site December 1928 to September 1932, 58.3 sq mi (revised).

Supplemental records available.--September 1911 to September 1912, January to March 1913, gage heights and discharge measurements only.

Gage.--Staff gage. Altitude of gage is 470 ft (from topographic map). Sept. 4, 1911, to Sept. 30, 1912, Jan. 1 to Mar. 31, 1913, staff gage at practically the same site at different datum. Dec. 19, 1928, to Sept. 30, 1932, staff gage 1 mile downstream at different datum.

Extremes.--1928-32, 1950: Maximum discharge (revised), 8,880 cfs Feb. 26, 1932 (gage height, 9.7 ft, from graph based on gage readings), from rating curve extended above 2,000 cfs; minimum observed, 32 cfs Aug. 24 to Sept. 6, 1930 (gage height, 1.38 ft, site and datum then in use).

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Canyon Creek near Granite Falls, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	184	89.8	590	465	633	476	126	68.5	46.4	-
1930	104	72.2	*508	*289	*1,020	*477	412	311	293	80.8	37.8	130	*307
1931	407	312	407	918	452	788	669	358	495	132	49.3	508	457
1932	411	667	608	*749	793	1,420	1,040	631	526	494	123	117	*631
1950	-	-	-	-	-	-	-	-	860	351	254	113	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	11,300	4,990	36,300	27,700	38,900	28,300	7,750	4,210	2,760	-
1930	6,400	4,300	*31,200	*17,800	*56,600	29,300	24,500	19,100	17,400	4,970	2,320	7,740	*222,000
1931	25,000	18,600	25,000	56,400	25,100	48,500	39,800	22,000	29,500	8,120	3,030	30,200	331,000
1932	25,300	39,700	37,400	*46,100	45,600	87,300	61,900	38,800	31,300	30,400	7,560	6,960	*458,000
1950	-	-	-	-	-	-	-	-	51,140	21,560	15,630	6,710	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1929	692	-	-	-	-	-	-	*282	*65.64	*204,000	
1930	1346,707	*5,360	Feb. 1, 1930	32	*307	*5.27	*71.40	*222,000	*343	*79.98	*248,000
1931	722	*6,320	Jan. 27, 1931*	40	457	7.84	106.50	331,000	504	117.36	365,000
1932	1346,737	*8,980	Feb. 26, 1932*	80	*631	10.8	*47.39	*458,000	-	-	-
1950	1182	-	-	-	-	-	-	-	-	-	-

* Revised.

251. South Fork Stillaguamish River at Granite Falls, Wash.^{1/}

Location.--Lat 48°05'40", long. 121°58'20", in SE¹/₄ sec. 12, T. 30 N., R. 6 E., on upstream side of county road bridge, 400 ft downstream from Canyon Creek, and 1 mile north of town of Granite Falls.

Drainage area.--182 sq mi.

Gage.--Chain gage. Altitude of gage is 200 ft (from river-profile map).

Extremes.--1911, 1913-15: Maximum discharge, 16,500 cfs (revised) Jan. 6, 1914 (gage height, 12.2 ft, revised, from graph based on gage readings), from rating curve extended above 2,600 cfs by logarithmic plotting; minimum, 64 cfs Sept. 28, 1915.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	-	892	278	816	-
1912	433	-	-	-	-	-	-	-	-	-	-	-	-
1914	1,440	2,180	1,020	2,350	1,290	1,740	1,750	1,310	1,380	522	201	888	1,340
1915	1,260	2,110	600	1,110	962	1,180	1,120	743	397	407	125	173	847
1916	1,360	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	-	54,800	17,100	48,600	-
1912	26,600	-	-	-	-	-	-	-	-	-	-	-	-
1914	88,500	130,000	62,700	44,000	71,600	107,000	104,000	80,600	82,100	32,100	12,400	52,800	968,000
1915	77,500	26,000	36,900	68,200	53,400	72,800	66,600	45,700	23,600	25,000	7,690	10,300	613,000
1916	83,600	-	-	-	-	-	-	-	-	-	-	-	-

^{1/} Published as South Fork Stillaguamish River near Granite Falls in 1911.

STILLAGUAMISH RIVER BASIN

Yearly discharge, in cubic feet per second, of South Fork Stillaguamish River at Granite Falls, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	-	-	-	-	-	-	-	-	-	-
1912	312	-	-	-	-	-	-	-	-	-	-
1914	392	*16,500	Jan. 6, 1914	136	1,340	7.36	99.75	968,000	1,280	95.50	927,000
1915	412	*6,450	Nov. 3, 1914	64	847	4.65	63.15	613,000	-	-	-
1916	412	-	-	-	-	-	-	-	-	-	-

* Revised.

Not previously published.

252. South Fork Stillaguamish River above Jim Creek, near Arlington, Wash.

Location (revised).--Lat 48°10'05", long. 122°04'05", in SW¼ sec. 17, T. 31 N., R. 6 E., on right bank 2 miles upstream from Jim Creek and 3 miles southeast of Arlington.

Drainage area.--199 sq mi.

Gage.--Water-stage recorder. Datum of gage is 80.00 ft above mean sea level, datum of 1929. Prior to Dec. 31, 1936, staff gage at same site and datum.

Average discharge.--14 years (1936-50), 1,522 cfs.

Extremes.--1936-50: Maximum discharge, 25,500 cfs (revised) Oct. 25, 1946 (gage height, 26.07 ft), from rating curve extended above 23,000 cfs; minimum, 112 cfs Sept. 2, 3, 1945.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1937	318	215	3,245	393	1,058	1,867	2,548	2,177	2,736	679	410	230	1,324
1938	1,272	3,850	2,834	1,963	835	1,290	2,578	1,852	774	298	145	142	1,468
1939	1,308	2,209	2,817	3,096	1,185	1,470	1,994	2,270	1,781	1,229	301	336	1,671
1940	1,255	1,640	2,818	1,394	2,220	2,197	1,556	1,367	509	214	218	149	1,293
1941	1,560	1,613	1,922	1,452	882	768	668	1,420	669	222	147	1,308	1,054
1942	1,855	1,652	2,295	876	1,095	1,152	1,614	1,559	2,109	819	225	142	1,282
1943	671	2,816	2,431	1,326	1,775	1,559	2,237	1,752	1,376	950	292	224	1,446
1944	903	944	1,935	1,496	1,078	1,305	1,425	1,782	958	294	205	1,284	1,134
1945	1,057	2,103	1,377	2,996	1,905	1,539	1,450	2,308	989	414	170	991	1,438
1946	2,017	2,586	1,949	2,208	1,783	1,930	2,119	2,224	2,296	982	318	282	1,723
1947	1,739	2,030	3,163	2,416	2,468	1,592	2,341	1,455	1,636	697	301	614	1,699
1948	2,771	2,795	5,021	1,668	1,941	1,217	1,908	2,952	2,249	624	808	1,266	1,968
1949	1,444	2,285	1,591	707	1,784	2,118	2,112	2,811	1,609	1,235	639	731	1,586
1950	1,936	3,253	3,036	1,995	2,926	2,983	2,459	2,257	2,686	1,418	885	486	2,203

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1937	19,520	12,810	199,600	24,140	58,740	114,800	151,600	133,900	162,800	41,730	25,240	13,690	958,600
1938	78,200	229,100	174,300	120,700	46,350	79,300	153,400	113,900	46,080	18,330	8,920	8,470	1,077,000
1939	80,440	131,400	173,200	190,400	65,840	90,390	118,600	139,600	106,000	75,560	18,510	20,020	1,210,000
1940	77,190	97,570	173,300	85,700	127,700	135,100	92,590	84,060	30,290	13,150	13,420	8,890	939,000
1941	95,930	95,950	118,200	89,300	48,960	47,240	39,720	87,340	39,800	13,670	9,060	77,700	762,900
1942	114,000	98,280	141,100	53,880	60,800	70,860	96,060	94,640	125,500	50,370	13,830	8,420	927,700
1943	41,250	167,600	149,500	81,510	98,580	95,870	133,100	107,700	81,900	58,390	17,950	13,330	1,047,000
1944	55,500	56,170	119,000	91,990	62,000	80,220	84,770	109,600	56,980	18,080	12,620	76,380	823,300
1945	64,980	125,200	84,650	184,200	105,800	94,660	86,310	141,900	58,830	25,430	10,430	58,980	1,041,000
1946	124,000	153,900	119,800	135,800	99,020	118,700	128,100	136,700	136,600	60,400	19,570	16,780	1,247,000
1947	106,900	120,800	194,500	148,600	137,100	97,860	139,300	89,470	97,330	42,880	18,530	36,530	1,230,000
1948	170,400	166,300	186,000	114,900	111,600	74,840	113,500	181,500	133,800	50,670	49,690	75,320	1,429,000
1949	88,780	136,000	97,860	43,490	99,060	130,300	125,700	172,800	95,760	75,930	39,260	43,510	1,148,000
1950	119,000	193,600	186,700	122,700	162,500	183,400	146,300	138,800	171,700	87,190	54,390	28,950	1,595,000

Yearly discharge, in cubic feet per second, of South Fork Stillaguamish River above Jim Creek, near Arlington, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1937	832	-	-	142	1,324	6.65	90.19	958,600	1,669	113.63	1,208,000
1938	862	*20,700	Apr. 17, 1938	117	1,488	7.48	101.42	1,077,000	1,354	92.47	980,500
1939	882	*17,500	Oct. 12, 1938	146	1,671	8.40	114.07	1,210,000	1,620	110.54	1,173,000
1940	902	*13,100	Dec. 15, 1939	114	1,293	6.50	88.45	939,000	1,241	84.88	901,000
1941	932	*13,500	Oct. 10, 1940	114	1,054	5.30	71.87	762,900	1,114	75.96	806,200
1942	982	*11,100	Dec. 19, 1941	118	1,282	6.44	87.44	927,700	1,288	87.89	932,700
1943	982	*17,500	Oct. 31, 1942	139	1,446	7.27	98.62	1,047,000	1,269	86.59	919,000
1944	1012	*21,900	Dec. 5, 1943	122	1,134	5.70	77.58	823,300	1,195	81.74	867,500
1945	1042	*23,200	Jan. 7, 1945	112	1,438	7.23	98.12	1,041,000	1,608	109.70	1,164,000
1946	1062	*22,600	Oct. 25, 1945	159	1,723	8.66	117.51	1,247,000	1,757	119.82	1,272,000
1947	1092	*25,500	Oct. 25, 1946	187	1,699	8.54	115.88	1,230,000	1,838	125.36	1,330,000
1948	1122	*22,900	Oct. 19, 1947	251	1,968	9.89	134.61	1,429,000	1,692	115.75	1,228,000
1949	1152	13,700	Nov. 23, 1948	219	1,586	7.97	108.20	1,148,000	1,830	124.84	1,325,000
1950	1182	20,900	Dec. 28, 1949	210	2,203	11.1	150.30	1,595,000	-	-	-

* Revised.

253. Jim Creek near Oso, Wash.

Location.--Lat 48°12'30", long. 121°55'40", in NE $\frac{1}{4}$ sec. 5, T. 31 N., R. 7 E., on left bank three-quarters of a mile upstream from Cub Creek and 4 miles south of Oso.

Drainage area.--10 sq mi, approximately. At site September 1947 to October 1948, 8.0 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 600 ft (from topographic map). Sept. 10, 1947, to Oct. 25, 1948, water-stage recorder three-quarters of a mile upstream at different datum.

Extremes.--1947-49: Maximum discharge not determined, known to have been considerably higher than 1,500 cfs Dec. 28, 1949; minimum recorded, 5.7 cfs Sept. 12-14, 1949.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	115	159	143	103	82.3	47.6	90.1	159	86.5	25.7	35.5	53.4	91.6
1949	108	-	-	-	-	133	122	160	63.8	45.1	16.1	13.7	-
1950	48.5	92.8	257	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	7,050	9,470	8,770	6,310	4,730	2,930	5,360	9,790	5,150	1,580	2,180	3,180	66,500
1949	6,680	-	-	-	-	8,200	7,280	9,810	3,800	2,770	991	814	-
1950	2,970	5,520	15,770	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1122	-	-	8	91.6	11.4	155.84	66,500	-	-	-
1949	1152	-	-	-	-	-	-	-	-	-	-
1950	1152	-	-	-	-	-	-	-	-	-	-

254. Cub Creek near Oso, Wash.

Location.--Lat 48°12'20", long. 121°56'10", in N $\frac{1}{2}$ sec. 5, T. 31 N., R. 7 E., on right bank three-quarters of a mile upstream from mouth and $4\frac{1}{2}$ miles south of Oso.

Drainage area.--8.7 sq mi (revised), approximately.

Gage.--Water-stage recorder. Altitude of gage is 610 ft (from topographic map).

Extremes.--1949-50: Maximum discharge, 1,030 cfs Dec. 28, 1949 (gage height, 5.50 ft); minimum, 2.0 cfs July 6-9, 1949; minimum gage height, 0.93 ft July 26, 1950.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	33.0	32.2	5.69	7.03	5.16	4.66	-
1950	21.8	56.1	108	67.9	114	87.0	59.9	23.5	16.6	5.97	5.96	4.85	47.2

STILLAGUAMISH RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Cub Creek near Oso, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	-	-	-	-	1,960	1,980	339	432	317	277	-
1950	1,340	3,340	6,620	4,170	6,360	5,350	3,570	1,440	988	367	367	289	34,200

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1949	1152	-	-	-	-	-	-	-	-	-	-	-
1950	1182	1,030	Dec. 28, 1949	2.6	47.2	5.43	73.71	34,200	46.0	71.76	33,310	

Note.--Station discontinued Dec. 31, 1950, October 1950: 37.6 cfs; 2,310 acre-ft. November 1950: 57.9 cfs; 3,450 acre-ft. December 1950: 75.5 cfs; 4,650 acre-ft.

255. Jim Creek near Arlington, Wash.

Location (revised).--Lat 48°10'25", long. 122°04'05", in W $\frac{1}{2}$ sec. 17, T. 31 N., R. 6 E., on right bank at abandoned bridge, $1\frac{1}{4}$ miles upstream from mouth, and 3 miles southeast of Arlington.

Drainage area.--48.9 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 110 ft (from river-profile map).

Average discharge.--13 years (1937-50), 199 cfs.

Extremes.--1937-50: Maximum discharge, 4,730 cfs Dec. 28, 1949 (gage height, 9.28 ft), from rating curve extended above 1,900 cfs; minimum, 5.9 cfs Sept. 16, 1943 (gage height, 0.62 ft).

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	144	598	431	320	163	185	325	197	42.6	15.0	9.23	7.89	202
1939	95.2	322	401	557	305	230	192	144	148	73.7	17.2	19.5	208
1940	132	231	394	243	386	380	210	142	28.1	12.7	14.7	12.1	182
1941	118	252	310	235	115	95.8	74.2	151	81.4	23.6	13.1	90.9	130
1942	149	250	393	172	225	181	187	181	280	61.0	21.4	13.0	176
1943	48.8	396	399	260	347	152	209	152	102	54.9	18.0	10.7	178
1944	108	115	196	250	210	176	191	191	94.0	20.1	14.4	109	139
1945	116	367	192	409	255	275	258	204	66.0	19.7	14.1	109	190
1946	323	447	270	413	355	380	259	169	193	82.9	23.8	22.1	244
1947	206	302	472	375	342	207	288	82.7	141	65.2	28.4	73.6	215
1948	270	420	414	294	331	209	285	358	186	75.2	70.5	111	252
1949	236	385	385	132	380	341	232	260	81.5	69.3	34.5	33.8	213
1950	131	343	528	340	565	471	344	166	163	57.9	37.1	27.6	262

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	8,860	34,960	26,490	19,660	9,040	11,360	19,340	12,140	2,530	925	567	470	146,300
1939	5,860	19,130	24,680	34,250	16,950	14,120	11,450	8,830	8,780	4,530	1,060	1,160	150,800
1940	8,110	13,730	24,200	14,960	22,200	23,350	12,520	8,730	1,670	782	907	720	131,900
1941	7,230	15,010	19,060	14,440	6,400	5,890	4,420	9,270	4,850	1,450	807	5,410	94,240
1942	9,150	14,870	24,150	10,570	12,510	11,140	11,110	11,100	16,630	3,750	1,310	774	127,100
1943	3,000	23,590	24,500	16,000	19,300	9,360	12,460	9,370	6,080	3,370	1,110	838	128,800
1944	6,670	6,850	12,070	15,380	12,090	10,790	11,370	11,750	5,590	1,240	883	6,460	101,100
1945	7,120	21,820	11,810	25,130	14,150	16,910	15,330	12,530	3,930	1,210	865	6,500	137,300
1946	19,870	26,590	16,610	25,370	19,720	23,360	15,410	10,410	11,510	5,100	1,460	1,320	176,700
1947	12,690	17,970	29,050	23,060	19,020	12,750	17,160	5,090	8,370	4,010	1,750	4,380	155,300
1948	16,620	24,980	25,480	18,090	19,020	12,880	16,980	22,010	11,060	4,620	4,330	6,600	182,700
1949	14,510	22,910	23,580	8,080	21,100	20,950	13,850	15,970	4,850	4,260	2,120	2,010	154,300
1950	8,070	20,430	32,330	20,910	31,390	26,950	20,480	10,230	9,700	3,560	2,280	1,640	190,000

Yearly discharge, in cubic feet per second, of Jim Creek near Arlington, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1936	1042	3,340	Dec. 28, 1937	6.4	202	4.13	56.10	146,300	174	48.20	125,700
1939	1042	2,040	Jan. 1, 1939	12	208	4.25	57.85	150,800	203	56.47	147,200
1940	1042	1,620	Mar. 30, 1940	8.3	182	3.72	50.58	131,900	175	48.75	127,100
1941	1042	2,470	Nov. 29, 1940	9.0	130	2.66	36.13	94,240	140	38.77	101,100
1942	1042	1,680	June 15, 1942	10	176	3.60	48.73	127,100	180	49.66	130,000
1945	1042	1,680	Nov. 15, 1942	6.3	178	3.64	49.38	128,800	143	39.60	103,300
1944	1042	1,570	(a)	9.0	159	2.84	38.78	101,100	160	44.59	116,300
1945	1042	2,750	Jan. 7, 1945	9.6	190	3.89	52.66	137,300	220	61.22	159,600
1946	1092	4,060	(b)	16	244	4.99	67.76	176,700	239	66.22	172,700
1947	1092	3,690	Oct. 25, 1946	17	215	4.40	59.55	155,300	224	62.30	162,500
1948	1122	2,960	Oct. 19, 1947	25	252	5.15	70.04	182,700	243	67.74	176,700
1949	1152	3,030	Oct. 4, 1948	14	213	4.36	59.13	154,300	213	59.04	154,000
1950	1152	4,730	Dec. 28, 1949	7.3	262	5.56	72.85	190,000	-	-	-

a Probably occurred Dec. 3, 1943.

b Probably occurred Oct. 25, 1945.

256. South Fork Stillaguamish River near Arlington, Wash.

Location.--Lat 48°11'40", long. 122°05'45", in NW $\frac{1}{4}$ sec. 7, T. 31 N., R. 6 E., near left bank on logging railroad bridge $\frac{1}{2}$ miles downstream from Jim Creek, $\frac{1}{2}$ miles southeast of Arlington, and $2\frac{1}{2}$ miles upstream from confluence with North Fork.

Drainage area.--254 sq mi.

Gage.--Staff gage. Altitude of gage is 70 ft (from river-profile map).

Average discharge.--8 years (1928-36), 1,790 cfs.

Extremes.--1928-36: Maximum discharge, 39,000 cfs (revised) Feb. 26, 1932 (gage height, 15.2 ft, revised, from graph based on gage readings), from rating curve extended above 13,000 cfs; minimum observed, 108 cfs Sept. 6, 1930; minimum gage height, 1.70 ft Nov. 2-4, 1936.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	1,880	1,080	1,360	702	451	1,940	1,660	2,550	1,910	567	244	174	1,220
1930	379	357	2,040	939	3,610	1,790	1,710	1,320	1,210	371	155	425	1,170
1931	1,480	1,100	1,310	3,250	1,660	3,020	2,450	1,440	1,960	499	182	1,370	1,640
1932	1,400	2,150	2,180	2,640	3,280	4,520	3,250	2,220	2,020	1,420	433	424	2,170
1933	1,443	5,398	3,525	3,068	1,314	2,531	1,909	2,680	3,236	1,737	655	1,449	2,415
1934	2,439	2,471	5,729	4,193	1,741	2,750	1,635	1,517	612	464	*196	*649	*2,043
1935	1,553	4,160	2,857	4,642	2,196	1,905	1,469	1,823	1,501	895	392	559	2,012
1936	582	1,252	1,363	3,118	1,399	2,280	2,679	3,498	2,161	653	266	483	1,647
1937	374	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	116,000	64,300	83,600	43,200	25,000	19,000	98,800	157,000	114,000	34,900	15,000	10,400	881,000
1930	23,300	21,200	125,000	57,700	200,000	110,000	102,000	81,200	72,000	22,800	9,530	25,300	850,000
1931	91,000	65,500	80,600	200,000	92,200	186,000	146,000	88,500	117,000	30,700	11,200	81,500	1,190,000
1932	86,100	100,280	100,340	100,175	100,890	100,278	100,193	100,360	100,120	87,300	26,600	25,200	1,580,000
1933	86,710	82,102	100,216	70,018	70,722	99,155	80,013	60,014	80,192	60,006	80,400	26,600	1,745,000
1934	150,000	100,470	100,352	300,257	80,966	99,169	100,97,310	93,270	36,500	28,500	*12,060	*38,610	*1,479,000
1935	95,510	427,500	75,700	297,700	121,900	17,100	87,420	112,100	89,310	55,040	24,090	33,250	1,457,000
1936	35,810	74,480	83,820	191,700	80,450	140,200	159,400	215,100	129,800	40,170	16,330	28,730	1,196,000
1937	23,000	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692,870	-	-	-	1,220	4.80	64.94	681,000	1,090	58.05	787,000
1930	707	*14,600	Feb. 1, 1930*	108	1,170	4.61	62.80	850,000	1,270	67.75	918,000
1931	722	*19,700	Jan. 27, 1931	149	1,640	6.46	87.81	1,190,000	1,800	95.99	1,300,000
1932	737	*39,000	Feb. 26, 1932	236	2,170	8.54	116.51	1,580,000	2,560	137.06	1,860,000
1933	752	32,600	Nov. 13, 1932	159	2,415	9.51	129.04	1,748,000	2,446	130.80	1,770,000
1934	1346,767	*26,400	Dec. 21, 1933*	*110	*2,043	*8.04	*109.20	*1,479,000	*1,893	*99.46	*1,348,000
1935	792	*33,100	Jan. 24, 1935	168	2,012	7.92	107.55	1,457,000	1,564	85.63	1,132,000
1936	612	11,200	May 16, 1936	208	1,647	6.48	88.29	1,196,000	-	-	-
1937	612	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published.

257. Squire Creek near Darrington, Wash.

Location (revised).--Lat 48°16'15", long. 121°40'00", in SE $\frac{1}{4}$ sec. 8, T. 32 N., R. 9 E., on left bank 150 ft upstream from road crossing, a third of a mile upstream from Ashton Creek, and 3 $\frac{1}{2}$ miles northwest of Darrington.

Drainage area.--18.8 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 490 ft (from topographic map).

Extremes.--June to September 1950: Maximum discharge, 1,500 cfs Aug. 15 (gage height, 5.45 ft); minimum, 29 cfs Sept. 23 (gage height, 1.15 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1950						361	247	136	62.3				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1950						21,460	15,170	8,390	3,710				

258. North Fork Stillaguamish River near Darrington, Wash.

Location.--Lat 48°16'40" (revised), long. 121°42'00", in NW $\frac{1}{4}$ sec. 7, T. 32 N., R. 9 E., in upstream side of left bank bridge pier of county road bridge 1 mile downstream from Squire Creek and 5 miles northwest of Darrington.

Drainage area.--82.2 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 410 ft (from topographic map).

Extremes.--June to September 1950: Maximum discharge, 2,850 cfs June 22 (gage height, 4.51 ft); minimum, 63 cfs Sept. 23 (gage height, 1.25 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1950						-	621	286	140				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1950						-	38,170	17,560	8,330				

259. Boulder Creek near Oso, Wash.

Location.--Lat 48°16'45", long. 121°46'45", in NW $\frac{1}{4}$ sec. 9, T. 32 N., R. 8 E., on left bank at county road crossing, a third of a mile upstream from mouth, and 7 miles east of Oso.

Drainage area.--27.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 340 ft (from topographic map).

Extremes.--June to September 1950: Maximum discharge, 1,410 cfs Aug. 15 (gage height, 4.90 ft), from rating curve extended above 400 cfs; minimum, 48 cfs Sept. 20 (gage height, 1.18 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1950						392	279	176	91.4				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1950						23,310	17,150	10,830	5,440				

261. North Fork Stillaguamish River near Arlington, Wash.

Location (revised).--Lat 48°15'40", long. 122°02'50", in SE¹/₄ sec. 16, T. 32 N., R. 6 E., on right bank 6 miles northeast of Arlington, 7 miles upstream from mouth, and 8 miles downstream from Deer Creek.

Drainage area.--269 sq mi.

Gage.--Water-stage recorder. Datum of gage is 89.34 ft above mean sea level, datum of 1929.

Average discharge.--22 years (1928-50), 1,725 cfs.

Extremes.--1928-50: Maximum discharge, 27,700 cfs Feb. 26, 1932 (gage height, 12.7 ft). From rating curve extended above 22,000 cfs; minimum, 117 cfs (revised) Sept. 23, 1938.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	235	256	-
1929	1,750	1,470	1,300	783	467	1,900	1,850	2,340	1,730	559	305	222	1,230
1930	334	268	1,770	929	3,620	1,730	1,970	1,160	956	381	212	363	1,120
1931	1,310	1,050	1,380	3,370	1,940	2,850	2,700	1,530	1,590	602	240	1,290	1,650
1932	1,330	2,390	2,370	2,450	3,230	4,170	3,390	2,210	1,930	1,460	483	359	2,140
1933	1,290	5,180	3,100	2,840	1,290	2,540	1,950	2,570	2,890	1,640	621	1,310	2,270
1934	2,635	2,088	5,734	4,455	1,928	2,692	1,736	1,534	643	613	330	566	2,088
1935	1,385	3,439	2,547	4,655	2,326	1,697	1,253	1,613	1,324	720	383	568	1,824
1936	553	1,132	1,394	2,839	1,232	2,200	2,330	2,946	2,014	659	299	442	1,505
1937	321	223	2,950	484	1,110	2,101	2,698	2,243	2,793	715	470	302	1,368
1938	1,217	4,213	3,644	2,648	1,050	1,735	2,890	2,009	789	*332	*166	*140	*1,739
1939	*1,134	2,034	3,072	3,488	1,545	1,725	2,116	2,175	1,568	939	351	315	*1,731
1940	1,146	2,071	3,797	1,873	2,671	2,823	1,659	1,532	525	290	266	216	1,571
1941	1,651	1,719	2,369	1,852	1,190	985	812	1,473	706	336	225	1,345	1,223
1942	1,997	2,168	3,225	1,139	1,343	1,355	1,607	1,568	2,326	849	329	205	1,510
1943	726	3,185	3,015	1,740	2,209	1,635	2,922	1,991	1,723	1,020	369	255	1,725
1944	858	994	2,104	2,298	1,543	1,574	1,575	1,733	911	359	252	1,187	1,282
1945	1,076	2,341	1,529	3,464	2,204	1,788	1,771	2,691	997	496	308	868	1,624
1946	2,275	2,986	2,309	2,673	2,270	2,512	2,648	2,764	2,554	1,111	436	370	2,073
1947	1,652	1,679	3,611	3,115	3,055	1,922	2,489	1,512	1,542	788	387	719	1,866
1948	2,892	2,802	3,219	2,204	1,932	1,463	1,932	3,356	2,347	836	827	1,711	2,093
1949	1,581	2,736	1,895	871	2,227	2,663	2,547	3,638	1,820	1,192	686	677	1,874
1950	1,868	3,572	3,606	2,323	3,396	3,425	2,645	2,453	3,088	1,522	888	573	2,439

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	14,400	15,200	-
1929	108,000	87,500	79,900	48,100	25,900	117,000	109,000	144,000	105,000	34,400	18,800	13,200	889,000
1930	20,500	15,900	109,000	57,100	201,000	106,000	117,000	71,300	56,900	23,400	13,000	21,600	813,000
1931	80,600	62,500	84,800	207,000	108,000	175,000	161,000	94,100	94,600	37,000	14,800	76,800	1,200,000
1932	81,800	142,000	146,000	151,000	186,000	256,000	202,000	136,000	15,000	89,800	29,700	21,400	1,560,000
1933	79,300	507,000	301,910	1,001,750	71,600	156,000	116,000	158,000	172,000	101,000	38,200	78,000	1,640,000
1934	162,000	24,200	552,600	272,700	101,000	165,500	103,300	94,310	38,270	37,700	20,280	33,690	1,512,000
1935	85,100	204,600	156,600	286,200	101,290	200,400	74,570	99,150	78,770	44,290	23,570	33,780	1,200,000
1936	33,980	87,380	85,740	174,600	70,840	135,300	138,700	181,200	119,800	40,540	18,400	26,320	1,093,000
1937	13,760	13,290	181,400	29,750	61,650	122,200	160,500	137,900	68,200	43,960	28,880	18,000	990,500
1938	74,850	250,700	224,000	162,800	88,290	106,700	172,000	223,500	46,930	*20,440	10,200	*8,350	*1,259,000
1939	*69,740	137,100	188,900	214,500	85,610	106,100	125,900	133,700	93,280	57,750	21,580	18,750	1,253,000
1940	70,440	123,200	233,500	115,200	153,600	173,600	98,740	94,210	31,250	17,820	16,370	12,840	1,141,000
1941	101,500	102,300	145,600	113,900	66,110	80,540	48,330	90,590	42,010	20,660	13,840	80,040	885,400
1942	122,800	129,000	198,300	70,050	74,600	83,320	95,620	96,400	138,400	52,190	20,230	12,210	1,093,000
1943	44,670	189,500	185,400	107,000	100,000	173,900	90,220	400,000	502,500	52,690	22,660	15,160	1,249,000
1944	52,760	59,150	29,000	33,000	88,770	95,770	93,720	106,600	54,220	22,080	15,480	70,610	930,900
1945	66,160	139,300	93,990	113,000	22,400	109,900	105,400	165,500	59,320	30,520	18,930	51,620	1,176,000
1946	139,900	177,700	142,000	164,400	126,000	154,400	157,600	169,900	152,000	68,290	26,790	22,020	1,501,000
1947	101,600	99,890	222,000	191,600	69,600	69,000	18,200	48,100	92,950	91,760	48,480	23,770	1,510,000
1948	177,800	172,700	188,000	135,500	111,100	89,970	115,000	206,000	401,390	50,650	70,870	1,531,000	1,750,000
1949	87,180	162,800	156,500	55,000	123,700	133,700	151,500	233,700	109,500	73,290	42,170	40,280	1,357,000
1950	114,900	212,500	221,800	142,600	168,600	102,100	160,150	157,400	150,800	183,800	93,580	54,610	1,765,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acres-feet	
1928	692	-	-	-	-	-	-	-	-	-	-
1929	692	14,300	Oct. 9, 1928	193	1,230	4.57	61.88	889,000	1,050	52.85	759,000
1930	707	12,800	Feb. 5, 1930	163	1,120	4.16	56.74	813,000	1,240	62.49	895,000
1931	722	22,100	Jan. 23, 1931	167	1,650	6.13	83.30	1,200,000	1,850	93.19	1,340,000
1932	737	27,700	Feb. 26, 1932	232	2,140	7.96	108.44	1,560,000	2,430	122.88	1,760,000
1933	752	24,600	Nov. 13, 1932	185	2,270	8.44	114.47	1,640,000	2,350	118.78	1,700,000
1934	767	21,100	Dec. 21, 1933	250	2,088	7.76	105.37	1,512,000	1,822	91.99	1,319,000
1935	792	22,600	Jan. 24, 1935	225	1,824	6.78	92.06	1,320,000	1,466	73.97	1,061,000

Yearly discharge, in cubic feet per second, of North Fork Stillaguamish River near Arlington, Wash.--
Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Runoff	
		Discharge	Date				Inches	Acre-feet	Mean	Inches Acre-feet
1936	812	10,800	Jan. 4, 1936	220	1,505	5.59	76.27	1,093,000	1,543	78.19 1,120,000
1937	832	12,000	Dec. 13, 1936	160	1,368	5.09	69.07	990,500	1,831	92.39 1,326,000
1938	1286,862	22,300	Dec. 28, 1937	*123	*1,739	*6.46	*87.66	*1,259,000	*1,526	*76.93 *1,105,000
1939	1286,882	15,400	Jan. 1, 1939	*139	*1,731	*6.43	*87.35	1,253,000	1,774	89.57 1,285,000
1940	902	12,600	Dec. 15, 1939	194	1,571	5.84	79.53	1,141,000	1,464	74.10 1,063,000
1941	932	9,760	Oct. 10, 1940	191	1,223	4.55	61.71	885,400	1,362	68.73 986,100
1942	962	14,200	Dec. 19, 1941	173	1,510	5.61	76.20	1,093,000	1,468	74.07 1,063,000
1943	982	17,200	Nov. 23, 1942	200	1,725	6.41	87.07	1,249,000	1,479	74.65 1,071,000
1944	1012	19,200	Dec. 3, 1943	193	1,282	4.77	64.89	930,900	1,362	68.94 989,000
1945	1042	21,800	Jan. 7, 1945	263	1,624	6.04	81.97	1,176,000	1,845	93.13 1,336,000
1946	1062	23,800	Oct. 25, 1945	258	2,073	7.71	104.63	1,501,000	2,023	102.12 1,465,000
1947	1092	27,500	(a)	237	1,866	6.94	94.15	1,351,000	2,038	102.86 1,476,000
1948	1122	21,000	Oct. 19, 1947	333	2,093	7.78	105.88	1,519,000	1,856	93.89 1,347,000
1949	1152	12,600	Feb. 17, 1949	318	1,874	6.97	94.56	1,357,000	2,112	106.60 1,529,000
1950	1182	25,000	Dec. 28, 1949	282	2,439	9.07	123.07	1,765,000	-	- -

* Revised.

a Probably Jan. 24, 1947.

262. Armstrong Creek near Arlington, Wash.

Location.--Lat 48°13'15", long. 122°08'00", in NW¼ sec. 35, T. 32 N., R. 5 E., on right bank at Northern Pacific Railway culvert 1 mile north of Arlington.

Drainage area.--7.33 sq mi (revised).

Gage.--Water-stage recorder above concrete and wooden control. Altitude of gage is 75 ft (from topographic map).

Extremes.--June to September 1950: Maximum discharge, 57 cfs Sept. 26 (gage height, 0.76 ft); minimum, 3.0 cfs Sept. 6 (gage height, 0.46 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						7.33	5.44	4.51	5.81			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						436	334	277	346			

263. Pilchuck Creek near Bryant, Wash.

Location.--Lat 48°16'00", long. 122°09'45", in NE¼ sec. 16, T. 32 N., R. 5 E., on right bank 500 ft upstream from highway bridge and 2 miles north of Bryant.

Drainage area.--49.7 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 140 ft (from topographic map). Mar. 12, 1929, to Sept. 30, 1931, staff gages 100 ft downstream at different datums.

Extremes.--1929-31, 1950: Maximum discharge, 3,790 cfs (revised) Feb. 1, 1930 (revised) (gage height, 5.2 ft, revised, from graph based on gage readings, site and datum then in use); minimum observed, 0.5 cfs Aug. 29 to Sept. 1, 1931 (gage height, 0.90 ft, site and datum then in use).

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929													
1930	62.0	194	347	236	535	337	343	218	118	17.6	14.2	7.21	-
								129	55.4	11.1	1.58	63.1	173
1931	340	154	244	524	340	596	458	103	313	51.2	1.52	316	286
1950	-	-	-	-	-	-	-	-	-	65.0	50.0	79.4	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929													
1930	3,810	11,500	21,300	14,500	29,700	20,700	20,400	13,400	7,020	1,080	873	429	-
								7,680	7,670	3,300	682	97.2	125,000
1931	20,900	9,160	15,000	32,200	18,900	36,600	27,300	6,330	18,600	3,150	93.5	18,800	207,000
1950	-	-	-	-	-	-	-	-	-	4,000	3,070	4,720	-

Yearly discharge, in cubic feet per second, of Pilchuck Creek near Bryant, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	*3,790	Feb. 1, 1930*	0.8	173	3.48	47.17	125,000	184	50.33	133,000
1931	722	*3,190	Jan. 27, 1931	.5	286	5.75	78.15	207,000	-	-	-
1950	1182	-	-	-	-	-	-	-	-	-	-

* Revised.

264. Portage Creek near Arlington, Wash.

Location.--Lat 48°10'45", long. 122°11'40" (revised), in NW $\frac{1}{4}$ sec. 17, T. 31 N., R. 5 E., on left bank at crossing on U. S. Highway 99, 0.3 mile upstream from mouth in South Slough, and 3 miles west of Arlington.

Drainage area.--8.8 sq mi (revised), approximately.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

Extremes.--June to September 1950: Maximum discharge, 41 cfs Sept. 26 (gage height, 1.32 ft), from rating curve extended above 15 cfs; minimum, 9.2 cfs Aug. 29, 31 (gage height, 1.01 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						14.4	12.9	12.4	12.1			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						859	791	763	723			

265. Fish Creek near Arlington, Wash.

Location.--Lat 48°10'30", long. 122°13'30", in NW $\frac{1}{4}$ sec. 18, T. 31 N., R. 5 E., on left bank three-quarters of a mile upstream from mouth and 4 $\frac{1}{2}$ miles west of Arlington.

Drainage area.--7.6 sq mi, approximately.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 50 ft (from topographic map).

Extremes.--June to September 1950: Maximum discharge, 18.5 cfs Sept. 25 (gage height, 1.42 ft); minimum, 0.48 cfs Aug. 9, Sept. 11, 12, 13, 19 (gage height, 0.69 ft).

Remarks.--Several small diversions for irrigation and domestic use above station. Slight regulation; cause unknown.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						-	0.860	0.775	1.16			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950						-	53	48	69			

266. Church Creek near Standwood, Wash.

Location.--Lat 48°14'00", long. 122°19'30", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 32 N., R. 4 E., on right bank 500 ft upstream from highway crossing, 1 $\frac{1}{2}$ miles upstream from mouth, and 2 miles southeast of Standwood.

Drainage area.--6.4 sq mi (revised), approximately.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 20 ft (from topographic map).

Extremes.--June to September 1950: Maximum discharge not determined, occurred Sept. 26 (gage height, 1.40 ft); minimum not determined; minimum gage height, 0.50 ft Sept. 10.

Remarks.--Several diversions for irrigation above station. No regulation.

Monthly mean discharge, in cubic feet per second, of Church Creek near Stanwood, Wash.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1950						0.63	0.37	0.25	0.61				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1950						37	23	15	36				

SKAGIT RIVER BASIN

267. Skagit River near Hope, British Columbia
(International gaging station)

Location (revised).--Lat 49°02'50", long. 121°05'45", on left bank just downstream from Galena Creek, 4 miles upstream from international boundary, and 27 miles southeast of Hope, British Columbia.

Drainage area.--357 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,670 ft (from topographic map). Mar. 27, 1915, to Sept. 30, 1922, water-stage recorder 550 ft downstream at different datum.

Average discharge.--22 years (1916-22, 1934-50), 954 cfs.

Extremes.--1915-22, 1934-50: Maximum discharge observed, 10,200 cfs June 21, 1950 (gage height, 12.20 ft); minimum recorded, 81 cfs Feb. 9, 1937.

Remarks.--No diversion or regulation above station.

Cooperation.--Records 1915-22, not previously published by Geological Survey, furnished by Canadian Department of Resources and Development. This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1915	-	-	-	-	-	-	957	897	814	420	292	166	-
1916	423	549	373	191	169	182	1,400	2,550	4,430	2,410	877	378	-
1917	220	312	191	164	169	182	498	2,910	3,870	2,290	682	355	987
1918	293	453	826	1,670	625	315	1,430	2,630	3,520	1,510	551	301	1,160
1919	365	407	485	336	303	413	1,510	3,010	3,600	2,320	697	451	1,160
1920	180	850	730	670	912	416	460	2,200	3,000	1,990	570	528	1,040
1921	1,200	510	435	494	783	721	842	3,020	4,520	1,660	538	474	1,270
1922	644	757	1,230	372	261	213	484	2,250	3,810	985	413	339	980
1935	#282	1,010	618	1,090	1,530	519	560	2,130	2,710	1,330	495	308	#1,040
1936	217	184	213	184	120	232	1,720	3,310	1,910	538	263	192	757
1937	145	115	277	125	94	287	682	2,440	4,120	1,230	395	240	847
1938	329	651	667	542	282	520	1,140	3,210	2,870	903	311	199	971
1939	181	196	387	553	211	457	1,520	2,820	2,140	1,190	405	201	859
1940	243	419	1,020	465	417	614	1,060	1,860	1,070	431	224	165	667
1941	362	243	365	310	343	431	944	1,080	853	388	202	334	488
1942	1,000	848	1,040	361	245	225	893	1,670	1,740	781	337	172	779
1943	136	237	528	471	413	490	2,010	2,160	3,160	2,090	570	264	1,040
1944	207	193	285	175	152	180	576	1,510	1,530	549	285	260	492
1945	253	281	385	470	474	284	385	2,320	2,120	818	305	238	695
1946	469	672	380	329	256	430	986	3,690	2,850	1,280	465	245	1,030
1947	241	514	471	312	585	923	1,500	3,280	2,180	882	362	237	925
1948	533	583	552	463	276	244	870	3,380	5,090	1,110	651	439	1,180
1949	528	373	302	236	191	386	1,440	3,880	2,750	1,270	706	522	1,050
1950	432	1,200	1,070	430	429	592	777	2,680	6,560	3,500	678	317	1,560

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1915	-	-	-	-	-	-	56,900	55,200	48,400	25,800	18,000	10,200	-
1916	26,000	32,800	22,900	-	-	-	83,300	157,000	264,000	148,000	53,900	22,500	-
1917	13,500	18,600	11,700	10,100	9,390	11,200	29,600	79,000	230,000	141,000	41,900	21,100	717,000
1918	17,400	27,000	50,800	103,000	34,700	19,400	85,100	162,000	209,000	80,800	33,900	17,900	841,000
1919	22,400	24,200	29,800	20,700	16,800	25,400	89,800	185,000	214,000	143,000	42,900	26,800	841,000
1920	11,100	50,600	44,900	41,200	52,500	25,600	27,400	135,000	179,000	122,000	35,000	31,400	756,000
1921	73,800	30,300	26,700	30,400	43,500	44,300	50,100	166,000	269,000	102,000	33,000	28,200	917,000
1922	39,600	45,000	75,600	22,900	14,500	13,100	28,800	138,000	22,700	60,600	25,400	20,200	711,000
1935	#17,300	60,200	38,000	67,100	84,900	31,900	33,300	131,000	161,000	81,700	30,400	18,300	#755,000

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet, of Skagit River near Hope, British Columbia.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	13,300	10,900	13,100	11,300	6,890	14,300	102,000	203,000	114,000	33,100	16,200	11,400	549,000
1937	8,910	6,860	17,000	7,700	5,220	17,600	40,600	150,000	45,000	75,700	24,300	14,300	613,000
1938	20,200	38,800	41,000	33,300	15,600	32,000	67,600	197,000	171,000	55,500	19,100	11,800	703,000
1939	11,100	11,700	23,800	34,000	11,700	28,100	90,500	173,000	127,000	73,300	24,900	12,000	621,000
1940	14,900	24,900	62,500	28,600	24,000	37,800	63,300	114,000	63,800	26,500	13,800	9,820	484,000
1941	22,280	14,470	22,450	19,080	19,030	26,520	56,180	66,210	50,760	23,870	12,450	19,860	353,200
1942	61,470	50,460	64,240	22,220	13,580	13,850	53,160	102,600	103,200	48,080	20,740	10,240	583,800
1943	8,360	14,100	32,480	28,930	22,950	30,150	119,300	132,900	188,300	128,300	35,030	15,720	756,500
1944	12,700	11,490	17,540	10,770	8,720	11,060	34,260	92,740	90,920	33,740	17,550	15,480	357,000
1945	15,570	16,690	23,680	28,860	26,300	17,490	22,890	142,600	126,000	50,330	18,730	14,150	503,300
1946	28,810	39,990	23,360	20,220	14,190	26,440	58,690	239,100	169,900	78,740	28,620	14,610	742,700
1947	14,820	12,720	28,940	19,180	32,570	50,560	89,110	201,600	129,800	54,250	22,280	14,110	670,000
1948	32,760	34,710	33,960	28,500	15,890	14,990	51,760	207,700	102,900	68,270	40,010	26,120	857,600
1949	32,450	22,200	18,540	14,530	10,580	23,750	85,740	238,400	163,500	78,110	43,380	31,030	762,200
1950	26,550	71,170	65,670	26,440	23,840	36,410	46,220	165,000	130,400	214,900	41,670	18,880	1,127,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1915	(a)	b1,280	Apr. 4, 1915	-	-	-	-	-	-	-	-
1916	(a)	b7,560	June 17, 1916	-	-	-	-	-	-	-	-
1917	(a)	b65,920	May 29, 1917	-	-	987	2.78	38.94	717,000	1,060	41.63
1918	(a)	b5,980	June 10, 1918	227	1,160	3.26	44.26	841,000	1,140	60.28	822,000
1919	(a)	b5,140	May 26, 1919	212	1,160	3.25	44.32	841,000	1,200	45.91	871,000
1920	(a)	-	-	-	1,040	2.93	29.81	756,000	1,070	41.09	780,000
1921	(a)	b6,920	June 7, 1921	-	1,270	3.56	48.34	917,000	1,310	49.88	946,000
1922	(a)	b6,850	June 4, 1922	202	980	2.75	37.38	711,000	-	-	-
1935	792	6,560	Jan. 25, 1935	170	1,040	2.91	33.68	755,000	935	35.55	677,000
1936	812	5,070	May 31, 1936	110	757	2.12	28.68	549,000	751	28.64	545,000
1937	832	6,570	June 3, 1937	81	847	2.37	32.22	613,000	940	35.75	680,000
1938	862	6,370	May 26, 1938	142	971	2.72	36.91	703,000	897	34.10	650,000
1939	882	5,440	May 16, 1939	141	859	2.41	32.65	621,000	956	35.58	677,000
1940	902	2,990	May 24, 1940	140	687	1.87	25.44	484,000	608	23.17	440,800
1941	932	1,560	May 2, 1941	124	488	1.37	18.55	353,200	649	24.69	470,100
1942	962	4,440	May 26, 1942	137	779	2.18	29.61	563,800	611	23.25	442,600
1943	982	5,420	May 27, 1943	120	1,040	2.91	39.73	756,500	1,030	39.04	743,300
1944	1012	2,510	May 29, 1944	113	492	1.38	18.75	357,000	511	19.49	371,200
1945	1042	5,560	May 30, 1945	184	695	1.95	26.43	503,300	745	28.33	539,500
1946	1062	5,960	May 27, 1946	154	1,030	2.89	39.00	742,700	976	37.13	717,000
1947	1092	5,630	May 8, 1947	155	925	2.59	35.19	670,000	988	37.55	714,900
1948	1122	9,720	May 28, 1948	199	1,180	3.31	45.04	857,600	1,140	43.56	829,300
1949	1152	6,850	May 16, 1949	145	1,050	2.94	40.04	762,200	1,180	44.77	852,400
1950	1182	d10,200	June 21, 1950	270	1,560	4.37	59.20	1,127,000	-	-	-

* Not previously published.

a From Canadian Water Resources Papers.

b Maximum daily.

c Estimated

d Maximum observed.

268. Lightning Creek near Newhalem, Wash.

Location.--Lat 48°53'30", long. 120°58'50", in SE¹ sec. 4, T. 39 N., R. 14 E. (unsurveyed), on right bank a quarter of a mile downstream from Three Fools Creek, 3 miles upstream from mouth, and 19 miles northeast of Newhalem.

Drainage area.--129 sq mi, of which 22 sq mi is in Canada.

Gage.--Water-stage recorder. Altitude of gage is 1,810 ft (by barometer).

Extremes.--1943-48: Maximum discharge not determined, occurred during period of no gage-height record May 27-31, 1948; minimum, 46 cfs Feb. 17, 1948 (gage height, 0.79 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	91.8	78.9	102	73.4	65.3	75.1	229	611	598	192	107	89.7	193
1945	88.8	84.3	125	142	201	105	160	970	903	344	137	110	281
1946	176	218	125	105	91.5	146	400	1,388	1,124	538	189	112	386
1947	94.5	82.4	112	109	185	284	513	1,210	805	340	152	98.1	333
1948	188	183	190	146	104	96.6	304	1,222	-	-	-	-	-

Monthly and yearly runoff, in acre-feet, of Lightning Creek near Newhalem, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	5,650	4,690	6,250	4,510	3,750	4,620	13,600	37,560	35,590	11,610	6,570	5,340	139,900
1945	5,460	5,020	7,670	8,740	11,180	6,480	9,540	59,650	53,700	21,150	8,400	6,530	203,500
1946	10,850	13,000	7,720	6,430	5,080	9,000	23,780	85,360	66,880	33,090	11,630	6,650	279,500
1947	5,810	4,900	6,860	6,870	10,260	17,440	30,510	74,380	47,890	20,920	9,370	5,840	240,800
1948	11,570	10,860	11,700	8,960	5,990	5,940	18,120	75,170	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Acres-foot	Mean	Runoff		
		Discharge	Date						Inches	Acres-foot	
1944	1012	1,140	May 28, 1944	50	193	1.50	20.36	139,900	195	20.59	141,500
1945	1042	2,500	May 30, 1945	71	261	2.18	29.59	203,500	300	31.54	216,900
1946	1062	2,100	May 27, 1946	71	366	2.99	40.64	279,500	367	38.60	265,500
1947	1092	2,240	May 8, 1947	50	333	2.58	35.00	240,800	356	37.41	257,400
1948	1122	-	-	-	-	-	-	-	-	-	-

269. Skagit River above Devils Creek, near Newhalem, Wash.

Location (revised).--Lat 48°50'30", long. 121°02'20" in W $\frac{1}{2}$ sec. 30, T. 39 N., R. 14 E., on left bank 2 miles upstream from Devils Creek, $9\frac{1}{2}$ miles upstream from Ross Dam, and 15 miles northeast of Newhalem.

Drainage area.--650 sq mi (revised), approximately, of which 400 sq mi is in Canada.

Gage.--Water-stage recorder. Altitude of gage is 1,410 ft (from river-profile map).

Average discharge.--5 years (1940-45), 1,490 cfs.

Extremes.--1940-45: Maximum discharge, 9,140 cfs May 31, 1945 (gage height, 7.27 ft); minimum, 257 cfs Nov. 13, 1942 (gage height, 0.39 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	-	-	-	-	-	-	2,164	3,770	2,434	1,081	630	492	-
1941	1,137	676	938	796	891	1,007	1,998	2,258	1,910	975	587	728	1,157
1942	1,873	1,695	2,298	763	532	520	1,780	3,088	3,360	1,713	843	435	1,581
1943	342	536	1,016	746	762	993	3,651	3,826	5,888	4,611	1,463	708	2,067
1944	524	463	669	481	434	476	1,226	3,025	3,198	1,257	724	662	1,095
1945	607	627	867	1,027	1,235	763	1,021	4,609	4,328	2,032	832	613	1,548

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	-	-	-	-	-	-	128,700	231,800	144,800	66,490	38,720	29,260	-
1941	69,920	40,230	57,670	48,960	49,470	61,920	118,900	138,800	113,600	60,020	34,830	43,320	837,600
1942	115,200	100,900	141,300	46,920	29,560	32,000	105,900	189,900	199,900	105,300	51,830	25,880	1,145,000
1943	21,000	31,900	62,470	45,870	42,330	61,030	229,100	235,300	300,500	400,280	91,170	42,130	1,496,000
1944	32,220	27,520	41,150	29,550	24,980	29,290	72,970	186,000	190,300	77,270	44,520	39,410	795,200
1945	37,300	37,300	53,320	63,130	68,610	46,920	60,760	263,400	257,600	125,000	61,160	36,490	1,121,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Acres-foot	Mean	Runoff		
		Discharge	Date						Inches	Acres-foot	
1940	902	5,900	May 24, 1940	-	-	-	-	-	-	-	-
1941	932	4,210	Oct. 21, 1940	362	1,157	1.78	24.16	837,600	1,419	29.63	1,027,000
1942	962	5,570	Dec. 3, 1941	358	1,581	2.43	35.02	1,145,000	1,247	26.04	902,600
1943	982	8,220	June 10, 1943	260	2,087	3.18	43.17	1,496,000	2,047	42.75	1,482,000
1944	1012	4,630	(a)	309	1,095	1.68	22.93	795,200	1,133	23.72	822,200
1945	1042	9,140	May 31, 1945	424	1,548	2.38	32.33	1,121,000	-	-	-

a May 15, 16, 29, 1944.

270. Beaver Creek near Newhalem, Wash.

Location (revised).--Lat 48°46'40", long. 121°04'20", in S $\frac{1}{2}$ sec. 14, T. 38 N., R. 13 E. (unsurveyed), on left bank three-quarters of a mile upstream from Ross Reservoir, 3 miles north of Ross Dam on Skagit River, and 10 $\frac{1}{2}$ miles northeast of Newhalem.

Drainage area.--52 sq mi (revised), approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,600 ft (from river-profile map).

Average discharge.--8 years (1940-48), 376 cfs.

Extremes.--1940-48: Maximum discharge, 3,980 cfs (revised) Dec. 2, 1941 (gage height, 7.76 ft); minimum, 65 cfs Jan. 14, 1947 (gage height, 0.97 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	-	-	-	-	-	410	510	759	605	396	261	237	-
1941	606	220	278	201	201	257	428	501	502	387	243	306	345
1942	443	379	481	112	89.4	108	355	515	807	552	280	137	340
1943	118	200	266	152	125	131	551	670	929	907	393	212	402
1944	177	126	200	157	114	138	270	488	551	340	226	269	255
1945	232	254	251	235	266	141	209	874	742	555	273	235	356
1946	338	285	172	154	147	212	455	1,224	962	812	448	257	458
1947	190	125	306	156	310	278	498	899	726	568	294	227	382
1948	508	269	299	180	119	113	330	966	1,399	628	494	355	471

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	-	-	-	-	-	25,180	30,330	46,660	36,010	24,350	16,070	14,070	-
1941	37,250	15,110	17,080	12,370	11,140	15,770	25,460	30,790	29,880	23,810	14,920	18,210	249,800
1942	27,270	22,570	29,560	6,900	4,910	6,610	21,150	31,730	36,110	33,930	17,220	8,170	246,100
1943	7,270	11,890	16,380	9,350	6,960	11,750	38,760	41,170	55,270	55,780	24,170	12,590	291,300
1944	10,900	7,500	12,230	9,650	6,560	8,470	16,090	30,030	32,760	20,920	13,880	16,030	185,100
1945	14,240	15,110	15,460	14,440	14,790	8,660	12,430	53,750	44,170	34,150	16,800	14,000	258,000
1946	20,780	16,960	10,580	9,460	8,170	13,010	27,080	75,230	57,270	49,320	27,570	15,310	331,300
1947	11,700	7,450	18,800	9,620	17,200	17,090	29,640	55,260	43,190	34,930	18,090	13,480	276,400
1948	31,270	15,980	18,360	11,050	6,830	6,940	19,640	59,410	83,240	38,600	29,750	21,100	342,200

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year		
		Momentary		maximum		Minimum		Runoff		Mean
		Discharge	Date	Discharge	Date	day	Mean	Per square mile	Inches	
1940	932	-	-	-	-	-	-	-	-	-
1941	932	*3,540	Oct. 19, 1940	112	345	6.63	90.07	249,800	362	94.38
1942	982	*3,980	Dec. 2, 1941	80	340	6.54	88.75	246,100	279	72.93
1943	982	1,550	July 4, 1943	76	402	7.73	105.05	291,300	396	103.30
1944	1012	1,280	Dec. 3, 1943	67	255	4.90	66.74	185,100	274	71.83
1945	1042	1,680	May 31, 1945	93	356	6.85	93.03	258,000	361	94.29
1946	1062	*3,760	Oct. 26, 1945	84	458	8.81	119.48	331,300	443	115.74
1947	1092	1,780	Oct. 25, 1946	79	382	7.35	99.68	276,400	420	109.65
1948	1122	2,490	(a)	62	471	9.06	123.38	342,200	-	-

* Revised.

a May 28, June 10, 1948.

271. Skagit River near Newhalem, Wash. 1/

Location.--Lat 48°44'50", long. 121°01'50", in S $\frac{1}{2}$ sec. 30, T. 38 N., R. 14 E. (unsurveyed), on right bank 1 $\frac{1}{4}$ miles upstream from Ruby Creek and 11 miles northeast of Newhalem.

Drainage area.--765 sq mi, of which 400 sq mi is in Canada.

Gage.--Water-stage recorder. Altitude of gage is 1,250 ft (from river-profile map).

Average discharge.--10 years (1929-39), 2,633 cfs.

Extremes.--1929-40: Maximum discharge, 25,700 cfs Feb. 27, 1932 (gage height, 15.9 ft), from rating curve extended above 13,000 cfs; minimum, 230 cfs Feb. 21, 1937 (gage height, 3.27 ft).
Flood in December 1921 reached a stage of 17.8 ft, from floodmarks (discharge, about 33,000 cfs).

Remarks.--No diversion or regulation above station.

1/ Published as Skagit River above Ruby Creek, near Marblemount, 1930-31.

Monthly and yearly mean discharge, in cubic feet per second, of Skagit River near Newhalem, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	\$5,530	\$2,330	\$1,280	\$750	-
1930	\$703	\$414	\$1,000	\$550	\$1,930	1,690	5,030	4,500	4,860	2,750	1,390	980	\$2,130
1931	860	873	627	1,290	1,650	1,850	2,330	6,200	4,400	2,090	1,110	1,280	2,050
1932	831	1,580	1,120	1,180	2,740	2,850	3,500	6,260	7,120	3,070	1,650	938	2,730
1933	1,240	3,980	2,560	1,360	790	1,080	2,840	5,150	9,570	7,010	2,890	1,670	3,350
1934	3,422	3,436	3,420	3,396	2,497	3,779	7,858	7,193	4,844	2,721	1,612	1,048	3,774
1935	1,122	3,718	2,049	3,392	3,875	1,539	1,627	4,942	6,142	3,804	1,661	1,444	2,932
1936	842	601	726	733	480	936	4,307	7,566	5,161	2,013	1,189	847	2,102
1937	631	419	887	518	384	1,045	1,945	5,346	8,973	3,678	1,431	980	2,191
1938	1,327	2,244	2,171	1,709	845	1,579	3,222	7,136	7,330	3,230	1,251	947	2,757
1939	814	798	1,357	2,022	804	1,339	3,607	6,218	4,844	3,445	1,526	837	2,311
1940	943	1,294	3,311	1,535	1,377	2,076	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	\$39,000	\$43,000	\$77,500	\$44,600	-
1930	\$43,200	\$24,600	\$61,500	\$33,800	\$107,000	\$104,000	\$299,000	\$264,000	\$289,000	\$169,000	\$85,500	\$58,300	\$1,540,000
1931	52,900	51,900	38,600	79,300	91,600	114,000	139,000	381,000	262,000	129,000	68,200	76,200	1,480,000
1932	51,100	94,000	68,900	72,600	158,000	175,000	208,000	385,000	424,000	189,000	101,000	55,800	1,980,000
1933	76,200	237,000	157,000	83,600	43,900	66,400	169,000	317,000	569,000	431,000	178,000	99,400	2,430,000
1934	210,400	204,500	210,300	208,800	158,700	32,400	467,600	442,300	288,200	167,300	99,130	62,360	2,732,000
1935	69,020	21,300	26,000	208,600	215,200	94,630	96,790	303,900	565,500	33,900	102,100	85,920	2,123,000
1936	51,750	35,750	44,610	45,040	27,580	57,550	256,300	452,900	507,100	123,700	73,120	50,390	1,526,000
1937	38,800	24,930	54,580	31,820	21,320	64,260	115,700	328,700	333,900	226,200	88,020	58,320	1,587,000
1938	81,570	133,500	33,500	105,120	46,940	97,090	191,700	438,800	36,200	198,600	76,930	56,360	1,996,000
1939	50,040	47,460	83,450	124,300	44,650	82,350	214,700	582,300	288,200	211,800	93,840	49,810	1,673,000
1940	58,000	77,010	203,600	94,360	79,180	127,600	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1929	-	-	-	-	-	-	-	-	-	-	-
1930	722	\$8,270	June 11, 1930	-	\$2,130	\$2.78	\$37.74	\$1,540,000	\$2,150	\$38.08	\$1,550,000
1931	722	9,860	May 2, 1931	450	2,050	2.68	36.34	1,480,000	2,150	38.08	1,550,000
1932	737	25,700	Feb. 27, 1932	568	2,730	3.57	48.60	1,980,000	3,080	54.88	2,240,000
1933	752	17,300	June 16, 1933	600	3,350	4.38	59.48	2,430,000	3,570	63.26	2,580,000
1934	767	14,300	Apr. 24, 1934	678	3,774	4.93	66.98	2,732,000	3,485	61.88	2,523,000
1935	792	17,000	Nov. 5, 1934	594	2,932	3.83	52.05	2,123,000	2,540	45.08	1,839,000
1936	812	12,000	May 31, 1936	425	2,102	2.75	37.40	1,526,000	2,083	37.06	1,512,000
1937	832	12,700	June 3, 1937	340	2,191	2.86	38.85	1,587,000	2,510	44.48	1,817,000
1938	862	13,600	May 26, 1938	577	2,757	3.60	48.90	1,996,000	2,526	44.79	1,829,000
1939	882	12,100	May 29, 1939	589	2,311	3.02	40.97	1,673,000	2,529	44.85	1,831,000
1940	902	-	-	-	-	-	-	-	-	-	-

* Not previously published.

272. Granite Creek near Newhalem, Wash.

Location.--Lat 48°41'40", long. 120°53'30", in SE 1/4 sec. 20, T. 37 N., R. 16 E. (unsurveyed), on right bank at bridge on Cascade Crest trail, 1 mile upstream from Ruby Creek, and 16 miles east of Newhalem.

Drainage area.--69 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,980 ft (by barometer).

Extremes.--1946-48: Maximum discharge, 1,800 cfs May 26, 1947 (gage height, 5.79 ft); minimum, 25 cfs Mar. 10, 1948 (gage height, 2.07 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	61.9	47.9	56.4	47.1	62.4	141	369	917	634	282	98.0	53.3	232
1948	124	101	78.5	57.5	41.0	40.7	137	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	3,800	2,850	3,470	2,900	3,470	8,680	21,980	56,410	37,710	17,320	6,020	3,170	167,800
1948	7,610	6,010	4,820	3,530	2,360	2,500	8,130	-	-	-	-	-	-

Yearly discharge, in cubic feet per second, of Granite Creek near Newhalem, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1947	1092	1,800	May 26, 1947	34	232	3.36	45.59	167,800	243	47.86	176,100
1948	1122	-	-	-	-	-	-	-	-	-	-

273. Ruby Creek below Panther Creek, near Newhalem, Wash.

Location.--Lat 48°42'30", long. 120°58'10", in NW¹/₄ sec. 10, T. 37 N., R. 14 E. (unsurveyed), on right bank 200 ft downstream from Panther Creek, 4 miles upstream from mouth, and 13 miles northeast of Newhalem.

Drainage area.--199 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,640 ft (by barometer).

Extremes.--1948-50: Maximum discharge, 8,640 cfs Nov. 27, 1949 (gage height, 10.95 ft), from rating curve extended above 5,600 cfs; minimum, 46 cfs Feb. 10, 1949 (gage height, 0.70 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	-	-	284	-
1949	362	191	142	116	102	218	810	2,636	1,916	1,023	409	288	686
1950	283	900	630	252	185	241	314	1,295	3,532	2,108	595	244	883

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	-	-	16,920	-
1949	22,270	11,360	8,760	7,150	5,670	13,400	48,190	162,100	114,000	62,910	25,150	17,150	498,100
1950	17,390	52,550	36,780	15,480	10,290	14,830	18,680	79,610	210,200	129,800	36,570	14,530	639,500

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1152	-	-	-	-	-	-	-	-	-	-
1949	1152	5,170	May 15, 1949	63	688	3.46	46.92	498,100	761	53.26	585,400
1950	1182	8,640	Nov. 27, 1949	169	883	4.44	60.26	639,500	-	-	-

274. Ruby Creek near Newhalem, Wash. 1/

Location.--Lat 48°43'20", long. 121°00'30", in SE¹/₄ sec. 5, T. 37 N., R. 14 E., 2 miles upstream from mouth and 12 miles east (revised) of Newhalem.

Drainage area.--210 sq mi (revised), approximately.

Gage.--Water-stage recorder. Datum of gage is 1,554.26 ft above mean sea level (levels by city of Seattle). Prior to Mar. 8, 1940, water-stage recorder 1½ miles downstream at different datum.

Average discharge.--20 years (1928-48), 610 cfs.

Extremes.--1919-20, 1928-49: Maximum discharge, 9,920 cfs May 27, 1948 (gage height, 9.2 ft), from rating curve extended above 5,600 cfs; minimum recorded, 25 cfs Feb. 16, 1948 (gage height, 1.96 ft, result of snowslides upstream).

Remarks.--No diversion or regulation above station.

1/ Published as Ruby Creek near Marblemount prior to October 1931.

Monthly and yearly mean discharge, in cubic feet per second, of Ruby Creek near Newhalem, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1919	-	-	-	-	-	-	-	-	*2,210	*1,820	610	309	-
1920	135	356	*293	281	319	212	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	-	*170	-
1929	*347	*197	*181	*117	*105	*160	*274	*1,610	*1,730	*588	*248	*138	*477
1930	*107	*78.8	*74.9	*60	*185	*290	1,040	1,220	1,500	762	284	175	*461
1931	143	130	90.0	172	250	283	493	1,860	1,230	498	226	214	467
1932	146	254	194	155	631	575	816	1,920	2,240	791	557	178	686
1933	221	803	480	249	143	182	608	1,270	2,950	2,110	717	331	840
1934	821	860	787	531	435	857	2,216	2,164	1,648	810	367	201	976
1935	182	733	420	643	834	300	396	1,805	2,132	1,225	426	264	761
1936	145	105	104	106	82.5	131	989	2,279	1,870	489	250	152	542
1937	109	76.5	120	81.6	66.4	188	326	2,749	1,039	283	192	162	565
1938	269	394	359	288	163	282	755	2,059	2,304	810	227	167	875
1939	154	140	189	308	140	291	894	1,895	1,464	929	310	157	575
1940	178	266	518	250	229	316	649	1,570	1,048	394	203	159	483
1941	400	215	264	181	177	274	807	922	793	348	199	274	405
1942	553	406	500	194	134	141	626	1,362	1,371	670	239	115	528
1943	85.6	119	194	176	176	224	959	1,287	2,388	1,872	461	210	683
1944	160	121	180	111	108	133	415	1,237	1,308	436	204	257	369
1945	206	180	240	290	309	180	252	1,699	1,682	696	243	190	515
1946	313	361	200	183	139	221	676	2,663	2,067	1,184	402	194	720
1947	177	146	197	145	235	440	942	2,357	1,702	810	311	174	639
1948	359	278	248	191	139	129	445	2,162	3,602	1,317	467	305	803
1949	382	228	182	129	122	257	857	2,646	-	-	-	-	-

* Revised.

* Not previously published; computed from available gage heights.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1919	-	-	-	-	-	-	-	-	*132,000	*99,600	37,500	18,400	-
1920	8,300	21,200	18,000	17,300	18,300	13,000	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	-	*10,100	-
1929	*21,300	*11,700	*11,100	*7,190	*5,830	*9,840	*16,300	*99,000	*103,000	*36,200	*15,200	*8,210	*345,000
1930	*6,580	*4,690	*4,610	*3,690	*10,300	*17,800	61,900	75,000	89,300	46,900	17,500	10,400	*349,000
1931	8,790	7,740	5,530	10,600	13,900	17,400	29,300	114,000	73,200	30,600	13,900	12,700	338,000
1932	8,980	15,100	11,900	9,530	36,300	35,400	48,600	118,000	33,000	48,600	22,000	10,600	498,000
1933	13,600	47,800	29,500	15,300	7,940	11,200	36,100	78,100	76,000	130,000	44,100	19,700	609,000
1934	50,480	61,200	48,380	32,620	24,130	52,680	131,900	133,000	98,070	49,810	22,540	11,980	706,800
1935	11,170	43,630	25,840	39,520	46,310	18,430	23,550	98,710	82,600	75,320	26,160	15,680	551,100
1936	8,920	6,220	6,370	6,540	4,740	6,030	58,960	140,100	99,350	30,100	15,390	9,070	393,700*
1937	6,880	4,560	7,400	5,020	3,690	11,590	19,370	94,570	63,600	63,890	17,380	11,450	409,200
1938	16,550	23,420	22,070	17,680	9,050	17,330	44,810	126,800	33,000	49,790	13,960	9,940	488,400
1939	9,490	8,340	11,620	16,940	7,770	17,890	53,200	116,500	87,110	57,130	19,040	9,320	416,400
1940	10,970	15,610	31,830	15,380	13,180	19,440	38,600	96,530	62,390	24,220	12,510	9,450	350,300
1941	24,610	12,780	16,250	11,130	9,860	16,840	48,020	56,700	47,210	21,380	12,230	16,290	293,300
1942	34,350	24,150	30,770	11,920	7,420	8,660	37,270	83,730	81,580	41,200	14,680	6,840	382,600
1943	5,280	7,100	11,910	10,820	9,780	13,900	57,080	79,150	42,100	15,100	29,570	12,510	484,200
1944	9,840	7,200	11,060	6,840	6,220	9,170	24,700	76,070	77,610	26,910	12,540	15,290	282,600
1945	12,650	10,730	14,730	17,820	17,160	11,040	15,000	104,500	100,100	42,790	14,950	11,290	372,800
1946	19,260	21,460	12,280	11,270	7,700	13,610	40,200	163,700	123,000	72,790	24,730	11,550	521,600
1947	10,900	8,680	12,120	8,890	13,050	27,070	56,080	144,900	101,300	49,790	19,140	10,350	462,300
1948	22,070	16,580	15,280	11,770	7,970	7,930	25,470	133,000	114,400	81,000	26,700	18,170	583,300
1949	23,480	13,590	11,210	7,930	6,790	15,780	50,970	162,700	-	-	-	-	-

* Revised.

* Not previously published; computed from available gage heights.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1919	1346,512	-	-	-	-	-	-	-	-	-	-
1920	1346,512	-	-	-	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	-
1929	-	\$3,460	May 22, 1929	\$91	\$477	\$2.27	\$30.78	\$345,000	\$438	\$28.26	\$317,000
1930	722	\$3,030	June 6, 1930	-	\$481	\$2.29	\$31.12	\$349,000	\$490	\$31.67	\$355,000
1931	722	3,570	May 14, 1931	-	467	2.22	30.20	338,000	486	31.45	352,000
1932	737	6,730	Feb. 27, 1932	-	686	3.27	44.55	498,000	762	49.44	553,000
1933	752	6,510	June 14, 1933	101	840	4.00	54.23	609,000	923	59.52	669,000
1934	767	4,920	Apr. 23, 1934	118	976	4.65	63.18	706,800	880	56.98	637,400
1935	792	3,460	Nov. 5, 1934	101	761	3.62	49.28	551,100	680	44.01	492,000
1936	812	4,850	June 2, 1936	70	542	2.58	35.22	393,700	538	34.96	390,800
1937	832	4,490	June 2, 1937	54	565	2.69	36.56	409,200	625	40.44	452,800
1938	862	4,530	May 25, 1938	137	675	3.21	43.65	488,400	630	40.73	455,800
1939	882	4,650	May 28, 1939	106	575	2.74	37.19	416,400	615	39.79	445,500
1940	902	3,070	May 23, 1940	114	483	2.30	31.28	350,300	476	30.84	345,400

* Not previously published.

Yearly discharge, in cubic feet per second, of Ruby Creek near Newhalem, Wash.--Continued												
Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet	
1941	932	1,630	Oct. 20, 1940	97	405	1.93	26.19	293,300	454	29.37	328,900	
1942	962	4,650	May 25, 1942	95	528	2.51	34.16	382,600	439	28.35	317,600	
1943	962	4,160	June 9, 1943	70	683	3.25	44.12	494,200	689	44.46	498,000	
1944	1012	2,370	May 15, 28, 1944	90	389	1.85	25.24	282,600	403	26.13	292,700	
1945	1042	4,360	May 30, 1945	138	515	2.45	33.28	372,800	535	34.61	387,600	
1946	1062	4,160	May 26, 27, 1946	105	720	3.43	46.57	521,600	691	44.67	500,200	
1947	1092	4,260	May 8, 1947	95	639	3.04	41.27	462,300	669	43.28	484,500	
1948	1122	9,920	May 27, 1948	113	803	3.82	52.07	583,300	796	51.57	577,700	
1949	1152	-	-	-	-	-	-	-	-	-	-	

275. Skagit River below Ruby Creek, near Newhalem, Wash.^{1/}

Location.--Lat 48°44'20", long. 121°03'40", in SE¹/₄ sec. 35, T. 38 N., R. 13 E. (unsurveyed), on right bank three-quarters of a mile downstream from Ruby Creek, 9 miles northeast of Newhalem, and 23 miles northeast of Marblemount.

Drainage area.--978 sq mi, of which 400 sq mi is in Canada.

Supplemental records available.--Monthly mean discharge only for October 1908 to May 1919, and October 1930 to September 1933 are contained in State of Washington Water-Supply Bulletin No. 5.

Gage.--Water-stage recorder. Altitude of gage is 1,190 ft (from river-profile map).

Average discharge.--11 years (1919-30), 3,111 cfs.

Extremes.--1919-30: Maximum discharge, 45,700 cfs Dec. 12, 1921 (gage height, 16.1 ft), from rating curve extended above 11,000 cfs on basis of discharge at gage heights 9.8, 10.1 and 11.9 ft, determined by subtracting Thunder Creek and miscellaneous inflow from Skagit River at Reflector Bar near Newhalem; minimum recorded, 390 cfs Dec. 11, 12, 1929, probably less during period of no gage-height record during that winter.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1919	-	-	-	-	-	-	-	-	9,870	7,380	2,990	1,510	-
1920	779	2,140	2,190	2,230	2,210	1,270	1,350	4,790	7,260	6,370	2,250	2,050	2,910
1921	3,960	1,880	1,540	1,790	2,570	2,320	2,740	8,830	13,500	5,790	2,650	1,720	4,110
1922	3,060	2,840	5,250	1,800	750	657	1,670	6,870	12,200	4,070	2,120	1,600	3,540
1923	1,420	1,120	1,660	2,040	954	1,130	4,350	8,400	9,940	5,780	2,160	1,320	3,560
1924	965	748	1,450	983	4,810	1,650	1,880	10,400	6,070	3,210	1,660	1,280	2,930
1925	2,020	2,050	4,500	1,660	2,700	1,750	4,810	11,900	8,640	4,380	1,920	1,050	3,960
1926	577	605	2,160	1,250	1,220	1,460	3,900	3,770	2,870	1,920	1,290	818	1,820
1927	1,980	1,190	1,710	1,290	909	1,060	2,530	6,130	11,500	4,360	2,140	2,320	3,100
1928	3,250	3,150	2,790	3,940	1,500	2,060	2,480	10,500	6,020	3,480	1,510	1,080	3,500
1929	2,090	1,160	976	819	497	928	1,710	7,110	7,410	3,140	1,630	919	2,360
1930	828	500	591	500	2,280	1,830	6,230	5,680	6,850	3,760	1,700	1,160	2,630

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1919	-	-	-	-	-	-	-	-	587,000	454,000	184,000	89,800	-
1920	47,900	127,000	135,000	137,000	127,000	78,100	80,300	295,000	432,000	392,000	138,000	122,000	2,110,000
1921	243,000	112,000	94,700	110,000	143,000	143,000	163,000	543,000	803,000	356,000	163,000	102,000	2,980,000
1922	188,000	169,000	323,000	73,800	41,700	40,400	99,400	422,000	726,000	250,000	130,000	95,200	2,560,000
1923	87,300	66,800	102,000	125,000	51,900	69,500	259,000	516,000	591,000	355,000	133,000	78,600	2,430,000
1924	59,300	44,500	89,800	80,400	277,000	101,000	112,000	640,000	561,000	197,000	102,000	76,200	2,120,000
1925	124,000	122,000	277,000	102,000	150,000	108,000	286,000	732,000	514,000	269,000	118,000	62,500	2,660,000
1926	35,500	36,000	133,000	76,900	67,800	89,800	232,000	232,000	171,000	118,000	79,300	48,700	1,320,000
1927	122,000	70,800	105,000	79,300	50,500	65,200	151,000	377,000	684,000	268,000	132,000	38,000	2,240,000
1928	200,000	187,000	172,000	242,000	86,300	127,000	148,000	646,000	558,000	214,000	92,800	63,100	2,540,000
1929	129,000	69,000	60,000	38,100	27,600	57,100	102,000	437,000	441,000	193,000	100,000	54,700	1,710,000
1930	50,800	29,800	36,300	30,700	127,000	113,000	371,000	349,000	398,000	231,000	105,000	69,000	1,910,000

^{1/} Published as Skagit River below Ruby Creek, near Marblemount, 1919-30.

aily discharge, in cubic feet per second, of Skagit River below Ruby Creek, near Newhalem, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1919	512	-	-	-	-	-	-	-	-	-	-
1920	512	112,600	July 1, 1920	570	2,910	2.98	40.47	2,110,000	3,100	43.15	2,250,000
1921	532	25,200	June 7, 1921	945	4,110	4.20	57.03	2,980,000	4,430	61.45	3,210,000
1922	552	45,700	Dec. 12, 1921	627	3,540	3.62	49.18	2,560,000	2,950	41.03	2,130,000
1923	572	19,200	June 9, 1923	-	3,360	3.44	46.76	2,430,000	3,280	45.56	2,370,000
1924	592	26,200	Feb. 12, 1924	604	2,930	3.00	40.62	2,120,000	3,370	46.94	2,450,000
1925	612	23,200	May 19, 1925	680	3,960	4.05	54.94	2,860,000	3,520	48.83	2,550,000
1926	632	7,460	Apr. 30, 1926	450	1,820	1.86	25.29	1,320,000	1,950	27.08	1,410,000
1927	652	22,200	June 7, 1927	664	3,100	3.17	43.03	2,240,000	3,460	48.03	2,500,000
1928	672	22,200	May 22, 1928	803	3,500	3.58	48.56	2,540,000	3,080	42.80	2,240,000
1929	692	13,600	May 23, 1929	-	2,360	2.41	32.76	1,710,000	2,170	30.05	1,570,000
1930	707	10,700	June 11, 1930	-	2,630	2.69	36.59	1,910,000	-	-	-

* Not previously published.

276. Ross Reservoir near Newhalem, Wash. 1/

Location.--Lat 48°44'00", long. 121°04'10", in SE 1/4 sec. 35, T. 38 N., R. 13 E., at Ross Dam on Skagit River, 1 mile downstream from Ruby Creek, and 9 miles northeast of Newhalem.

Drainage area.--980 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (city of Seattle benchmark). Prior to Sept. 24, 1940, staff gage, and Sept. 24, 1940, to June 27, 1943, water-stage recorder at same site and datum. June 28, 1943, to Apr. 29, 1948, staff gage 500 ft upstream at same datum.

Extremes.--1940-50: Maximum contents, 1,214,000 acre-ft July 10, 1950 (elevation, 1,582.88 ft); minimum since storage began, not determined.

Remarks.--Reservoir is formed by concrete arch dam completed to elevation 1,615 ft in 1949; storage began Mar. 11, 1940. Capacity 1,202,920 acre-ft between elevations 1,250 ft (lowest outlet) and 1,582 ft (spillway crest). Dead storage is negligible. Water used to supplement low flow of Skagit River through Diablo and Newhalem powerplant.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	-	-	-	-	-	4,530	25,360	106,540	97,140	105,660	102,620	86,490
1941	106,190	89,760	105,540	105,830	105,560	84,580	109,060	107,650	100,820	111,740	96,800	91,770
1942	102,920	107,190	99,990	43,440	1,600	1,990	22,810	107,040	108,060	110,480	105,110	92,640
1943	84,480	66,730	85,550	85,730	69,240	7,450	107,740	107,740	111,710	107,740	99,530	77,400
1944	28,820	30,930	54,850	55,810	41,330	25,940	22,380	103,810	103,420	98,980	103,030	91,920
1945	59,320	55,670	49,280	71,310	32,560	9,340	5,200	111,310	95,310	84,660	79,770	51,360
1946	84,000	59,060	42,300	10,600	8,360	5,800	62,810	169,560	145,600	150,270	169,070	185,180
1947	171,530	160,640	182,200	171,280	209,390	117,940	172,520	498,930	482,190	508,940	498,360	469,210
1948	382,470	322,340	174,780	42,540	7,610	6,360	52,690	482,190	1003,700	909,900	883,860	828,450
1949	766,390	680,500	551,670	333,840	166,390	100,700	229,170	715,010	1087,000	1178,600	1082,900	1003,400
1950	909,000	1069,700	987,300	794,120	469,740	224,410	129,240	370,220	1128,100	1166,900	1157,400	1082,900

a. Contents by capacity table used beginning Oct. 1, 1942; contents Sept. 30, 1942, by capacity table used since Oct. 1, 1942, was 92,850 acre-ft.

Note.--Contents at 12 p.m. based on 2 daily observations March to September 1940, June 1943 to March 1948. All other contents from elevations at 12 p.m.

277. Thunder Creek near Newhalem, Wash. 2/

Location.--Lat 48°40'20", long. 121°04'20", in SE 1/4 sec. 23, T. 37 N., R. 13 E., (unsurveyed), on right bank half a mile upstream from backwater from Diablo Reservoir, 8 miles east of Newhalem, and 20 miles northeast of Marblemount.

Drainage area.--98 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,220 ft (from river-profile map).

Average discharge.--20 years (1930-50), 606 cfs.

Extremes.--1920-50: Maximum discharge, 9,630 cfs (revised) Nov. 27, 1949 (gage height, 12.14 ft), from rating curve extended above 2,900 cfs on basis of logarithmic plotting; minimum not determined, probably less than 50 cfs during period of ice effect or no gage-height record in February 1936.

Remarks.--No diversion or regulation above station.

1/ Published as Ruby Reservoir, 1940-45.

2/ Published as Thunder Creek above Colonial Creek, near Marblemount, 1931.

Monthly and yearly mean discharge, in cubic feet per second, of Thunder Creek near Newhalem, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	360	179	95.2	278	212	222	333	985	1,350	1,140	825	664	555
1932	214	301	195	180	*630	455	590	842	1,620	1,140	935	380	*623
1933	400	780	352	183	97.8	121	332	619	1,390	1,710	1,330	678	668
1934	917	728	746	493	335	548	1,057	1,125	1,245	1,582	1,125	608	863
1935	451	717	331	686	500	201	216	747	1,279	1,401	947	850	695
1936	343	110	108	100	57.3	116	689	1,339	1,515	1,153	1,009	614	598
1937	371	115	167	84.6	64.2	144	243	784	1,633	1,375	796	640	537
1938	554	433	356	238	111	189	463	981	1,588	1,417	744	782	657
1939	361	175	258	300	115	183	468	968	922	1,318	942	548	550
1940	494	375	502	241	202	285	407	912	1,047	1,025	832	747	591
1941	915	210	313	185	161	201	430	609	891	1,194	930	600	557
1942	572	358	412	128	103	101	347	703	963	1,289	982	526	544
1943	257	197	277	168	144	199	640	709	1,204	1,533	875	607	570
1944	345	146	221	120	111	124	283	651	979	965	726	737	452
1945	452	251	266	302	270	141	192	882	1,011	1,080	786	514	515
1946	429	335	188	157	129	182	409	1,247	1,191	1,300	863	441	574
1947	303	147	253	171	261	289	583	1,217	1,140	1,057	720	527	558
1948	753	290	262	174	117	113	298	1,071	2,072	1,126	1,019	598	659
1949	426	183	147	103	109	212	540	1,353	1,249	1,214	930	730	602
1950	422	918	394	201	138	237	271	804	1,886	1,826	1,251	703	757

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	22,100	10,700	5,850	17,100	11,800	13,600	19,800	80,600	80,300	70,100	50,700	39,500	402,000
1932	13,200	17,900	12,000	11,100	86,200	28,000	35,100	51,800	96,400	70,100	57,500	22,600	*452,000
1933	24,600	45,200	21,600	11,300	5,430	7,440	19,800	38,100	82,700	105,000	81,800	40,300	483,000
1934	56,370	43,320	45,850	30,320	18,620	33,540	62,900	69,190	74,070	85,000	69,200	36,180	624,600
1935	27,750	42,650	20,370	42,210	27,760	12,370	12,870	45,130	76,110	86,120	58,220	50,590	503,000
1936	21,080	6,570	6,640	6,170	3,300	7,110	41,000	82,350	90,170	70,880	62,010	36,540	433,800
1937	22,840	6,860	10,290	5,200	3,570	8,880	14,470	48,220	97,190	84,560	48,970	39,070	389,100
1938	34,060	25,760	21,890	14,640	6,170	11,650	27,550	60,290	94,470	87,130	45,760	46,530	475,900
1939	22,170	10,440	15,880	18,440	6,400	11,230	27,870	59,500	54,870	81,030	57,900	32,630	398,400
1940	30,350	22,320	30,870	14,800	11,600	17,520	24,210	56,100	62,300	63,020	51,150	44,480	428,700
1941	56,270	12,510	19,260	11,350	8,950	12,360	25,560	37,420	53,010	73,440	57,210	35,690	403,000
1942	35,150	21,290	25,310	7,850	5,700	6,200	20,640	43,230	57,290	79,240	60,360	31,300	393,600
1943	15,810	11,700	17,060	10,330	7,980	12,210	38,060	43,590	71,610	94,250	53,800	36,140	412,500
1944	21,210	8,690	13,570	7,400	6,410	7,620	16,820	40,020	58,240	59,360	44,650	43,850	327,800
1945	27,790	14,950	16,360	19,560	15,020	8,690	11,400	54,230	60,150	66,420	48,340	30,590	372,500
1946	26,350	19,950	10,340	9,630	7,170	11,190	24,330	76,700	70,680	79,910	53,090	26,250	415,800
1947	18,650	8,730	15,560	10,490	14,490	17,790	34,710	74,820	67,850	64,980	44,250	31,360	403,700
1948	46,290	17,250	16,130	10,680	6,710	6,920	17,760	65,840	123,300	69,260	62,680	35,570	478,400
1949	26,170	10,860	9,050	6,360	6,060	13,050	32,110	83,190	74,290	74,640	57,180	43,410	436,400
1950	25,920	54,680	24,200	12,390	7,690	14,570	16,140	49,440	112,200	112,300	76,950	41,820	548,500

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1931	1286,722	*3,630	June 26, 1931	-	555	5.66	77.00	402,000	562	77.83	407,000
1932	737	*8,150	Feb. 26, 1932	74	*623	*6.36	*86.36	*52,000	*690	*95.64	*500,000
1933	752	*5,010	Nov. 13, 1932	88	668	6.82	92.49	483,000	742	102.84	537,000
1934	767	4,440	July 16, 1934	199	863	8.81	119.55	624,600	787	109.07	569,800
1935	792	*6,120	Nov. 5, 1934*	121	695	7.09	96.27	503,000	617	85.46	446,500
1936	812	3,800	May 30, 1936	50	598	6.10	83.12	433,800	605	84.19	439,500
1937	832	2,650	June 21, 1937	60	537	5.48	74.41	389,100	595	82.40	430,800
1938	862	*7,630	Oct. 28, 1937	92	657	6.70	91.06	475,900	611	84.71	442,700
1939	882	*4,740	May 28, 1939	77	550	5.61	76.17	398,400	599	82.89	433,400
1940	920	2,060	May 23, 1940	138	591	6.03	82.03	428,700	587	82.87	433,200
1941	932	*5,430	Oct. 20, 1940	127	557	5.68	77.08	403,000	549	75.88	396,700
1942	962	*3,530	Oct. 3, 1941	85	544	5.55	75.29	393,800	492	68.19	356,400
1943	1012	2,300	July 10, 1943	98	570	5.82	78.93	412,500	568	78.72	411,400
1944	1012	*2,780	Sept. 20, 1944	75	452	4.61	62.74	327,800	473	65.73	343,500
1945	1042	*3,080	Sept. 4, 1945	116	515	5.26	71.27	372,500	511	70.80	370,000
1946	1062	*4,220	Oct. 25, 1945	94	574	5.86	79.54	415,800	555	76.92	402,100
1947	1092	5,550	Oct. 25, 1946	92	558	5.89	77.23	403,700	608	84.28	440,400
1948	1122	4,410	Oct. 19, 1947	35	659	6.72	91.53	478,400	613	85.10	444,800
1949	1152	2,560	May 13, 1949	71	602	6.14	83.50	436,400	684	94.73	495,100
1950	1182	*9,530	Nov. 27, 1949	110	757	7.72	104.91	548,500	-	-	-

* Revised.

278. Thunder Creek near Marblemount, Wash.

Location.--Lat 48°42'30", long. 121°06'00", in NW¹/₄ sec. 10, T. 37 N., R. 13 E., on left bank a quarter of a mile upstream from mouth, 1½ miles southeast of Diablo Dam, and 20 miles northeast of Marblemount.

Drainage area.--111 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,085 ft (by water level transfer from Diablo Dam).

Average discharge.--11 years (1919-30), 651 cfs.

Extremes.--1919-30: Maximum discharge, 15,400 cfs (revised) Dec. 12, 1921 (gage height, 15.5 ft); minimum discharge not determined, but probably occurred during period Jan. 19 to Feb. 15, 1929, when stage-discharge relation was affected by ice.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1919	-	-	-	-	-	148	515	989	1,070	1,570	1,260	666	-
1920	202	490	381	346	317	185	196	536	897	1,860	1,340	899	639
1921	721	296	244	289	402	330	355	1,010	1,970	1,560	1,230	573	750
1922	920	486	*998	149	82.6	77.5	196	753	1,660	1,430	1,210	860	*740
1923	477	233	305	362	173	189	546	905	1,530	1,680	1,220	740	684
1924	369	162	280	173	751	236	269	1,230	1,020	1,240	996	646	614
1925	443	315	563	196	323	208	522	1,300	1,400	1,560	1,030	598	708
1926	234	135	435	225	214	239	587	680	1,050	1,320	1,060	463	556
1927	*868	312	294	205	147	154	305	658	1,560	1,410	1,230	919	*676
1928	778	597	425	639	199	264	289	1,290	1,200	1,500	971	665	739
1929	*747	206	135	73.6	58.9	103	205	921	1,240	1,140	1,000	539	*535
1930	275	90.6	87.5	84.7	407	267	690	617	970	1,140	927	674	519

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1919	-	-	-	-	-	9,100	30,600	50,800	63,700	96,500	77,500	39,600	-
1920	12,400	29,200	23,400	21,300	18,200	11,400	11,700	33,000	52,800	114,000	82,400	53,500	463,000
1921	44,300	17,600	15,000	17,800	22,300	20,300	21,100	62,100	117,000	95,900	75,600	34,100	543,000
1922	56,600	28,900*	61,400	9,160	4,590	4,770	11,700	46,300	98,800	87,800	74,400	51,200	*536,000
1923	29,300	13,900	18,800	22,300	9,610	11,600	32,500	55,600	79,100	103,000	75,000	44,000	495,000
1924	22,700	9,640	17,200	10,600	43,200	14,500	16,000	75,600	60,700	76,200	61,200	38,400	446,000
1925	27,200	18,700	34,600	12,100	17,900	12,800	31,100	79,900	83,300	95,900	63,300	35,600	512,000
1926	14,400	8,030	26,700	13,800	11,900	14,700	34,900	41,800	62,500	81,200	65,200	27,600	403,000
1927	*53,400	18,600	18,100	12,600	8,160	9,470	18,100	40,500	92,800	86,700	75,600	54,700	*489,000
1928	47,800	35,500	26,100	39,500	11,400	16,200	17,200	79,300	71,400	92,200	59,700	39,600	536,000
1929	*45,900	12,300	8,300	4,530	3,270	6,330	12,200	56,600	73,800	70,100	61,500	32,100	*387,000
1930	16,900	5,390	5,380	5,210	22,600	16,400	41,100	37,900	57,700	70,100	57,000	40,100	376,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1919	532	-	-	-	-	-	-	-	-	-	-
1920	532	*4,960	Sept. 11, 1920	92	639	5.76	78.39	463,000	655	80.43	475,000
1921	532	*4,570	June 7, 1921	168	750	6.76	91.83	543,000	*847	*83.63	*613,000
1922	1346, 552	*15,400	Dec. 12, 1921	71	*740	*6.67	*90.55	*536,000	623	76.21	451,000
1923	572	*3,180	June 9, 1923	-	894	6.16	83.62	495,000	666	81.51	492,000
1924	592	*6,360	Feb. 12, 1924	116	614	5.53	75.41	446,000	657	80.66	477,000
1925	612	*4,200	Dec. 12, 1924	-	708	6.38	86.60	512,000	664	81.30	481,000
1926	632	*2,680	July 5, 1926	119	556	5.01	68.05	403,000	*612	*74.96	*444,000
1927	1346, 652	*10,400	Oct. 16, 1926	124	*676	*6.09	*82.65	*489,000	702	85.93	508,000
1928	672	*3,620	May 22, 1928	155	739	6.66	90.46	536,000	*680	*83.21	*493,000
1929	1346, 692	*8,800	Oct. 9, 1928	-	*535	*4.82	*65.44	*367,000	491	58.87	348,000
1930	707	*2,680	July 13, 1930	-	519	4.66	63.53	376,000	-	-	-

* Revised.

* Not previously published.

279. Diablo Reservoir near Newhalem, Wash.

Location.--Lat 48°43'00", long. 121°08'00", in Diablo Dam on Skagit River, in SE $\frac{1}{4}$ sec. 5, T. 37 N., R. 13 E. (unsurveyed), 1 mile downstream from Thunder Creek and 6 miles northeast of Newhalem.

Drainage area.--1,100 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, subject to adjustment to datum of 1929. Prior to Oct. 12, 1931, staff gage at approximately same site and datum.

Extremes.--1929-50: Maximum contents, 90,600 acre-ft July 14, 1933 (elevation, 1,206.5 ft); minimum since storage began, not determined.

Remarks.--Reservoir is formed by concrete dam, completed in 1930; storage began in October 1929. Usable capacity, 76,220 acre-ft between elevations 1,040 ft (bottom of outlet pipes) and 1,205 ft (top of taintor gates). Dead storage, 13,000 acre-ft. Crest of spillway is at elevation 1,187 ft. Water is used by city of Seattle for power development at Diablo and Newhalem powerplants. Figures given herein represent total contents.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930	660	1,850	6,020	1,780	7,770	2,690	650	820	600	3,070	24,570	59,470
1931	70,300	64,200	54,860	91,770	88,400	88,950	90,550	80,050	80,220	90,640	91,110	84,500
1932	49,700	85,680	78,700	81,730	82,060	77,750	79,290	80,800	90,450	88,010	91,020	72,420
1933	86,010	91,020	87,540	80,220	30,490	22,960	79,960	85,840	86,980	89,610	89,610	90,920
1934	91,390	90,830	89,980	90,080	89,700	89,800	86,980	88,010	88,860	86,200	87,730	72,880
1935	72,800	87,920	91,820	91,540	86,860	45,400	53,100	88,290	88,200	86,350	91,300	83,580
1936	47,730	36,720	38,760	35,470	21,750	13,680	90,610	89,980	90,140	91,020	91,020	81,730
1937	79,180	75,450	91,860	84,660	44,930	80,640	86,630	90,550	86,500	90,680	89,640	78,870
1938	91,980	91,540	91,220	91,250	86,430	86,090	88,550	90,280	90,750	91,440	90,560	92,010
1939	92,040	85,000	91,850	89,710	87,720	86,720	88,280	88,520	91,540	91,300	89,510	89,510
1940	91,770	91,250	91,910	91,840	91,510	71,600	91,270	89,790	91,300	91,840	91,520	91,110
1941	88,470	89,980	90,930	91,330	86,540	88,550	91,430	90,720	90,540	90,570	90,660	85,410
1942	90,100	92,160	89,420	90,750	81,940	63,520	87,220	89,630	87,790	88,260	88,950	88,570
1943	88,520	85,990	87,590	84,320	73,660	87,590	88,130	88,220	90,060	81,320	87,860	87,320
1944	86,340	88,130	88,950	85,020	84,240	86,520	88,580	88,760	87,500	87,500	86,520	86,700
1945	86,880	87,500	86,880	86,080	87,230	85,640	86,340	86,520	86,880	88,040	86,790	88,130
1946	88,040	86,960	86,170	87,140	86,080	87,320	87,410	89,220	88,400	86,880	85,460	86,880
1947	86,080	87,050	85,820	86,340	86,340	87,500	86,080	87,770	87,590	87,770	87,410	87,860
1948	89,130	89,310	88,490	87,590	88,500	88,580	88,040	87,590	87,590	88,860	87,860	88,220
1949	88,670	87,770	86,520	88,580	88,670	87,410	88,400	89,590	86,170	87,590	77,500	77,700
1950	77,300	77,360	76,900	76,590	76,750	76,670	78,420	78,910	78,670	77,460	78,180	77,780

a Contents by capacity table used beginning Oct. 1, 1942; contents Sept. 30, 1942, by capacity table used since Oct. 1, 1942, was 86,610.

280. Skagit River at Reflector Bar, near Newhalem, Wash. 1/

Location.--Lat 48°42'50", long. 121°08'30", in N $\frac{1}{2}$ sec. 8, T. 37 N., R. 13 E. (unsurveyed), on right bank just downstream from Canyon Diablo, a quarter of a mile downstream from later site of Diablo Dam, three-quarters of a mile upstream from Stetattle Creek, $\frac{1}{2}$ miles downstream from Thunder Creek, 6 miles northeast of Newhalem, and 19 miles northeast of Marblemount.

Drainage area.--1,100 sq mi, approximately, of which 400 sq mi is in Canada.

Supplemental records available.--October 1908 to September 1913 and October 1923 to September 1933, monthly mean discharges only are contained in Washington State Water-Supply Bulletin No. 5.

Gage.--Water-stage recorder. Altitude of gage is 880 ft (from river-profile map). Prior to Apr. 13, 1914, staff gage at same site and datum.

Average discharge.--9 years (1913-22), 4,229 cfs.

Extremes.--1913-22: Maximum discharge, 58,000 cfs Dec. 12, 1921 (gage height, 14.1 ft); minimum, 665 cfs Nov. 11, 12, 1919 (gage height, 1.64 ft).

Flood of about 1815 reached a stage of approximately 20 ft (discharge, about 100,000 cfs). Flood in November 1909 reached a stage of approximately 15 ft (discharge, about 62,000 cfs, revised).

Remarks.--No diversion or regulation above station.

1/ Published as Skagit River at Reflector Bar, near Marblemount, 1913-22.

Monthly and yearly mean discharge, in cubic feet per second, of Skagit River at Reflector Bar, near Newhalem, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	2,580	2,690	1,830	3,590	1,270	2,800	5,350	9,180	8,490	6,010	3,200	1,960	*4,100
1915	1,910	3,840	1,730	899	769	1,560	5,200	4,520	3,920	3,590	3,480	1,500	2,750
1916	1,830	2,030	1,870	860	1,170	1,720	3,020	8,210	15,600	10,400	4,760	2,740	4,520
1917	1,230	1,390	930	910	1,250	925	2,000	18,180	12,300	8,990	3,800	2,220	3,690
1918	1,580	1,840	5,090	7,220	2,530	1,980	5,270	8,380	12,700	6,620	3,700	2,420	4,960
1919	2,370	1,960	3,530	2,100	1,410	1,220	5,150	10,300	12,000	9,320	4,510	2,340	4,680
1920	1,020	2,780	2,690	2,810	2,710	1,570	1,670	5,480	8,750	8,470	3,690	3,100	3,730
1921	4,950	2,270	1,850	2,240	3,210	2,760	3,220	10,400	16,700	7,650	4,030	2,430	5,140
1922	4,070	3,510	6,700	1,420	876	785	2,000	8,150	14,500	5,700	3,490	2,530	4,490

* Revised; supersedes estimate published in Water-Supply Paper 492.

† Corrected.

a Only monthly figures revised; revised daily figures not available.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	259,000	160,000	113,000	221,000	70,500	172,000	318,000	564,000	505,000	370,000	197,000	117,000	*2,970,000
1915	117,000	228,000	106,000	55,300	42,700	95,900	309,000	278,000	33,000	221,000	214,000	89,300	1,990,000
1916	113,000	121,000	115,000	52,900	67,300	106,000	180,000	505,000	289,000	233,000	163,000	83,000	3,280,000
1917	75,600	82,700	57,200	56,000	69,400	56,900	119,000	503,000	732,000	533,000	234,000	132,000	2,670,000
1918	97,200	109,000	313,000	444,000	141,000	22,000	314,000	515,000	756,000	407,000	228,000	144,000	3,590,000
1919	146,000	117,000	205,000	129,000	78,300	75,000	306,000	633,000	714,000	573,000	277,000	139,000	3,390,000
1920	62,700	165,000	165,000	173,000	156,000	96,500	99,400	337,000	521,000	521,000	227,000	184,000	2,710,000
1921	504,000	135,000	114,000	138,000	178,000	170,000	192,000	640,000	894,000	470,000	248,000	145,000	3,730,000
1922	250,000	209,000	412,000	87,300	48,700	48,300	119,000	501,000	863,000	350,000	215,000	151,000	3,250,000

* Revised; supersedes estimate published in Water-Supply Paper 492.

a Only monthly figures revised; revised daily figures not available.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1914	392,492	\$16,800	Jan. 6, 1914	-	*4,100	*3.73	50.64	*2,970,000	4,120	50.90	2,990,000	
1915	412	11,800	Apr. 3, 1915	739	2,750	2.50	33.94	1,990,000	2,610	32.17	1,890,000	
1916	442	29,400	June 17, 1916	-	4,520	4.11	55.94	3,280,000	4,340	53.77	3,150,000	
1917	462	19,700	June 16, 1917	-	3,690	3.35	45.48	2,670,000	4,110	50.77	2,970,000	
1918	482	37,300	Dec. 29, 1917	813	4,960	4.51	61.22	3,590,000	4,890	60.41	3,540,000	
1919	512	24,200	May 27, 1919	922	4,680	4.25	57.81	3,390,000	4,580	56.56	3,320,000	
1920	512	15,600	July 1, 1920	665	3,730	3.39	46.15	2,710,000	3,950	48.87	2,870,000	
1921	532	30,800	June 7, 1921	1,190	5,140	4.67	63.54	3,730,000	5,590	68.96	4,050,000	
1922	552	58,000	Dec. 12, 1921	725	4,490	4.08	55.49	3,250,000	-	-	-	

* Revised.

† Not previously published.

281. Stettattle Creek near Newhalem, Wash.

Location (revised).--Lat 48°43'30", long. 121°09'20", in NE¼ sec. 6, T. 37 N., R. 13 E., on left bank three-quarters of a mile upstream from mouth, 5½ miles northeast of Newhalem, and 1½ miles northeast of Marblemount.

Drainage area.--21.4 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 925 ft (by barometer). Dec. 19, 1913, to Nov. 14, 1915, staff gage half a mile downstream at different datum. Sept. 7, 1933, to Aug. 26, 1937, water-stage recorder 150 ft upstream at datum 1.69 ft higher.

Average discharge.--17 years (1933-50), 168 cfs.

Extremes.--1913-15, 1933-50: Maximum discharge, 8,580 cfs Nov. 26, 1949 (gage height, 9.70 ft), from rating curve extended above 780 cfs on basis of slope-area determination of peak flow; minimum, 9 cfs Nov. 9-11, 1936.

Remarks.--No diversion or regulation above station.

1/ Published as Stettattle Creek near Marblemount, 1913-15.

Monthly and yearly mean discharge, in cubic feet per second, of Stetattle Creek near Newhalem, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	192	39.0	126	-	-	-	-	-	-	-
1915	-	-	56.9	37.2	41.0	106	259	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	178	-
1934	293	203	290	212	141	243	323	323	255	192	109	77.5	†223
1935	147	320	162	301	164	85.2	116	285	336	261	114	80.9	198
1936	93.5	53.8	98.9	78.6	20.7	83.3	290	375	341	166	76.8	54.1	144
1937	39.8	20.5	113	27.2	27.5	102	141	305	437	205	80.7	47.0	129
1938	169	240	171	94.2	42.2	101	232	365	412	216	71.7	54.5	181
1939	95.4	100	167	168	42.0	100	233	368	301	270	105	63.0	169
1940	169	190	286	105	105	180	174	321	219	116	62.7	45.3	165
1941	234	85.9	144	103	79.5	111	162	198	178	85.9	47.1	164	133
1942	240	173	177	41.3	44.9	52.9	160	228	258	171	49.8	22.6	135
1943	31.1	87.7	152	105	75.5	104	272	250	368	395	139	54.4	170
1944	84.9	67.6	115	84.9	56.6	75.7	127	222	209	95.9	57.2	128	110
1945	101	127	116	150	145	66.8	118	373	278	198	71.7	95.7	153
1946	190	121	89.7	101	81.0	99.5	203	463	366	293	153	76.5	187
1947	98.4	74.9	137	103	153	138	225	373	310	222	96.7	78.7	167
1948	251	105	151	65.8	53.8	55.1	160	383	520	216	164	131	188
1949	133	92.6	48.5	39.7	52.2	106	251	493	366	303	147	130	181
1950	152	363	106	85.8	94.7	130	137	326	520	386	210	94.1	217

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	11,800	2,170	7,750	-	-	-	-	-	-	-
1915	-	-	3,500	2,290	2,280	6,520	15,400	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	10,580	-
1934	18,030	12,100	17,830	13,040	7,850	14,970	19,200	19,830	15,180	11,830	6,710	4,610	161,200
1935	9,050	19,070	9,940	18,490	9,090	5,240	6,880	17,540	20,020	16,040	7,040	4,820	143,200
1936	5,750	3,200	6,080	4,840	1,190	5,120	17,230	23,030	20,280	10,220	4,720	3,220	104,900
1937	2,450	1,220	6,980	1,670	1,530	6,280	8,400	18,740	26,000	12,590	4,960	2,800	95,620
1938	10,410	14,270	10,500	5,790	2,350	6,240	13,810	22,410	24,490	13,290	4,410	3,240	131,200
1939	5,860	5,960	10,250	10,350	2,330	6,150	13,890	22,600	17,930	18,580	6,430	3,750	122,100
1940	10,380	11,280	17,600	6,440	6,060	11,080	10,370	19,750	13,050	7,110	3,860	2,690	119,700
1941	14,410	5,110	8,840	6,350	4,410	6,850	9,660	12,190	10,450	5,280	2,900	9,780	96,230
1942	14,730	10,310	10,910	2,540	2,500	3,250	9,510	13,990	15,350	10,500	3,060	1,350	98,000
1943	1,910	5,220	9,370	6,430	4,190	6,380	16,210	15,360	21,910	24,290	8,530	3,240	123,000
1944	5,220	4,020	7,090	5,220	3,260	4,650	7,580	13,620	12,430	5,770	3,520	7,600	79,980
1945	6,240	7,570	7,110	9,220	8,070	4,110	7,040	22,930	16,530	12,150	4,410	5,700	111,100
1946	11,680	7,180	5,520	6,210	4,500	6,120	12,090	28,460	21,780	18,010	9,380	4,550	135,500
1947	6,050	4,460	8,450	6,360	8,490	8,460	13,370	22,910	18,440	13,630	5,950	4,680	121,200
1948	15,410	6,260	9,250	4,050	3,100	3,390	9,550	23,570	30,940	13,260	10,070	7,600	136,600
1949	8,190	5,510	2,980	2,440	2,900	6,490	14,910	30,310	21,770	18,630	9,020	7,730	130,900
1950	9,360	21,600	6,490	5,280	5,260	7,990	8,150	20,030	30,920	23,740	12,900	5,600	157,300

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1914	392	-	-	-	-	-	-	-	-	-	-	-
1915	412	-	-	-	-	-	-	-	-	-	-	-
1933	767	-	-	-	-	-	-	-	-	-	-	-
1934	767	2,020	Oct. 23, 1933	28	†223	10.4	141.27	161,200	209	132.60	151,300	
1935	792	*5,640	Nov. 5, 1934	28	198	9.25	125.55	143,200	166	105.33	120,200	
1936	812	1,010	June 2, 1936	15	144	6.73	91.92	104,900	138	89.05	100,500	
1937	832	1,370	June 18, 1937	9	129	6.03	82.05	95,620	163	103.57	118,200	
1938	862	3,220	Oct. 28, 1937	27	181	8.46	115.01	131,200	163	103.53	118,100	
1939	882	2,560	May 28, 1939	30	169	7.90	107.00	122,100	192	122.06	139,300	
1940	902	1,130	Nov. 30, 1939	30	165	7.71	104.85	119,700	150	95.31	108,800	
1941	932	1,940	Oct. 19, 1940	25	133	6.21	84.33	96,230	143	90.96	103,800	
1942	952	2,690	Dec. 2, 1941	17	135	6.31	85.85	98,000	108	69.62	78,550	
1943	982	870	June 17, 1943	15	170	7.94	107.63	123,000	170	107.65	122,900	
1944	1012	1,510	Dec. 3, 1943	20	110	5.14	70.06	79,980	116	74.10	84,570	
1945	1042	1,980	Feb. 7, 1945	24	153	7.15	97.33	111,100	158	100.34	114,500	
1946	1062	3,210	Oct. 25, 1945	27	187	8.74	118.70	135,500	180	113.95	130,100	
1947	1092	1,740	Oct. 24, 1946	23	167	7.80	106.20	121,200	184	116.69	133,200	
1948	1122	2,730	Oct. 19, 1947	23	186	8.79	119.71	136,600	169	107.23	122,400	
1949	1152	1,740	Oct. 6, 1948	24	171	8.46	114.68	130,900	209	132.66	151,600	
1950	1182	8,580	Nov. 26, 1949	31	217	10.1	137.84	157,300	-	-	-	

* Revised.

† Corrected.

282. Skagit River at Newhalem, Wash. 1/

Location (revised).--Lat 48°40'20", long. 121°14'45", in SE $\frac{1}{4}$ sec. 21, T. 37 N., R. 12 E., on right bank a quarter of a mile upstream from Newhalem Creek, half a mile downstream from city of Seattle powerplant at Newhalem, 11 miles upstream from Bacon Creek, and 13 miles northeast of Marblemount.

Drainage area.--1,160 sq mi, approximately, of which 400 sq mi is in Canada.

Supplemental records available.--Monthly discharges only, June 1914 to September 1920, are contained in Washington State Water-Supply Bulletin No. 5.

Gage.--Water-stage recorder. Datum of gage is 401.5 ft above mean sea level (river-profile survey). Dec. 21, 1908, to May 23, 1914, staff gages half a mile upstream at datum 91 ft higher. Nov. 15, 1920, to June 4, 1923, staff gage 500 ft upstream at present datum.

Average discharge.--35 years (1908-13, 1920-50), 4,257 cfs (unadjusted); 4,303 cfs (adjusted for storage since October 1929).

Extremes.--1908-14, 1920-50: Maximum discharge, 63,500 cfs Nov. 29, 1909 (gage height, 22.0 ft, from floodmark, site and datum then in use); minimum, 54 cfs Nov. 1, 1943 (gage height, 78.15 ft); minimum daily, 136 cfs Aug. 24, 1930.

Several large floods occurred prior to 1909. See Skagit River at Reflector Bar, near Newhalem (p. 225) for which peaks are practically equivalent to those at this station.

Remarks.--Flow regulated for power by Gorge Dam since August 1924, by Diablo Reservoir since October 1929 and by Ross Reservoir since March 1940 (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	1,380	3,600	1,540	1,980	1,590	1,740	3,020	7,270	14,100	8,170	3,960	2,820	4,270
1910	2,150	7,880	4,250	2,050	1,680	4,660	8,060	14,800	10,400	8,270	3,890	2,160	5,870
1911	5,950	6,600	2,940	1,690	1,020	1,880	3,640	7,850	13,900	7,890	3,880	2,890	5,030
1912	1,250	1,880	1,620	1,560	2,270	1,210	2,890	9,290	10,900	5,650	3,570	1,680	3,650
1913	1,230	2,210	1,530	1,090	1,520	1,520	4,040	9,870	15,900	8,950	4,480	3,430	4,650
1914	2,860	3,070	1,860	4,080	1,430	3,080	5,900	9,730	-	-	-	-	-
1921	5,740	2,660	2,310	2,810	3,970	3,550	3,810	11,400	17,600	8,560	4,160	2,720	5,760
1922	4,680	4,170	7,680	1,530	558	809	2,290	8,850	14,600	5,960	3,680	2,690	4,840
1923	2,150	1,460	2,510	2,840	1,190	1,480	5,530	9,590	11,700	8,230	3,800	2,250	4,420
1924	1,440	1,090	2,180	1,440	6,270	2,010	2,340	12,400	7,700	4,930	2,950	2,090	3,900
1925	2,900	2,660	5,660	2,150	3,480	2,240	5,850	13,500	10,500	6,520	3,200	1,720	5,040
1926	863	851	3,170	1,680	1,670	1,920	4,810	4,890	4,270	3,500	2,640	1,460	2,650
1927	3,220	1,850	2,410	1,830	1,260	1,430	3,270	7,360	13,700	6,460	3,690	3,630	4,190
1928	4,550	4,330	3,550	5,210	1,940	2,670	3,070	12,400	7,700	5,340	2,590	1,790	4,610
1929	3,250	1,590	1,300	771	598	1,210	2,160	8,580	9,190	4,460	2,720	1,470	3,130
1930	1,160	806	767	744	3,110	2,580	7,400	6,820	7,870	5,150	2,520	1,470	3,320
1931	1,420	1,420	1,110	1,750	2,520	2,850	3,690	9,930	7,710	4,110	2,310	2,540	3,450
1932	1,870	1,950	1,790	1,650	4,680	4,460	5,710	9,710	11,600	5,680	3,280	2,050	4,530
1933	1,970	6,410	3,830	2,190	1,940	1,710	3,280	7,490	14,700	11,500	5,350	3,090	5,300
1934	6,027	5,708	5,829	5,050	3,819	5,995	12,300	11,500	8,552	5,325	3,373	2,237	6,304
1935	2,025	5,684	3,224	5,695	5,792	3,070	2,440	7,419	10,500	6,952	3,263	2,961	4,906
1936	2,103	1,131	1,168	1,279	930	1,594	5,679	12,010	9,211	4,105	2,684	1,929	3,658
1937	1,254	723	1,290	1,162	927	1,157	2,856	8,220	14,330	6,517	2,734	2,077	3,611
1938	2,293	3,717	3,406	2,576	1,309	2,360	4,927	10,790	11,950	5,855	2,409	2,008	4,460
1939	1,558	1,459	2,078	3,175	1,258	2,139	5,556	9,779	7,917	6,195	3,047	1,694	3,837
1940	1,907	2,322	5,011	2,248	2,051	3,314	3,822	6,803	6,033	3,135	2,251	2,128	3,424
1941	3,638	1,966	2,222	1,870	1,877	2,416	3,815	5,021	4,858	3,158	2,519	2,605	3,003
1942	3,892	3,428	4,732	2,338	2,069	1,440	2,930	5,122	7,385	4,789	2,693	1,626	3,547
1943	1,181	1,907	2,155	2,056	2,145	3,033	5,670	7,540	11,800	10,240	3,792	2,399	4,503
1944	2,362	1,077	1,392	1,346	1,393	1,531	2,768	5,028	6,970	3,576	2,152	2,656	2,687
1945	2,420	1,785	2,220	2,271	3,504	2,051	2,209	7,740	9,341	5,231	2,576	2,451	3,648
1946	2,778	3,452	1,891	2,307	1,537	2,286	3,663	12,610	11,430	7,305	3,133	1,947	4,548
1947	1,524	1,408	2,315	1,954	2,281	4,959	4,845	6,496	9,765	4,765	2,702	2,723	3,723
1948	5,216	3,433	5,203	4,317	2,051	1,404	2,731	4,389	8,613	7,194	4,441	3,628	4,394
1949	3,867	3,377	3,701	4,596	4,278	3,451	3,813	6,745	4,191	4,776	5,120	3,884	4,322
1950	4,120	4,416	5,825	5,082	7,647	6,789	4,938	5,004	6,643	10,640	4,910	3,640	5,797

† Corrected.

a From Washington State Water-Supply Bulletin No. 5.

1/ Published as Skagit River near Marblemount, 1909-14, 1921-31.

Monthly and yearly runoff, in acre-feet, of Skagit River at Newhalem, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	84,800	214,000	94,700	122,000	88,300	107,000	180,000	447,000	839,000	502,000	243,000	168,000	3,090,000
1910	132,000	469,000	261,000	126,000	92,200	287,000	480,000	910,000	619,000	506,000	339,000	129,000	4,250,000
1911	366,000	593,000	81,000	104,000	56,600	116,000	217,000	483,000	827,000	485,000	239,000	172,000	3,640,000
1912	76,900	112,000	99,600	95,900	31,000	74,400	172,000	506,710	606,490	400,347	200,220	100,000	2,650,000
1913	75,600	132,000	94,100	67,000	84,400	93,500	200,400	607,000	946,000	550,000	275,000	204,000	3,370,000
1914	176,000	183,000	140,000	251,000	79,400	189,000	351,000	558,000	-	-	-	-	-
1921	353,000	158,000	42,000	173,000	200,205	80,227	701,000	1,000,000	526,000	256,000	162,000	-	4,170,000
1922	288,000	248,000	300,472	000	94,100	52,100	49,700	136,000	306,544	300,869	300,366	300,226	3,500,000
1923	132,000	86,900	154,000	107,000	66,100	91,000	329,000	530,000	606,896	600,506	300,234	300,134	3,190,000
1924	88,500	64,900	134,000	88,500	561,000	124,000	139,000	762,000	400,458	300,303	300,080	300,124	2,830,000
1925	178,000	158,000	305,480	000	132,000	193,000	138,000	348,000	830,000	625,500	401,000	197,000	3,650,000
1926	53,100	50,600	195,000	103,000	92,800	118,000	286,000	501,000	254,000	215,000	162,000	86,900	1,920,000
1927	138,000	110,000	148,000	113,000	70,000	87,900	195,000	400,453	500,815	300,397	200,227	100,216	3,050,000
1928	280,000	258,000	300,218	000	320,000	100,112	200,164	000	183,000	607,762	400,458	300,328	3,350,000
1929	200,000	94,800	79,900	47,400	33,200	74,400	129,000	352,800	606,477	400,274	300,167	100,87,500	2,260,000
1930	71,300	36,100	47,200	45,700	173,000	159,000	440,000	400,407	600,468	400,317	300,055	87,500	2,410,000
1931	87,300	84,500	68,200	108,000	40,000	175,000	220,000	361,000	459,000	253,000	142,000	151,000	2,500,000
1932	115,000	110,116	000	101,000	200,269	000	274,000	340,000	597,000	690,000	400,022	222,000	3,280,000
1933	121,000	300,381	000	239,000	100,135	000	108,000	105,000	195,000	400,461	300,075	300,077	3,840,000
1934	370,600	339,600	558,400	351,000	502,12	100,568	603,732	100,707	100,497	300,327	400,207	400,133	4,564,000
1935	124,500	338,200	198,200	550,100	100,521	700,188	800,145	200,456	200,254	500,427	500,200	500,176	2,552,000
1936	129,300	67,310	71,840	78,620	53,490	98,010	103,377	900,738	700,548	100,252	400,165	000	2,655,000
1937	77,090	43,000	79,300	71,450	51,500	71,150	169,900	505,505	400,853	000	400,768	100	2,614,000
1938	141,000	221,200	209,200	500,158	400	72,710	145,100	293,200	663,600	711,400	360,000	148,100	3,240,000
1939	94,590	86,800	127,800	195,200	69,870	131,500	330,600	601,304	711,100	800,187	400,100	800	2,778,000
1940	117,300	138,200	200,598	100,138	200,118	000	203,800	227,400	418,500	353,000	192,800	160	2,486,000
1941	223,700	171,000	36,600	115,000	40,200	148,600	227,000	303,508	700,289	100,194	200,154	900	2,174,000
1942	239,300	204,000	291,000	143,700	116,000	88,570	174,400	314,900	439,400	234,400	655,600	95,730	2,568,000
1943	72,640	133,500	31,500	126,400	100,119	100,186	500,337	400,463	600,702	400,629	300,233	100	3,260,000
1944	145,200	64,110	85,610	82,760	80,130	94,120	164,700	509,200	414,800	219,900	312,300	158,000	1,951,000
1945	148,800	106,200	136,500	139,600	194,600	126,100	131,400	475,900	555,800	321,600	158,400	145,900	2,641,000
1946	170,700	205,400	116,300	141,800	85,350	140,600	219,200	775,600	779,900	449,100	192,600	115,900	3,292,000
1947	93,720	83,640	102,400	120,100	126,700	304,900	288,300	399,500	461,600	233,000	166,100	35,600	2,696,000
1948	320,700	204,300	319,900	265,400	116,800	86,310	162,500	269,900	512,500	442,400	273,100	215,900	3,190,000
1949	237,800	200,900	227,600	282,600	237,600	212,200	226,900	414,700	249,400	293,700	154,800	231,100	3,129,000
1950	253,300	262,800	258,200	312,500	424,700	416,200	235,800	507,300	595,300	654,300	501,900	216,600	4,197,000

a From Washington State Water-Supply Bulletin No. 5.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in acre-feet	Mean	Runoff		
		Discharge	Date						Inches	Acres	Acres
1909	492,512	*26,900	June 2, 1909	-	4,270	3.68	43.95	3,090,000	4,920	57.56	3,560,000
1910	512	63,500	Nov. 29, 1909	1,240	5,870	5.06	58.69	4,250,000	5,980	70.04	4,330,000
1911	512	*25,500	June 14, 1911	870	5,030	4.34	58.91	3,640,000	4,130	48.32	2,990,000
1912	512	*19,800	May 15, 1912	880	3,650	3.15	42.88	2,650,000	3,670	43.02	2,650,000
1913	512	*27,900	June 3, 1913	820	4,650	4.01	54.43	3,370,000	4,890	57.28	3,540,000
1914	392,512	*20,700	Jan. 6, 1914	-	-	-	-	-	-	-	-
1921	572	*31,400	June 8, 1921	1,270	5,760	4.97	67.45	4,170,000	6,260	73.17	4,530,000
1922	572	60,000	Dec. 12, 1921	740	4,840	4.17	56.68	3,500,000	3,960	46.43	2,870,000
1923	572	21,400	June 8, 1923	-	4,420	3.81	51.63	3,190,000	4,290	50.25	3,110,000
1924	592	31,400	Feb. 12, 1924	810	3,900	3.36	45.74	2,830,000	4,440	52.16	3,220,000
1925	612	25,400	May 20, 1925	940	5,040	4.34	58.94	3,650,000	4,510	52.70	3,260,000
1926	632	9,220	Apr. 30, 1926	656	2,650	2.28	31.03	1,920,000	2,870	33.57	2,070,000
1927	652	26,000	June 8, 1927	934	4,190	3.61	48.96	3,030,000	4,600	53.80	3,330,000
1928	672	27,200	May 21, 1928	1,190	4,610	3.97	54.11	3,350,000	4,080	47.95	2,970,000
1929	692,1012	23,600	Oct. 9, 1928	-	3,130	2.70	36.56	2,260,000	2,820	32.99	2,040,000

* Revised.

† Not previously published.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Observed		Minimum day	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in acre-feet	Mean	Runoff in inches
		Discharge	Date								
1930	707	13,400	June 11, 1930	136	3,320	2,410,000	3,400	2.93	39.84	3,440	2,490,000
1931	722	15,500	May 2, 1931	534	3,450	2,500,000	3,480	3.00	40.78	3,590	2,600,000
1932	737	45,000	Feb. 27, 1932	940	4,530	3,280,000	4,510	3.89	52.98	5,070	3,680,000
1933	752	28,200	June 15, 1933	969	5,300	3,840,000	5,330	4.59	62.31	5,760	4,170,000
1934	767	25,000	Apr. 23, 1934	450	6,304	4,564,000	6,279	5.41	73.51	5,740	4,156,000
1935	792	30,500	Jan. 25, 1935	310	4,906	3,552,000	4,921	4.24	57.58	4,564	3,159,000
1936	812	22,400	May 31, 1936	463	3,658	2,655,000	3,655	3.15	42.81	3,563	2,586,000
1937	822	22,500	June 3, 1937	458	3,611	2,614,000	3,607	3.12	42.19	4,125	2,995,000
1938	862	24,400	Oct. 28, 1937	644	4,480	3,244,000	4,499	3.88	52.62	4,118	2,981,000
1939	882	22,400	Jan. 29, 1939	601	3,837	2,778,000	3,834	3.31	44.86	4,188	3,032,000
1940	902	15,100	May 23, 1940	1,020	3,424	2,486,000	3,546	3.06	41.60	3,306	2,400,000

* Revised.

Yearly discharge, in cubic feet per second, of Skagit River at Newhalem, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Observed			Adjusted			Observed			Adjusted		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean square in mile inches	Mean	Runoff in acre-feet	Mean	Runoff in inches	Mean	Runoff in inches
		Discharge	Date										
1941	932	17,100	Oct. 20, 1940	1,180	3,003	2,174,000	3,002	2.59	35.15	3,358	2,431,000	3,348	39.18
1942	962	17,400	May 26, 1942	836	3,547	2,568,000	3,553	3.06	41.58	2,973	2,152,000	2,953	34.57
1943	982	20,400	May 27, 1943	698	4,503	3,260,000	4,482	3.86	52.46	4,470	3,236,000	4,429	51.84
1944	1012	11,200	June 12, 1944	318	2,687	1,951,000	2,707	2.33	31.77	2,820	2,047,000	2,810	32.98
1945	1042	20,700	May 31, 1945	588	3,648	2,641,000	3,594	3.10	42.05	3,787	2,742,000	3,777	44.19
1946	1062	24,400	May 27, 1946	1,070	4,548	3,292,000	4,703	4.05	55.04	4,309	3,120,000	4,503	52.68
1947	1092	13,500	May 25, 1947	1,150	3,723	2,696,000	4,145	3.57	48.49	4,449	3,221,000	4,442	51.97
1948	1122	15,100	June 15, 1948	758	4,394	3,190,000	4,889	4.21	57.36	4,148	3,011,000	4,664	54.73
1949	1152	11,800	May 15, 1949	1,310	4,322	3,129,000	4,564	3.93	53.40	4,610	3,337,000	5,198	60.82
1950	1182	17,700	June 29, 1950	1,420	5,797	4,197,000	5,894	5.08	68.97	-	-	-	-

283. Goodell Creek near Newhalem, Wash.

Location (revised).--Lat 48°40'25" long. 121°15'50", in SE $\frac{1}{4}$ sec. 20, T. 37 N., R. 12 E., on right bank at combination railroad and highway bridge, 500 ft upstream from mouth, and three-quarters of a mile west of Newhalem.

Drainage area.--38.7 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 475 ft (from river-profile map).

Extremes.--1943-44: Maximum discharge recorded, 1,710 cfs probably Sept. 20, 1944 (gage height, 5.92 ft, from recorded range in stage), from rating curve extended above 610 cfs; minimum recorded, 77 cfs probably Sept. 9 and Oct. 21, 1944 (gage height, 4.11 ft, from recorded range in stage).

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	-	136	153	-		
1944						234	144	300	224	-		

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	-	8,090	9,430	-		
1944						14,370	8,898	17,820	13,760	-		

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches	Mean	Runoff in inches	Mean
		Discharge	Date									
1943	982,1012	-	-	95	-	-	-	-	-	-	-	-
1944	1012	-	-	77	-	-	-	-	-	-	-	-

284. Alma Creek near Marblemount, Wash.

Location.--Lat 48°36'00" long. 121°21'40", in SE $\frac{1}{4}$ sec. 15, T. 36 N., R. 11 E., on left bank 150 ft upstream from mouth and 6 miles northeast of Marblemount.

Drainage area.--8.48 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 360 ft (from river-profile map).

Extremes.--August to October 1943: Maximum discharge, 140 cfs Oct. 24 (gage height, 1.90 ft), from rating curve extended above 50 cfs; minimum, 12 cfs Oct. 4.

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1943								-	21.6	†30.5		

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1943								-	1,290	†1,880		

* Not previously published; partly estimated on the basis of records for nearby streams.

285. Bacon Creek near Marblemount, Wash.

Location.--Lat 48°35'20", long. 121°23'40", on line between secs. 20 and 21, T. 36 N., R. 11 E., on highway bridge near right bank a quarter of a mile upstream from mouth and 4½ miles north of Marblemount.

Drainage area.--50.9 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 350 ft (from river-profile map).

Average discharge.--7 years (1943-50), 429 cfs.

Extremes.--1943-50: Maximum discharge, 18,100 cfs Nov. 26, 1949 (gage height, 7.13 ft, from high-water marks on pier), by slope-area determination of peak flow; minimum observed, 74 cfs Oct. 18, 1945.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	258	146	-
1944	205	197	312	295	190	209	311	527	525	235	150	326	290
1945	269	397	306	486	428	224	260	815	651	474	194	234	395
1946	447	466	328	302	257	306	370	891	864	741	330	179	458
1947	320	223	447	283	432	351	482	722	658	433	193	178	393
1948	574	325	431	272	199	177	338	833	1,202	526	404	350	470
1949	357	306	172	113	161	360	545	1,030	748	620	315	297	420
1950	354	*954	*517	*248	*375	*445	*368	*646	*1,267	917	529	315	*578

* Revised.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	15,880	8,670	-
1944	12,610	11,740	19,200	18,150	10,950	12,860	18,500	32,400	31,240	14,350	9,200	19,400	210,600
1945	16,570	23,650	18,790	29,860	23,750	13,770	15,440	50,110	38,720	29,170	11,930	13,930	285,700
1946	27,490	27,730	20,170	18,550	14,290	18,810	22,000	54,800	51,430	45,550	20,280	10,650	331,800
1947	19,660	13,290	27,510	17,380	23,990	21,560	28,670	44,390	39,150	28,650	11,890	10,580	284,700
1948	35,300	19,330	26,490	16,750	11,430	10,900	20,140	51,190	71,550	32,340	24,860	20,820	341,100
1949	21,980	18,200	10,570	6,930	8,830	22,130	32,410	83,310	44,510	38,120	19,340	17,650	†304,100
1950	21,790	*6,780	*31,440	*15,240	*20,810	*27,340	*21,920	*39,720	*75,400	56,350	32,530	18,770	*418,100

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1943	982	-	-	-	-	-	-	-	-	-	-	-
1944	1012	*3,050	Dec. 3, 1943	83	290	5.70	77.58	210,600	311	83.27	226,100	-
1945	1042	5,510	Feb. 7, 1945	81	395	7.76	105.24	285,700	417	111.27	302,100	-
1946	1082	7,000	Oct. 25, 1945	74	458	9.00	122.20	331,800	438	116.71	316,800	-
1947	1092	6,480	Oct. 24, 1946	78	393	7.72	104.89	284,700	422	112.50	305,400	-
1948	1122	5,670	Oct. 19, 1947	128	470	9.23	125.65	341,100	428	114.46	310,700	-
1949	1152	3,300	Oct. 7, 1948	84	420	8.25	112.02	†304,100	*502	*53.85	*363,300	-
1950	1346,1182	18,100	Nov. 26, 1949	*129	*578	*11.4	*154.01	*418,100	-	-	-	-

* Revised.

† Corrected.

286. Diobsud Creek near Marblemount, Wash.

Location.--Lat 48°33'40", long. 121°25'00", in SW¼ sec. 32, T. 36 N., R. 11 E., on right bank 200 ft downstream from highway bridge, a quarter of a mile upstream from mouth, and 2½ miles north of Marblemount.

Drainage area.--25.4 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 350 ft (from river-profile map). July 31 to Oct. 30, 1943, staff gage 200 ft upstream at different datum.

Extremes.--1943-44: Maximum discharge observed, 950 cfs (revised), Sept. 20, 1944 (gage height, 3.75 ft, revised, from graph based on gage readings); minimum observed, 32 cfs Sept. 4, 1944 (gage height, 1.00 ft).

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second, of Diobsud Creek near Marblemount, Wash.

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	91.4	63.9	93.8	-		
1944						82.2	62.0	182	134	-		

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	5,620	3,800	5,770	-		
1944						5,060	3,810	10,840	8,260	-		

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1943	982,1012	-	-	39	-	-	-	-	-	-	-	-
1944	1012	-	-	44	-	-	-	-	-	-	-	-

287. Skagit River at Marblemount, Wash.

Location (revised).--Lat 48°32'00", long. 121°25'40" in NW¼ sec. 7, T. 35 N., R. 11 E., on right bank half a mile north of Marblemount and 0.6 mile upstream from Cascade River.

Drainage area.--1,360 sq mi, approximately, of which 400 sq mi is in Canada.

Gage.--Water-stage recorder. Datum of gage is 305.1 ft above mean sea level (river-profile survey).

Extremes.--1943-44, 1946-50: Maximum discharge, 59,300 cfs Nov. 27, 1949 (gage height, 11.37 ft, from high-water mark in gage well), from rating curve extended above 20,000 cfs; minimum, 620 cfs Mar. 6, 1944 (gage height, 0.55 ft); minimum daily, 1,190 cfs Feb. 25, 1944.

Remarks.--No diversion above station. Flow partly regulated by powerplants on upper Skagit River, and by Ross Reservoir (see p.223) and by Diablo Reservoir (see p.226).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	3,044	-
1944	3,263	1,864	2,609	2,450	2,115	2,343	3,932	7,133	8,639	-	-	-	-
1947	2,663	2,224	4,331	3,254	4,159	6,289	6,650	9,294	11,580	6,290	3,460	2,934	5,263
1948	7,258	4,763	6,725	5,323	2,910	2,222	4,085	7,303	12,870	8,931	5,925	4,890	6,112
1949	5,142	4,716	4,556	5,088	4,947	4,824	5,702	10,330	6,864	6,848	6,133	4,978	5,855
1950	5,421	7,433	7,428	6,467	8,912	8,438	6,455	7,487	11,260	14,730	7,635	5,120	8,064

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	181,100	-
1944	200,600	110,900	160,400	150,600	121,600	144,000	234,000	438,600	514,000	-	-	-	-
1947	163,800	132,300	266,300	200,100	231,000	386,700	395,700	571,400	689,000	586,700	212,700	174,600	3,810,000
1948	446,300	283,400	413,500	327,300	167,400	136,600	243,100	449,100	768,100	549,100	364,300	291,000	4,437,000
1949	316,200	280,600	280,200	312,900	274,800	296,800	339,300	3635,200	406,400	421,100	377,100	296,200	4,239,000
1950	333,300	442,300	456,700	397,700	494,900	518,900	584,100	460,300	669,700	905,900	469,400	304,700	5,838,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1943	1092	-	-	-	-	-	-	-	-
1944	1092	16,800	Dec. 3, 1943	-	-	-	-	-	-
1947	1092	24,600	Oct. 25, 1946	1,550	5,263	3,810,000	6,065	4,391,000	
1948	1122	35,400	Oct. 19, 1947	1,490	6,112	4,437,000	5,746	4,171,000	
1949	1152	17,900	May 12, 1948	2,470	5,855	4,239,000	6,345	4,594,000	
1950	1182	59,300	Nov. 27, 1949	2,750	8,064	5,838,000	-	-	

288. Marble Creek near Marblemount, Wash.

Location.--Lat 48°32'10", long. 121°16'20", in NE $\frac{1}{4}$ sec. 8, T. 35 N., R. 12 E., on left bank at highway bridge, half a mile upstream from mouth, and 7 miles east of Marblemount.

Drainage area.--15.9 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,100 ft (by barometer).

Extremes.--1943-44: Maximum discharge recorded, 790 cfs Sept. 20, 1944 (gage height, 3.48 ft), from rating curve extended above 200 cfs; minimum recorded, 40 cfs Sept. 30, 1943, Oct. 21, 1944.

Remarks.--No diversions or regulation above station.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	-	78.7	*69.5	-		
1944						*143	91.4	150	89.8	-		

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	-	4,680	*4,270	-		
1944						*8,790	5,620	8,950	5,520	-		

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982,1012	-	-	45	-	-	-	-	-	-	-
1944	1012	-	-	42	-	-	-	-	-	-	-

289. Cascade River near Marblemount, Wash.

Location.--Lat 48°31'25", long. 121°23'00", in N $\frac{1}{2}$ sec. 16, T. 35 N., R. 11 E., on right bank 2.9 miles upstream from mouth and 2 $\frac{1}{4}$ miles east of Marblemount.

Drainage area.--140 sq mi (revised), approximately.

Gage.--Staff gage. Altitude of gage is 970 ft (from river-profile map). Prior to May 25, 1909, staff gage 500 ft downstream at different datum.

Extremes.--1909-13: Maximum discharge, 26,000 cfs Nov. 29, 1909 (gage height, 15.0 ft, from graph based on gage readings), from rating curve extended above 3,000 cfs; minimum observed, 208 cfs Mar. 6, 1911 (gage height, 0.83 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	543	1,180	2,320	1,800	983	836	-
1910	647	*2,890	1,100	498	355	976	1,270	1,860	1,220	2,250	1,010	674	*1,230
1911	*2,380	*2,090	816	446	275	376	516	1,350	*3,010	2,380	1,080	848	*1,300
1912	312	729	425	500	705	274	393	2,050	*3,470	2,120	1,370	473	*1,070
1913	324	626	350	278	382	326	738	-	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	32,300	72,600	138,000	111,000	60,400	49,700	-
1910	39,800	*172,000	67,600	30,600	19,700	60,000	75,600	114,000	72,600	138,000	62,100	40,100	*892,000
1911	146,000	124,000	50,200	27,400	15,300	23,100	30,700	83,000	179,000	146,000	66,400	50,500	*942,000
1912	19,200	43,400	26,000	30,700	40,600	16,800	23,400	26,000	206,000	130,000	84,200	28,100	*774,000
1913	19,900	37,200	21,500	17,100	21,200	20,000	43,900	-	-	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second, of Cascade River near Marblemount, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Acre-feet	Mean	Runoff	
		Discharge	Date							Inches	Acre-feet
1909	272	-	-	-	-	-	-	-	-	-	-
1910	1346,292	*26,000	Nov. 29, 1909	284	*1,230	*8.79	*119.62	*892,000	*1,290	*125.24	*933,000
1911	1346,312	*13,200	Nov. 21, 1910	212	*1,300	*9.29	*126.26	*942,000	*981	*95.11	*710,000
1912	1346,332	*7,000	June 19, 1912	212	*1,070	*7.64	*103.77	*774,000	*1,050	*102.44	*764,000
1913	362	-	-	-	-	-	-	-	-	-	-

* Revised.

† Not previously published.

290. Cascade River at Marblemount, Wash.

Location (revised).--Lat 48°31'25", long. 121°23'00", in N½ sec. 16, T. 35 N., R. 11 E., on right bank 1½ miles downstream from Boulder Creek, 2 miles east of Marblemount, and 2½ miles upstream from mouth.

Drainage area.--171 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 380.3 ft above mean sea level (river profile survey).

Average discharge.--22 years (1928-50), 981 cfs.

Extremes.--1928-50: Maximum discharge, 17,800 cfs Nov. 27, 1949 (gage height, 11.47 ft), from rating curve extended above 5,000 cfs by logarithmic plotting; minimum recorded, 149 cfs Nov. 15, 1929, but may have been less during January and February 1929 when stage-discharge relation was affected by ice; minimum gage height, 1.11 ft Feb. 8, 1937

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	1,020	416	317	201	146	313	509	1,600	1,960	1,220	699	361	734
1930	307	176	335	210	972	611	1,310	1,160	1,580	1,330	724	552	769
1931	645	476	352	841	639	681	851	1,710	1,790	1,110	556	746	867
1932	482	804	598	524	1,140	1,040	1,220	1,660	2,290	1,580	941	505	1,060
1933	653	2,050	941	585	270	447	880	1,320	2,600	2,730	1,600	1,070	1,270
1934	1,592	1,371	1,946	1,372	858	1,173	1,773	1,676	1,489	1,270	843	556	1,331
1935	682	1,409	912	1,599	1,053	485	481	1,288	2,018	1,598	813	680	1,085
1936	393	255	307	455	221	475	1,368	2,538	2,492	1,177	689	490	906
1937	359	197	511	219	195	522	674	1,525	2,815	1,575	687	498	817
1938	696	1,078	785	738	353	488	1,027	1,702	2,198	1,327	585	511	960
1939	494	481	856	932	358	561	1,047	1,873	1,861	1,788	833	505	989
1940	792	873	1,344	751	638	850	860	1,604	1,283	867	593	512	916
1941	1,053	501	831	512	417	449	736	1,074	1,144	858	565	886	754
1942	1,191	755	1,054	373	335	316	789	1,283	1,784	1,464	700	395	871
1943	299	612	792	624	555	562	1,340	1,308	1,991	2,167	936	541	979
1944	473	369	582	409	377	397	638	1,282	1,550	949	603	863	708
1945	681	508	632	919	777	467	557	1,845	1,748	1,310	689	653	900
1946	1,043	877	559	507	459	644	973	2,395	2,086	1,848	954	517	1,076
1947	727	462	900	626	878	801	1,173	2,130	1,945	1,415	735	560	1,030
1948	1,259	797	864	572	407	384	721	2,026	3,413	1,526	1,109	749	1,152
1949	836	608	465	278	354	729	1,128	2,657	2,137	1,811	1,032	794	1,074
1950	880	1,733	947	560	589	852	775	1,541	3,423	2,735	1,406	672	1,347

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	62,700	24,800	19,500	12,400	8,110	19,200	30,300	98,400	117,000	75,000	43,000	21,500	532,000
1930	18,900	10,500	20,600	12,900	54,000	37,600	78,000	71,300	94,000	81,800	44,500	32,800	557,000
1931	39,700	28,300	21,600	51,700	35,500	41,900	50,600	105,000	107,000	68,200	34,200	44,400	628,000
1932	29,600	47,800	36,800	32,200	65,600	64,000	72,600	102,000	136,000	97,200	57,900	30,000	772,000
1933	40,200	122,000	57,900	36,000	15,000	27,500	52,400	81,200	155,000	168,000	98,400	63,700	917,000
1934	97,870	81,560	119,700	84,390	47,640	72,110	105,500	103,100	88,600	78,060	51,810	33,100	963,400
1935	41,920	85,850	56,100	98,320	58,510	29,840	28,640	79,200	120,100	98,280	49,960	40,490	785,200
1936	24,120	15,180	18,860	27,950	12,730	29,180	81,380	158,000	148,300	72,390	42,370	29,190	657,700
1937	22,050	11,720	31,410	13,470	10,820	32,080	40,120	93,750	167,500	96,870	42,240	29,630	591,700
1938	42,800	64,170	48,260	45,400	19,630	30,010	61,090	104,700	130,800	81,590	35,990	30,380	694,800
1939	30,700	28,630	51,400	25,190	19,890	34,510	62,290	115,100	110,800	109,900	51,190	30,020	701,400
1940	48,670	51,940	82,640	46,160	36,680	52,260	51,160	98,600	76,330	53,310	36,490	30,470	664,700
1941	64,770	29,790	51,070	31,510	23,140	27,630	43,790	66,010	68,070	52,730	34,720	52,710	545,900
1942	73,210	44,920	64,830	22,960	17,910	19,400	46,910	77,860	100,200	90,030	43,060	23,500	630,600
1943	18,360	36,430	48,720	38,350	30,820	34,540	79,740	80,300	118,500	133,200	57,580	32,200	708,700
1944	29,110	21,960	35,770	25,160	21,670	24,400	37,950	78,850	92,210	58,340	37,100	51,330	513,800
1945	41,850	30,230	38,840	56,500	43,130	28,710	33,170	113,500	104,000	80,550	42,350	38,840	651,700
1946	64,110	52,170	34,380	31,150	25,520	39,630	57,880	147,300	124,100	113,600	58,640	30,770	779,200
1947	44,700	27,480	55,340	38,500	48,780	49,240	69,780	131,000	115,700	87,000	45,200	33,310	746,000
1948	76,210	47,450	53,100	35,150	23,420	23,580	42,930	74,600	103,100	95,840	68,190	44,590	836,200
1949	51,380	36,220	28,460	17,090	19,630	44,800	67,120	163,400	127,200	111,300	63,450	47,250	777,300
1950	54,110	104,300	58,210	34,420	32,690	52,410	46,110	94,760	203,700	168,100	86,480	40,000	975,300

Yearly discharge, in cubic feet per second, of Cascade River at Marblemount, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acres-foot	
1929	737	10,700	Oct. 9, 1928	-	734	4.29	58.25	532,000	656	52.13	475,000
1930	737	2,740	June 7, 1930	-	769	4.50	61.08	557,000	824	65.43	596,000
1931	737	4,480	Jan. 27, 1931	244	867	5.07	68.85	628,000	902	71.54	653,000
1932	737	12,900	Feb. 26, 1932	279	1,060	6.20	84.65	772,000	1,210	96.37	878,000
1933	752	10,400	Nov. 13, 1932	214	1,270	7.43	100.52	917,000	1,380	109.55	997,000
1934	767	8,050	Nov. 2, 1933	287	1,331	7.78	105.63	963,400	1,169	92.78	846,200
1935	792	11,500	Nov. 5, 1934	259	1,085	6.35	86.09	785,200	914	72.53	661,500
1936	832	5,760	June 2, 1936	187	908	5.30	72.11	657,700	916	72.88	664,700
1937	832	4,760	June 3, 1937	158	817	4.78	64.87	591,700	942	74.75	681,700
1938	862	8,810	Oct. 28, 1937	237	960	5.61	76.18	694,800	898	71.27	650,000
1939	882	7,870	May 28, 1939	251	969	5.67	76.91	701,400	1,070	84.90	774,200
1940	902	3,190	Dec. 15, 1939	300	916	5.36	72.88	664,700	864	68.76	627,100
1941	932	4,430	Oct. 19, 1940	276	754	4.41	59.86	545,900	806	63.95	583,300
1942	962	6,730	Dec. 2, 1941	249	871	5.09	69.14	630,600	761	60.43	551,100
1943	982	3,820	June 17, 1943	219	979	5.73	77.71	708,700	956	75.88	692,000
1944	1012	5,210	Dec. 3, 1943	230	708	4.14	56.54	513,800	741	58.98	537,900
1945	1042	4,430	Jan. 7, 1945	299	900	5.26	71.45	651,700	955	75.81	691,400
1946	1062	9,620	Oct. 25, 1945	259	1,076	6.29	85.44	779,200	1,044	82.91	756,100
1947	1092	11,600	Oct. 25, 1946	214	1,030	6.02	81.80	746,000	1,098	87.20	795,300
1948	1122	11,000	Oct. 19, 1947	293	1,152	6.74	91.68	836,200	1,068	85.02	775,500
1949	1152	5,420	May 13, 1949	223	1,074	6.28	85.23	777,300	1,213	96.25	877,900
1950	1182	17,800	Nov. 27, 1949	279	1,347	7.88	106.94	975,300	-	-	-

291. Clark Creek at Marblemount, Wash.

Location (revised).--Lat 48°31'15", long. 121°25'05", in SE¼NE¼ sec. 18, T. 35 N., R. 11 E., on left bank at bridge 500 ft upstream from mouth and three-quarters of a mile southeast of Marblemount.

Drainage area.--Not determined.

Gage.--Water-stage recorder. Altitude of gage is 310 ft (by barometer).

Extremes.--1944-46: Maximum discharge not determined; maximum gage height, 6.01 ft Oct. 25, 1945 (backwater from Cascade River); minimum discharge, 5.8 cfs Aug. 19-25, 1944 (gage height, 1.40 ft).

Remarks.--No diversion or regulation above station. High-water records may include some overflow from Jordan Creek and other nearby tributaries.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	-	-	-	-	-	-	-	-	-	-	7.10	12.9	-
1945	10.9	15.1	17.2	*26.9	*32.9	27.4	26.7	*33.4	26.6	18.4	9.45	11.2	*21.2
1946	*24.2	34.1	27.4	29.4	29.5	22.9	19.9	26.5	20.4	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1944	-	-	-	-	-	-	-	-	-	-	437	770	-
1945	672	900	1,060	*1,650	*1,790	1,680	1,590	*2,050	1,580	1,130	581	669	*15,350
1946	*1,490	2,030	1,880	1,810	1,640	1,410	1,190	1,630	1,220	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Discharge	Maximum Date	Minimum day	Mean	Runoff in acre-feet	Runoff in acre-feet
1944	1042	-	-	-	-	-	-
1945	1346, 1042	-	-	-	7.3	*21.2	*15,350
1946	1346, 1062	-	-	-	-	-	*17,920

* Revised.

292. Jordan Creek at Marblemount, Wash.

Location.--Lat 48°31'00", long. 121°25'00" (revised), in NESE $\frac{1}{4}$ sec. 18, T. 35 N., R. 11 E., on left bank half a mile upstream from mouth and 1 mile southeast of Marblemount.

Drainage area.--12.7 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 380 ft (by barometer). Prior to Feb. 18, 1947, water-stage recorder 100 ft downstream at different datum.

Extremes.--1943-47: Maximum discharge recorded, 895 cfs Oct. 19, 1947 (gage height, 4.55 ft); from rating curve extended above 210 cfs; minimum discharge, 10 cfs Sept. 1-3, 1945.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	33.2	17.7	-
1944	29.7	-	-	-	-	-	-	-	-	29.6	17.2	37.9	-
1945	38.8	48.2	53.5	68.8	53.3	33.6	38.4	110	87.6	48.4	16.6	29.6	52.3
1946	68.6	82.7	62.5	60.3	48.0	53.2	79.5	179	137	72.4	28.5	16.9	74.2
1947	46.3	43.1	88.9	85.2	80.7	59.4	89.9	135	104	56.0	23.6	23.7	67.9
1948	65.5	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	2,040	1,060	-
1944	1,830	-	-	-	-	-	-	-	-	1,820	1,060	2,250	-
1945	2,390	2,870	3,290	4,230	2,960	2,070	2,280	6,780	5,210	2,980	1,020	1,760	37,840
1946	4,220	4,920	3,840	3,710	2,670	3,270	4,730	11,000	8,130	4,450	1,750	1,010	53,700
1947	2,840	2,560	5,460	4,010	4,480	3,650	5,350	8,310	6,160	3,440	1,450	1,410	49,120
1948	4,030	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982	-	-	-	-	-	-	-	-	-	-
1944	1012	-	-	11	-	-	-	-	-	-	-
1945	1042	245	Feb. 7, 1945	10	52.3	4.12	55.85	37,840	58.4	62.40	42,270
1946	1062	515	Oct. 25, 1945	13	74.2	5.84	79.26	53,700	71.3	76.15	51,580
1947	1092	-	-	11	67.9	5.35	72.55	49,120	-	-	-
1948	1092	-	-	-	-	-	-	-	-	-	-

293. Rocky Creek near Marblemount, Wash.

Location.--Lat 48°30'30", long. 121°29'50", in SW $\frac{1}{4}$ sec. 22, T. 35 N., R. 10 E., on right bank half a mile upstream from mouth and 3 $\frac{1}{2}$ miles southwest of Marblemount

Drainage area.--10.0 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 360 ft (by barometer).

Extremes.--August to November 1943: Maximum discharge, 53 cfs Oct. 29, 30 (gage height, 2.46 ft); minimum, 3.5 cfs Oct. 8.

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1943								-	5.60	20.1	-	

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1943								-	333	1,240	-	

294. Illabot Creek near Rockport, Wash.

Location (revised).--Lat 48°28'10", long. 121°29'10", in SE $\frac{1}{4}$ sec. 34, T. 35 N., R. 10 E., on left bank $1\frac{1}{4}$ miles upstream from mouth and $4\frac{1}{2}$ miles east of Rockport.

Drainage area.--41.3 sq mi (revised). At site August to October 1943, 42.4 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 450 ft (from topographic map). Aug. 23 to Oct. 29, 1943, water-stage recorder half a mile downstream at different datum.

Extremes.--1943-44: Maximum discharge recorded, 940 cfs Sept. 20, 1944 (gage height, 3.3 ft); minimum recorded, 58 cfs Sept. 8, 1944.

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	-	93.9	130	-		
1944						169	93.0	187	159	-		

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	-	5,590	7,980	-		
1944						10,400	5,720	11,110	9,810	-		

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1943	982, 1012	-	-	66	-	-	-	-	-	-	-	-
1944	1012	-	-	66	-	-	-	-	-	-	-	-

295. North Fork Sauk River near Barlow Pass, Wash.

Location.--Lat 48°05'20", long. 121°20'00", in sec. 14, T. 30 N., R. 11 E. (unsurveyed), on right bank 1 mile downstream from Lost Creek, $2\frac{1}{4}$ miles upstream from South Fork, 7 miles northeast of Barlow Pass, and 17 miles southeast of Darrington.

Drainage area.--76 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,700 ft (from river-profile map). Prior to Dec. 23, 1917, water-stage recorder and Dec. 23, 1917, to Oct. 6, 1918, staff gage at same site and datum.

Extremes.--1917-20: Maximum discharge, 7,400 cfs (revised) Dec. 29, 1917 (gage height, 14.0 ft, from floodmarks); minimum recorded, 75 cfs probably Oct. 20, 1917 (gage height, 1.00 ft, from recorded range in stage), but may have been less in December 1919 during period of no gage-height record.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	132	254	1,290	757	283	238	565	831	1,450	663	308	175	581
1919	458	349	562	406	220	171	524	997	1,080	1,010	403	212	534
1920	121	571	565	698	391	244	254	594	882	758	507	643	499
1921	807	402	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	8,120	15,100	79,300	46,500	15,700	14,800	33,600	51,100	86,300	40,800	18,900	10,400	420,000
1919	26,900	20,800	34,600	25,000	12,200	10,500	31,200	61,300	64,300	62,100	24,800	12,600	386,000
1920	7,440	34,000	34,700	42,900	22,500	15,000	13,900	36,500	52,500	45,400	18,900	38,300	362,000
1921	49,600	23,900	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1918	482	*7,400	Dec. 29, 1917	-	581	7.64	103.76	420,000	553	98.70	400,000	-
1919	512	*2,430	Dec. 14, 1918	105	534	7.03	95.22	386,000	525	93.72	380,000	-
1920	512	*2,780	Nov. 15, 1919	88	499	6.57	89.30	362,000	-	-	-	-
1921	532	-	-	-	-	-	-	-	-	-	-	-

* Revised.

296. South Fork Sauk River near Barlow Pass, Wash.

Location (revised).--Lat 48°03'45", long. 121°24'20", in NE $\frac{1}{4}$ sec. 29, T. 30 N., R. 11 E., (unsurveyed), on right bank $2\frac{1}{2}$ miles upstream from North Fork, $3\frac{1}{2}$ miles northeast of Barlow Pass, and 16 miles southeast of Darrington.

Drainage area.--32.7 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,550 ft (from river-profile map).

Average discharge.--6 years (1917-20, 1928-31), 283 cfs.

Extremes.--1917-21, 1928-31: Maximum discharge, 9,410 cfs (revised) Dec. 29, 1917 (gage height, 9.1 ft), from rating curve extended above 1,400 cfs on basis of logarithmic plotting; minimum, 27 cfs Oct. 3, 1929.

Flood of Dec. 12, 1921 reached a stage of 9.5 ft (discharge, 10,500 cfs), from high-water mark in well.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	118	202	*1,070	498	213	176	322	376	575	322	209	83.5	*350
1919	373	238	459	313	126	136	377	654	620	517	203	102	345
1920	70.0	*508	291	431	163	134	*110	291	410	326	133	487	*279
1921	480	202	192	228	-	-	-	-	-	-	-	294	-
1929	*363	159	149	62.9	30.8	129	164	*495	578	335	133	60.6	*223
1930	76.0	59.2	195	72.7	475	195	376	317	351	233	90.3	82.2	208
1931	204	135	121	493	393	430	296	468	503	218	105	180	295

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	7,260	12,000	*85,800	30,600	11,800	10,800	19,200	23,100	34,200	19,800	12,900	5,560	*253,000
1919	22,900	14,200	28,200	19,200	7,000	8,380	22,400	40,200	36,900	31,800	12,500	6,070	250,000
1920	4,300*	30,200	17,900	26,500	9,380	8,240	*6,550	17,900	24,400	20,000	8,180	29,000	*203,000
1921	29,500	12,000	11,800	14,000	-	-	-	-	-	-	-	17,500	-
1929	*22,300	9,460	9,160	3,870	1,710	7,930	9,760*	*30,400	34,400	20,600	8,180	3,610	*161,000
1930	4,670	3,520	12,000	4,470	26,400	12,000	22,400	19,500	20,900	14,300	5,550	4,890	151,000
1931	12,500	8,030	7,440	30,300	21,800	26,400	17,600	28,800	29,900	13,400	6,460	10,700	213,000

* Revised.

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1918	1346,482	*9,410	Dec. 29, 1917	48	*350	*10.7	*45.07	*253,000	322	133.71	233,000
1919	512	*3,350	Dec. 14, 1918	52	345	10.6	143.19	250,000	*327	*135.81	*237,000
1920	1346,512	*5,870	Nov. 15, 1919	36	*279	*8.53	*116.10	*203,000	*280	*116.70	*203,000
1921	532	-	-	-	-	-	-	-	-	-	-
1929	1346,692	1,100	June 15, 1929	-	*223	*6.82	*92.48	*161,000	*194	*80.57	*141,000
1930	707	2,080	Feb. 5, 1930	-	208	6.36	86.24	151,000	219	90.74	158,000
1931	722	3,210	Jan. 27 or 28, 1931	45	295	9.02	122.38	213,000	-	-	-

* Revised.

* Not previously published.

297. Sauk River above Whitechuck River, near Darrington, Wash.

Location.--Lat 48°10'00", long. 121°27'45", in NW $\frac{1}{4}$ sec. 24, T. 31 N., R. 10 E., on right bank half a mile upstream from Whitechuck River and 9 $\frac{1}{2}$ miles southeast of Darrington.

Drainage area.--152 sq mi.

Supplemental records available.--August to November 1910, fragmentary gage heights and discharge measurement only.

Gage.--Water-stage recorder. Altitude of gage is 930 ft (from river-profile map). Aug. 29 to Nov. 17, 1910, staff gage on left bank three-eighths of a mile downstream at different datum.

Average discharge.--27 years (1917-22, 1928-50), 1,097 cfs.

Extremes.--1917-22, 1928-50: Maximum discharge, 30,200 cfs Nov. 27, 1949 (gage height, 14.9 ft, in gage well), from rating curve extended above 6,200 cfs by logarithmic plotting; minimum, 115 cfs Nov. 15, 16, 30, Dec. 1, 1936.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Sauk River above Whitechuck River, near Darrington, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	421	545	5,510	2,160	954	732	1,290	1,570	2,390	1,230	850	323	1,320
1919	1,130	978	1,580	1,190	591	572	1,280	2,080	2,120	1,970	770	384	1,230
1920	260	1,430	1,200	1,560	827	603	555	1,200	1,680	1,310	508	1,500	1,050
1921	*1,890	*843	841	1,010	1,350	1,060	1,340	1,980	3,400	1,830	784	911	*1,400
1922	1,430	1,390	2,660	464	321	340	692	1,900	2,680	1,030	529	458	1,160
1928	-	-	-	-	-	-	-	-	-	-	-	288	-
1929	1,070	482	468	250	167	481	654	2,020	2,150	1,070	392	217	790
1930	240	210	657	284	1,540	700	1,520	1,310	1,430	809	291	239	763
1931	564	424	433	1,190	869	1,060	1,160	2,020	1,980	819	251	416	931
1932	535	1,060	665	665	1,560	1,480	1,530	2,070	2,510	1,480	614	315	1,210
1933	705	2,580	1,250	890	297	625	962	1,690	3,180	2,800	1,240	1,050	1,440
1934	1,704	1,416	3,077	1,968	948	1,698	1,991	1,859	1,231	770	395	394	1,461
1935	996	1,970	1,102	2,108	1,199	667	606	1,619	2,151	1,585	525	427	1,229
1936	309	345	466	707	267	648	1,536	2,772	2,419	910	370	314	923
1937	252	137	1,051	244	272	658	912	1,635	2,951	1,307	426	266	662
1938	588	1,687	1,360	892	334	595	1,317	1,917	2,051	953	283	215	1,020
1939	509	711	1,057	1,324	460	673	1,392	2,303	1,948	1,614	506	291	1,070
1940	587	870	1,795	781	914	1,083	1,160	1,834	1,136	451	261	196	922
1941	1,034	712	1,067	677	521	552	840	1,162	895	396	215	749	736
1942	1,441	1,030	1,395	368	369	409	1,053	1,390	1,928	1,059	336	177	916
1943	276	1,186	1,047	687	670	763	1,629	1,661	2,222	1,976	604	283	1,083
1944	399	490	966	606	495	602	814	1,501	1,419	586	262	335	733
1945	600	776	808	1,381	1,139	571	620	2,191	1,778	984	343	480	972
1946	901	1,067	832	792	592	707	1,203	2,926	2,677	1,639	644	308	1,211
1947	728	695	1,469	986	1,210	937	1,483	2,402	2,010	1,154	459	376	1,159
1948	1,594	1,436	1,148	711	588	499	970	2,604	3,551	1,287	687	663	1,308
1949	823	813	624	*314	684	899	1,258	2,965	2,294	1,693	774	652	*1,152
1950	1,065	2,360	1,466	1,019	996	1,264	996	1,706	3,505	2,671	1,153	469	1,557

* Revised.

a Only monthly means revised; revised daily figures not available.

Monthly and yearly mean runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	25,900	32,400	216,000	133,000	53,000	45,000	76,800	96,500	142,000	75,600	40,000	19,200	955,000
1919	69,500	58,200	97,200	73,200	32,800	35,200	76,200	128,000	126,000	121,000	47,300	22,800	887,000
1920	16,000	85,100	73,800	95,900	47,600	37,100	33,000	73,800	100,000	80,600	31,200	89,300	763,000
1921	*16,000	*50,200	51,700	62,100	75,000	65,200	55,900	122,000	202,000	113,000	48,200	54,200	1,020,000
1922	87,900	82,700	164,000	28,500	17,800	20,900	41,200	117,000	159,000	83,300	32,500	27,300	842,000
1928	-	-	-	-	-	-	-	-	-	-	-	17,100	-
1929	65,800	28,700	28,800	15,400	9,280	29,600	38,900	124,000	128,000	65,800	24,100	12,900	571,000
1930	14,800	12,500	40,400	17,500	85,500	43,000	90,400	80,600	85,100	49,700	17,900	14,200	552,000
1931	34,700	25,200	26,600	72,600	48,300	65,200	69,000	124,000	118,000	50,400	15,400	24,800	674,000
1932	36,000	63,100	40,900	40,900	89,700	91,000	91,000	127,000	148,000	91,000	37,800	18,700	876,000
1933	43,300	54,000	75,600	54,700	16,500	38,400	57,200	104,000	169,000	172,000	76,200	62,500	1,040,000
1934	104,800	84,260	189,200	121,000	52,660	104,400	118,500	114,300	73,260	47,330	24,290	23,450	1,057,000
1935	61,260	117,200	67,740	129,600	66,580	41,000	36,080	99,570	128,000	85,190	32,260	25,390	889,900
1936	19,000	20,540	28,680	43,470	15,360	39,840	91,400	170,500	144,000	55,970	22,770	18,670	670,200
1937	15,510	8,140	64,590	14,980	15,120	40,360	54,280	112,800	175,600	80,590	26,220	15,920	623,900
1938	36,160	100,400	84,840	54,840	18,330	36,560	79,360	117,900	122,000	58,750	17,400	12,810	736,400
1939	31,310	42,300	64,980	81,430	25,550	41,370	82,800	141,600	115,900	99,240	31,110	17,320	774,900
1940	34,850	51,800	110,400	48,000	52,570	66,610	69,030	112,800	67,570	27,720	16,040	11,640	669,000
1941	63,570	42,340	65,840	41,640	28,940	33,940	50,010	71,450	53,280	24,350	13,250	44,580	533,000
1942	88,590	61,270	85,760	22,640	20,490	25,120	62,680	85,490	114,700	65,120	20,670	10,560	663,100
1943	16,980	70,540	64,410	41,000	37,180	46,930	96,950	102,100	132,200	121,500	37,140	16,960	785,800
1944	24,530	28,150	60,630	37,290	28,450	37,030	49,440	92,580	64,460	36,050	16,090	37,790	532,200
1945	36,870	46,190	49,670	84,920	63,270	55,090	36,910	134,700	105,600	60,490	21,070	28,540	703,500
1946	55,420	63,510	51,160	48,710	32,900	43,470	71,590	179,900	159,300	113,000	39,570	18,330	876,900
1947	44,750	41,550	90,350	60,630	67,200	57,600	88,260	147,700	119,600	70,950	28,200	22,360	839,000
1948	98,020	85,430	70,450	43,700	33,610	30,690	57,720	160,100	102,100	77,910	42,280	39,480	949,700
1949	50,630	48,350	36,370	19,290	38,000	55,300	74,840	182,500	136,500	104,100	47,600	38,800	*654,100
1950	55,480	140,400	90,130	62,840	55,320	77,700	59,270	104,900	206,500	164,300	70,920	27,890	1,127,900

* Revised.

a Only monthly means revised; revised daily figures not available.

Yearly discharge, in cubic feet per second, of Sauk River above Whitechuck River near Darrington, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1918	482	*24,400	Dec. 29, 1917	-	1,320	8.68	117.77	955,000	1,250	111.68	906,000
1919	512	8,430	Dec. 14, 1918	210	1,230	8.09	109.49	987,000	1,180	103.33	837,000
1920	512	*11,400	Nov. 15, 1919	178	1,050	6.91	94.24	763,000	*1,110	*99.54	*806,000
1921	1286	8,960	Oct. 4, 1920	275	*1,400	*9.21	*125.16	1,020,000	*1,560	*139.52	*1,130,000
1922	552	*29,100	Dec. 12, 1921	220	1,160	7.63	103.85	842,000	-	-	-
1928	692	-	-	-	-	-	-	-	-	-	-
1929	692	7,030	Oct. 9, 1928	-	790	5.02	70.43	571,000	712	63.56	516,000
1930	707	5,060	Feb. 5, 1930	-	763	5.02	68.02	552,000	788	70.36	570,000
1931	722	7,410	Jan. 27, 1931	168	931	6.12	83.14	674,000	1,010	89.73	728,000
1932	752	*22,900	Feb. 26, 1932	204	1,210	7.96	108.22	876,000	1,390	124.60	1,010,000
1933	752	13,000	Nov. 13, 1932	152	1,440	9.47	128.69	1,040,000	1,590	141.64	1,150,000
1934	767	*18,600	Dec. 21, 1933	224	1,461	9.61	130.34	1,057,000	1,278	114.15	925,400
1935	792	13,200	Jan. 25, 1935	188	1,229	8.09	109.97	889,900	983	87.97	711,900
1936	812	4,400	May 16, 1936	130	923	6.07	82.59	670,200	951	85.07	690,200
1937	832	4,310	June 3, 1937	115	862	5.67	76.98	623,900	1,046	93.40	757,100
1938	862	8,240	Apr. 18, 1938	149	1,020	6.71	91.07	738,400	906	80.85	655,600
1939	882	7,010	May 29, 1939	153	1,070	7.04	95.61	774,900	1,151	102.83	833,400
1940	902	5,480	Dec. 15, 1939	165	922	6.07	82.54	669,000	886	79.39	643,500
1941	932	4,180	Oct. 18, 1940	156	736	4.84	65.74	533,000	825	73.65	597,100
1942	962	7,220	Dec. 2, 1941	132	918	6.03	81.80	663,100	800	71.46	579,400
1943	982	6,230	Nov. 23, 1942	138	1,083	7.12	96.69	783,900	1,031	92.07	746,200
1944	1012	10,300	Dec. 3, 1943	190	733	4.82	65.66	532,200	758	67.93	550,600
1945	1042	8,940	Feb. 7, 1945	228	972	6.39	86.80	703,500	1,023	91.40	740,900
1946	1062	*8,950	Oct. 25, 1945	200	1,211	7.97	108.17	876,900	1,220	108.95	883,200
1947	1092	*10,200	Oct. 25, 1946	168	1,159	7.62	103.51	839,000	1,266	115.06	916,400
1948	1122	13,500	Oct. 13, 1947	268	1,308	8.61	117.13	949,700	1,148	102.77	833,100
1949	1286	5,660	May 13, 1949	215	*1,152	*7.58	*102.89	*834,100	*1,371	*122.47	*992,700
1950	1182	30,200	Nov. 27, 1949	297	1,557	10.2	139.07	1,127,000	-	-	-

* Revised.

298. Whitechuck River near Darrington, Wash.

Location.--Lat 48°10'30", long. 121°23'00", in NW¼ sec. 16, T. 31 N., R. 11 E., on left bank ½ miles upstream from mouth and 11 miles southeast of Darrington.

Drainage area.--75 sq mi, approximately.

Supplemental records available.--August to October 1910, fragmentary gage heights and discharge measurement only.

Gage.--Water-stage recorder. Altitude of gage is 1,310 ft (from river-profile map). Aug. 29 to Oct. 14, 1910, staff gage at site 4 miles downstream at different datum.

Extremes.--1919-21: Maximum discharge recorded, 4,540 cfs Dec. 12, 1921 (gage height, 6.4 ft), may have been greater than 9,000 cfs on this date; minimum recorded, 111 cfs sometime between Nov. 4 and 14, 1919, but may have been less during period of no gage-height record in December 1919.

Flood of Dec. 29, 1917 reached a stage of 8.4 ft, from floodmarks (discharge, about 9,000 cfs).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	950	488	-	-
1921	679	323	278	306	366	300	300	727	1,410	946	591	362	550
1922	461	438	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	58,400	30,000	-	-
1921	41,800	19,200	17,100	18,800	20,300	18,400	17,900	44,700	83,900	58,200	36,300	21,500	398,000
1922	28,300	26,100	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1920	532	*3,480	(a)	-	-	-	-	-	-	-	-
1921	532	*3,340	Oct. 4, 1920	-	550	7.33	99.52	398,000	-	-	-
1922	532	b4,540	Dec. 12, 1921	-	-	-	-	-	-	-	-

* Not previously published.

a Probably occurred Nov. 15, 1919.

b Maximum recorded.

299. Sauk River above Clear Creek, near Darrington, Wash.

Location.--Lat 48°13'00", long. 121°34'00", in SW $\frac{1}{4}$ sec. 31, T. 32 N., R. 10 E., on left bank 50 ft upstream from Clear Creek and 3 miles southeast of Darrington.

Drainage area.--259 sq mi.

Gage.--Staff gage. Datum of gage is 610 ft above mean sea level (from river-profile survey).

Extremes.--1910-11, 1913: Maximum discharge observed, 22,600 cfs Nov. 21, 1910 (gage height, 5.50 ft); minimum observed, 350 cfs Oct. 5, 25, 26, 27, 1911.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	-	523	-
1911	3,100	4,470	*3,250	1,490	660	901	1,250	2,590	4,030	2,410	952	948	*2,180
1913	-	-	-	957	1,060	807	1,400	-	-	3,760	1,580	1,610	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	-	31,100	-
1911	191,000	266,000	200,000	91,600	36,700	55,400	74,400	159,000	240,000	148,000	58,500	56,400	*1,580,000
1913	-	-	-	58,800	58,900	49,600	83,300	-	-	231,000	97,200	95,800	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1910	312	-	-	-	-	-	-	-	-
1911	1346,312	*a22,600	Nov. 21, 1910	420	*2,180	*1,580,000	-	-	-
1913	362	-	-	-	-	-	-	-	-

* Revised.

a Maximum observed.

* Not previously published.

300. Sauk River at Darrington, Wash.

Location.--Lat 48°15'00" (revised), long. 121°35'00", in SW $\frac{1}{4}$ sec. 24, T. 32 N., R. 9 E., on right bank half a mile southeast of Darrington and 2 $\frac{1}{2}$ miles downstream from Clear Creek.

Drainage area.--293 sq mi.

Gage.--Staff gage. Altitude of gage is 525 ft (from river-profile map). Prior to Apr. 14, 1922, staff gage 700 ft upstream at different datum.

Average discharge.--16 years (1914-26, 1928-32), 1,980 cfs.

Extremes.--1914-26, 1928-32: Maximum discharge, 46,500 cfs (revised) Feb. 26, 1932 (gage height, 16.0 ft, from floodmarks), from rating curve extended above 7,000 cfs on basis of velocity-area studies; minimum observed, 262 cfs Sept. 25, 1930, may have been less during period of ice effect Jan. 11-25, 1930.

Remarks.--An average diversion of possibly 10 cfs was reported during 1922 to 1926 for the purpose of driving shingle bolts to mill at Darrington; may have operated during entire period of record. No regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	-	-	-	-	-	-	2,010	875	1,020	-
1915	1,570	*3,610	841	755	739	1,190	*2,790	1,510	1,220	1,020	844	449	*1,380
1916	1,620	1,760	*2,230	586	2,490	2,590	2,140	2,900	*4,600	4,100	1,880	962	*2,320
1917	541	1,590	893	795	1,190	679	1,520	3,110	5,240	5,050	1,710	836	1,930
1918	632	1,130	7,450	4,430	1,970	1,560	2,070	2,570	4,050	2,210	1,270	865	2,510
1919	2,390	2,100	3,350	2,830	1,790	1,490	2,980	3,870	3,860	3,450	1,640	747	2,550
1920	582	2,960	2,710	2,830	1,500	1,130	2,060	2,080	2,770	2,290	999	2,690	1,960
1921	3,500	1,590	1,750	2,080	2,430	1,740	1,630	3,490	5,640	3,050	1,350	1,440	2,470
1922	2,640	2,680	4,510	808	531	479	1,240	3,140	4,410	1,880	980	920	2,030
1923	1,260	998	2,360	2,990	1,010	1,060	2,150	2,980	3,490	2,560	963	641	1,880
1924	338	1,470	2,640	1,600	4,210	984	1,190	3,560	2,440	1,460	821	817	1,830
1925	2,870	2,360	2,860	2,590	2,980	1,170	2,340	4,350	3,490	2,320	881	506	2,390

* Revised.

Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	691	865	3,180	1,860	1,870	1,340	1,790	2,110	1,400	874	672	929	1,460
1928	-	-	-	-	-	-	-	-	-	1,830	584	470	-
1929	1,930	1,040	1,030	590	377	1,110	1,320	3,450	3,750	1,863	779	420	1,480
1930	497	417	1,320	651	3,890	1,440	2,870	2,220	2,500	1,600	689	507	1,530
1931	1,120	855	919	2,360	1,670	2,220	2,220	3,400	3,390	1,540	609	1,020	1,780
1932	1,140	2,130	1,570	1,550	2,770	2,710	2,730	3,270	4,240	2,870	1,190	735	2,240

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914									124,000	53,900	60,700		
1915	96,500	215,000	51,700	46,400	41,000	73,200	166,000	82,800	72,600	62,700	51,900	26,700	*996,000
1916	99,600	105,000	157,000	36,000	143,000	159,000	127,000	178,000	274,000	252,000	116,000	57,200	*1,680,000
1917	33,300	94,600	54,900	49,800	66,100	41,800	90,400	91,000	512,000	331,000	105,000	49,700	1,400,000
1918	59,800	87,200	457,000	272,000	109,000	95,900	123,000	158,000	341,000	136,000	78,100	39,600	1,820,000
1919	77,000	26,000	96,000	174,000	99,400	91,600	177,000	238,000	300,300	212,000	61,000	1,880,000	1,850,000
1920	35,800	176,000	167,000	174,000	96,300	69,500	51,300	129,000	101,650	101,400	61,400	60,000	1,430,000
1921	215,000	94,600	108,000	128,000	135,000	107,000	97,000	215,000	366,000	188,000	83,000	85,700	1,790,000
1922	162,000	159,000	277,000	49,700	29,500	29,500	73,800	193,000	232,000	116,160	60,300	54,700	1,470,000
1923	77,500	59,300	145,000	184,000	56,100	65,200	128,000	183,000	208,000	157,000	59,200	38,100	1,360,000
1924	57,700	87,500	162,000	98,400	242,400	60,500	70,800	219,000	141,450	99,800	50,500	46,600	1,330,000
1925	176,000	40,000	176,000	159,000	166,000	71,900	199,000	167,000	200,000	143,000	54,200	30,100	1,730,000
1926	42,500	51,500	196,000	14,000	104,000	82,400	107,000	130,000	83,500	53,700	41,300	55,300	1,060,000
1928										115,000	42,100	28,000	
1929	119,000	61,900	63,300	36,300	20,900	68,200	78,600	212,000	223,000	114,000	47,900	25,000	1,070,000
1930	30,600	24,800	81,200	40,000	216,000	88,500	171,000	136,000	149,000	88,400	50,200		1,110,000
1931	68,900	50,900	56,500	45,000	92,800	36,100	132,000	209,000	202,000	94,700	60,700	60,700	1,290,000
1932	10,700	127,000	96,500	95,300	159,000	67,000	162,000	201,000	252,000	176,000	73,200	43,700	1,620,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile		Runoff Acres-feet	Mean	Runoff	
		Discharge	Date			Inches	Acres-feet			Inches	Acres-feet
1914	412	-	-	-	-	-	-	-	-	-	-
1915	1346, 412	*16,500	Apr. 2, 1915	340	*1,380	*4.71	*63.72	*995,000	*1,350	*62.36	*975,000
1916	442	*12,000	Dec. 8, 1915	370	*2,320	*7.92	*107.49	*1,680,000	*2,100	*97.65	*1,520,000
1917	462	*8,260	Nov. 9, 1916*	370	1,930	6.59	89.46	1,400,000	2,460	113.83	1,780,000
1918	482	36,000	Dec. 29, 1917	400	2,510	8.57	116.22	1,820,000	2,380	110.69	1,730,000
1919	512	*15,100	Dec. 14, 1918*	429	2,550	8.70	118.15	1,850,000	2,410	111.82	1,750,000
1920	512	17,200	Nov. 15, 1919	471	1,960	6.69	91.18	1,430,000	2,020	93.62	1,460,000
1921	532	*15,200	Oct. 4, 1920*	555	2,470	8.43	110.48	1,790,000	2,720	126.15	1,970,000
1922	552	36,000	Dec. 12, 1921	315	2,030	6.93	93.95	1,470,000	1,590	73.65	1,150,000
1923	572	*12,300	Dec. 24, 1922	469	1,880	6.42	87.99	1,360,000	1,910	88.74	1,390,000
1924	592	*27,200	Feb. 12, 1924	432	1,850	6.25	85.35	1,330,000	2,090	97.20	1,520,000
1925	612	*15,500	Dec. 11, 1924*	398	2,390	8.16	110.72	1,750,000	2,110	97.77	1,530,000
1926	632	*10,800	Jan. 5, 1926	286	1,460	4.98	67.88	1,060,000	-	-	-
1928	692	-	-	-	-	-	-	-	-	-	-
1929	692	*13,900	Oct. 9, 1928	300	-	5.05	68.55	1,070,000	1,330	61.67	962,000
1930	707	*9,630	Feb. 5, 1930	-	1,530	5.22	70.94	1,110,000	1,590	73.46	1,150,000
1931	722	*13,800	Jan. 27-28, 1931*	315	1,780	6.08	82.35	1,290,000	1,940	89.84	1,400,000
1932	737	*46,500	Feb. 26, 1932	450	2,240	7.65	103.93	1,620,000	-	-	-

* Revised.

* Not previously published.

301. Sulattle River below Lime Creek, near Darrington, Wash.

Location (revised).--Lat 48°14'55", long. 121°18'10", in sec. 19, T. 32 N., R. 12 E., on right bank half a mile downstream from Lime Creek, 1 mile upstream from Suiattle ranger station, 2 miles upstream from Buck Creek, and 14 miles east of Darrington.

Drainage area.--213 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,120 ft (from river-profile map).

Extremes--1920-21: Maximum discharge, 5,890 cfs June 7, 1921 (gage height, 7.1 ft); minimum, 469 cfs Feb. 6, 1921 (gage height, 1.68 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

[illegible]

SKAGIT RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Suittie River below Lime Creek, near Darrington, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	91,800	47,700	42,400	45,700	51,300	47,700	44,100	113,000	201,000	147,000	86,700	49,200	967,000
1922	82,700	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1921	532	5,890	June 7, 1921	473	1,340	6.29	85.21	967,000	-	-	-
1922	532	-	-	-	-	-	-	-	-	-	-

302. Big Creek near Mansford, Wash.

Location.--Lat 48°20'20", long. 121°26'10", in SW $\frac{1}{4}$ sec. 18, T. 33 N., R. 11 E., on right bank half a mile upstream from mouth and 4 miles northeast of Mansford.

Drainage area.--20.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 800 ft (from topographic map).

Extremes.--1943-46: Maximum discharge, 2,110 cfs Oct. 24, 1946 (gage height, 6.79 ft), from rating curve extended above 570 cfs; minimum, 34 cfs Oct. 6-9, 1943.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	47.9	-
1944	64.7	72.6	*103	74.6	65.3	72.7	112	*234	*228	89.2	58.3	105	*106
1945	85.6	91.7	*105	155	133	73.3	95.4	332	275	156	55.2	103	138
1946	142	167	117	110	94.8	101	155	389	347	253	94.6	64.9	170
1947	127	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	2,850	-
1944	3,980	4,320	*6,360	4,590	3,760	4,470	6,660	*14,410	*13,570	5,480	3,460	6,230	*77,290
1945	5,260	5,450	*6,460	9,540	7,390	4,500	5,680	20,420	16,360	9,560	3,390	6,100	*100,100
1946	8,760	9,940	7,170	6,790	5,260	6,230	9,250	23,900	20,620	15,530	5,820	3,860	123,100
1947	7,830	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982	-	-	-	-	-	-	-	-	-	-
1944	1346,1012	*860	Dec. 3, 1943	34	*106	*5.22	*71.40	*77,290	*110	*73.73	*79,800
1945	1346,1042	810	Feb. 7, 1945	42	138	6.80	*92.47	*100,100	150	100.49	108,800
1946	1062	950	Oct. 25, 1945	45	170	8.37	113.73	123,100	-	-	-
1947	1062	-	-	-	-	-	-	-	-	-	-

* Revised.

303. Suittie River near Mansford, Wash.

Location.--Lat 48°21'50", long. 121°29'30", in N $\frac{1}{2}$ sec. 10, T. 33 N., R. 10 E., on left bank $2\frac{1}{2}$ miles downstream from Big Creek and 4 miles north of Mansford.

Drainage area.--335 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 530 ft (from river-profile map).

Average discharge.--11 years (1938-49), 1,750 cfs (revised).

Extremes.--1938-49: Maximum discharge, 30,700 cfs Nov. 27, 1949 (gage height, 15.60 ft), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum, 413 cfs Oct. 13, 1942.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Suiattle River near Mansford, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	-	-	-	-	-	-	2,274	1,034	878	-
1939	774	882	1,490	1,879	807	1,020	1,964	3,463	3,449	*3,275	*1,450	852	*1,783
1940	987	1,237	2,254	1,556	1,242	1,551	1,611	2,939	2,492	1,476	998	801	1,581
1941	1,532	964	1,595	1,172	846	774	1,280	1,836	1,985	1,491	1,014	1,287	1,318
1942	1,874	1,455	1,989	774	674	675	1,501	2,315	3,333	2,673	1,328	778	1,620
1943	582	1,362	1,598	1,163	1,199	1,108	2,427	2,417	3,856	4,026	1,644	922	1,861
1944	751	682	1,110	828	750	757	1,198	2,366	2,868	1,592	983	1,381	1,272
1945	1,087	1,119	1,218	1,746	1,672	975	1,035	3,256	3,277	2,256	1,190	1,121	1,663
1946	1,588	1,695	1,209	1,225	958	1,131	1,594	4,434	4,142	3,314	1,515	870	1,980
1947	1,151	1,045	1,888	1,260	1,635	1,383	1,989	3,986	3,716	2,500	1,221	919	1,893
1948	2,080	1,860	1,799	1,250	919	823	1,276	3,870	7,091	3,047	1,855	1,142	2,250
1949	1,552	1,236	1,044	650	1,017	1,395	1,938	5,217	4,150	3,259	1,704	1,239	2,024
1950	1,468	3,024	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	-	-	-	-	-	-	139,800	63,580	52,230	-
1939	47,560	52,460	91,640	115,600	44,820	62,720	116,900	212,900	205,200	*201,400	*89,180	50,680	*1,291,000
1940	60,700	73,610	138,600	83,400	71,460	95,390	95,860	180,700	148,300	90,760	61,340	47,640	1,148,000
1941	94,180	57,360	99,100	72,050	46,970	47,580	76,180	112,900	118,100	91,680	62,360	76,580	954,000
1942	115,200	86,560	122,300	47,570	37,430	41,510	89,320	142,300	198,300	164,400	81,650	46,280	1,173,000
1943	35,760	81,050	98,230	71,480	66,570	68,110	144,400	148,600	229,400	247,600	101,100	54,850	1,347,000
1944	46,180	40,590	68,270	50,900	43,160	46,540	71,270	145,500	170,600	97,890	60,420	82,150	923,500
1945	66,840	66,580	74,910	107,400	92,860	59,970	61,600	200,200	195,000	138,700	73,190	66,730	1,204,000
1946	97,680	100,800	74,330	75,340	53,180	69,520	94,840	272,600	246,500	203,800	93,160	61,770	1,434,000
1947	70,770	62,190	110,100	77,500	90,800	85,011	113,300	245,100	221,000	153,700	75,090	64,680	1,370,000
1948	127,900	107,000	110,600	76,840	52,880	50,620	75,950	238,000	422,000	187,400	112,800	67,970	1,634,000
1949	83,130	73,560	64,190	39,970	56,470	85,750	115,300	320,800	247,000	200,400	104,800	73,730	1,465,000
1950	90,270	179,900	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary		maximum	Minimum	Mean	Per square mile	Runoff Inches	Acre-feet	Mean	Runoff	
		Discharge	Date									Inches
1938	882	-	-	-	-	-	-	-	-	-	-	
1939	1346,882	9,680	May 29, 1939	484	*1,783	*5.32	*72.20	*1,291,000	*1,895	*76.76	*1,372,000	
1940	902,1152	5,580	Dec. 15, 1939	496	1,581	4.72	64.25	1,148,000	1,549	62.94	1,124,000	
1941	932	4,980	Oct. 18, 1940	577	1,318	3.93	53.39	954,000	1,421	57.55	1,028,000	
1942	962,1152	9,100	Oct. 3, 1941	542	1,620	4.84	65.63	1,173,000	1,469	59.54	1,064,000	
1943	982,1152	7,200	June 30, 1943	430	1,861	5.66	75.41	1,347,000	1,778	72.04	1,287,000	
1944	1012,1152	8,850	Dec. 3, 1943	469	1,272	3.80	51.68	923,500	1,346	54.67	976,800	
1945	1042	9,520	Feb. 8, 1945	644	1,663	4.96	67.39	1,204,000	1,752	71.00	1,268,000	
1946	1062	12,600	Oct. 25, 1945	562	1,980	5.91	80.23	1,434,000	1,947	78.90	1,410,000	
1947	1092	19,200	Oct. 25, 1946	460	1,893	5.65	76.70	1,370,000	2,031	82.30	1,470,000	
1948	1122	18,000	Oct. 19, 1947	645	2,250	6.72	91.42	1,634,000	2,074	84.24	1,505,000	
1949	1152	9,900	May 13, 1949	520	2,024	6.04	82.00	1,465,000	-	-	-	
1950	1152	30,700	Nov. 27, 1949	-	-	-	-	-	-	-	-	

* Revised.

304. Sauk River near Sauk, Wash. 1/

Location.--Lat 48°25'15", long. 121°34'00" (revised), in NW 1/4 sec. 19, T. 34 N., R. 10 E., on left bank 5 miles upstream from mouth, 5 miles southeast of Sauk, and 8 miles downstream from Suiattle River.

Drainage area.--714 sq mi. At site 1910-12, 684 sq mi.

Supplemental records available.--August to October 1910, fragmentary gage heights, and discharge measurements only.

Gage.--Water-stage recorder. Datum of gage is 266 ft (corrected) above mean sea level (river-profile survey). Aug. 27, 1910, to Aug. 3, 1912, staff or chain gages at different sites from 1 mile downstream to 5 miles upstream at different datums.

Average discharge.--22 years (1928-50), 4,135 cfs (revised).

Extremes.--1910-12, 1928-50: Maximum discharge, 82,400 cfs Nov. 27, 1949 (gage height, 16.93 ft); minimum observed, 572 cfs Dec. 5, 1929, but may have been less during period of ice effect Jan. 10-27, 1930.

Remarks.--No diversion or regulation above station.

1/ Published as Sauk River at (or near) Suiattle Crossing, near Sauk, 1910-12.

SKAGIT RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Sauk River near Sauk, Wash.													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	2,690	5,500	8,520	5,630	2,360	2,350	-
1912	1,100	5,320	3,170	4,000	4,450	1,520	2,410	6,760	9,580	5,180	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	2,000	1,410	-
1929	3,490	1,990	1,930	1,280	793	*2,180	2,630	6,650	7,810	4,450	2,210	1,220	*3,070
1930	993	724	2,290	1,310	5,620	2,960	5,260	4,580	5,670	4,130	1,960	1,400	3,050
1931	2,090	1,700	1,740	4,300	3,390	4,050	4,250	6,830	7,230	3,700	1,820	2,150	3,600
1932	1,990	3,730	3,110	3,040	6,090	5,690	5,510	6,750	8,930	6,040	2,970	1,700	4,620
1933	2,830	9,590	5,140	3,890	1,760	3,000	3,620	5,600	10,800	10,100	5,070	3,860	5,450
1934	6,203	5,819	11,580	8,136	4,287	6,303	7,375	7,305	5,519	3,934	2,422	1,897	5,919
1935	3,281	6,944	4,353	8,381	4,722	2,762	2,386	5,376	7,606	5,465	2,502	2,040	4,650
1936	1,424	1,468	1,842	3,220	1,539	2,948	5,311	10,040	9,904	4,348	2,148	1,645	3,824
1937	1,183	*751	3,923	1,214	1,332	2,903	3,710	6,437	11,430	5,935	2,209	1,498	*3,553
1938	2,327	6,031	5,399	4,204	1,891	2,638	4,947	6,921	7,940	4,268	1,758	1,426	4,154
1939	1,976	2,753	4,234	5,542	2,353	2,834	4,816	7,805	7,171	*6,420	*2,823	1,589	*4,209
1940	2,200	3,193	6,585	3,480	3,512	4,148	3,784	6,166	4,469	2,522	1,718	1,371	3,600
1941	3,034	2,697	3,906	2,665	2,106	2,168	2,860	4,162	3,715	2,515	1,778	2,291	2,887
1942	4,262	3,693	5,692	1,882	1,920	1,863	3,569	5,033	6,933	4,742	1,988	1,089	3,566
1943	1,136	3,672	4,283	2,871	3,386	3,410	6,216	5,448	7,964	7,785	2,961	1,653	4,232
1944	1,743	1,877	3,444	2,620	2,187	2,175	2,912	5,321	5,679	2,970	1,719	2,412	2,922
1945	2,534	3,047	2,816	4,655	4,689	2,765	2,701	7,092	6,098	4,143	1,909	2,132	3,709
1946	3,372	4,497	3,458	3,691	2,648	3,290	4,310	9,104	8,635	6,386	2,761	1,547	4,487
1947	12,708	2,624	5,429	3,785	4,704	3,470	4,798	7,983	7,149	4,821	2,330	1,751	4,295
1948	4,432	4,053	4,233	3,470	2,875	2,366	3,472	8,411	12,610	5,533	3,469	2,703	4,811
1949	3,178	3,459	2,760	1,464	2,649	3,881	4,867	10,570	8,217	6,206	3,241	2,540	4,430
1950	3,718	8,028	5,642	3,904	4,153	5,395	4,254	6,189	12,430	10,310	4,811	2,175	5,923

* Revised.

† Corrected.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	160,000	338,000	500,346,000	45,000	140,000	-	-
1912	67,600	17,000	195,000	246,000	255,000	93,500	143,000	416,000	570,000	319,000	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	123,000	83,900	-
1929	215,000	118,000	19,000	78,700	44,000	134,000	156,000	409,000	465,000	274,000	36,000	72,600	*2,220,000
1930	61,100	43,100	41,000	80,600	312,000	182,000	313,000	282,000	337,000	254,000	121,000	83,300	2,210,000
1931	129,000	101,000	107,000	264,000	188,000	249,000	253,000	420,000	430,000	228,000	112,000	129,000	2,610,000
1932	122,000	222,000	191,000	187,000	350,500	350,328,000	415,000	335,000	371,000	183,000	183,000	101,000	3,360,000
1933	174,000	371,000	516,000	239,000	97,800	184,000	215,000	344,000	406,643,000	21,000	305,120,000	203,000	3,950,000
1934	381,400	346,200	711,700	500,300	302,388,000	100,387,000	600,438,000	900,449,000	100,328,000	400,241,900	148,900	112,800	4,285,000
1935	201,700	413,200	667,700	505,130,000	300,262,000	300,169,000	800,142,000	300,330,000	600,452,000	600,336,100	153,800	800,214,000	3,366,000
1936	87,570	87,360	113,200	198,000	88,520	181,300	316,000	616,171,000	300,889,000	300,267,400	400,321,100	97,860	2,776,000
1937	72,740	*44,710	241,900	74,640	73,980	178,500	220,700	395,800	680,100	364,900	335,800	89,130	*2,572,000
1938	143,100	358,800	362,000	258,500	500,050,000	100,162,000	200,294,000	400,425,000	600,472,500	262,000	500,108,000	84,830	3,008,000
1939	121,500	363,800	260,400	340,800	300,130,000	300,714,000	300,286,000	600,479,000	900,426,700	700,394,800	800,173,600	94,570	*3,048,000
1940	135,300	189,400	404,900	302,214,000	100,202,000	100,255,100	225,200	379,000	265,900	155,100	100,105,000	60,810	2,613,000
1941	186,500	160,500	240,600	163,900	117,000	133,300	170,200	255,900	221,000	154,700	100,190,000	300,780	2,090,000
1942	262,000	219,700	500,500	100,115,000	700,016,000	600,114,500	500,212,000	400,308,000	500,412,600	291,600	222,200	64,800	2,582,000
1943	69,870	218,500	263,500	176,500	188,100	209,700	369,900	335,000	473,900	478,700	82,100	98,360	2,064,000
1944	107,200	111,700	211,800	161,100	25,800	133,800	173,300	327,200	337,900	182,600	105,700	143,500	2,122,000
1945	155,800	181,300	173,200	286,200	260,600	400,700	100,000	160,700	436,100	362,800	254,800	117,400	2,686,000
1946	207,300	267,600	212,600	227,000	147,100	202,300	256,500	559,800	513,800	592,700	169,800	92,030	3,249,000
1947	166,400	156,100	333,500	332,800	261,300	132,400	225,500	490,400	25,400	296,400	40,430	300,040	3,109,000
1948	272,500	241,200	260,300	213,300	71,100	145,500	206,600	517,200	500,340	400,213,000	300,600	80,300	3,492,000
1949	195,400	205,800	169,700	89,990	147,100	238,700	289,600	650,100	489,900	381,600	199,300	151,100	3,207,000
1950	228,600	477,700	346,900	240,000	230,700	531,700	253,100	580,500	39,600	33,700	295,800	129,400	4,288,000

* Revised.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff			
		Discharge	Date						Inches	Acre-feet		
1911	312	-	-	-	-	-	-	-	-	-	-	
1912	332	-	-	-	-	-	-	-	-	-	-	
1928	692	-	-	-	-	-	-	-	-	-	-	
1929	1286,692	21,800	Oct. 9, 1928	676	*3,070	*4.30	*58.24	*2,220,000	2,780	52.83	2,010,000	
1930	707	15,200	Feb. 5, 1930	-	3,050	4.27	58.01	2,210,000	3,180	60.43	2,300,000	
1931	722	21,800	Jan. 28, 1931	896	3,600	5.04	68.49	2,610,000	3,880	73.71	2,810,000	
1932	737	68,500	Feb. 26, 1932	1,040	4,820	6.47	88.15	3,360,000	5,350	101.89	3,880,000	
1933	752	42,500	Nov. 13, 1932	964	5,450	7.63	103.53	3,950,000	5,970	113.51	4,320,000	
1934	767	56,600	Dec. 22, 1933	1,120	5,919	8.29	112.46	4,285,000	5,150	97.86	3,729,000	
1935	792	49,400	Nov. 5, 1934	952	4,650	6.51	88.42	3,366,000	3,829	72.79	2,772,000	
1936	812	16,600	June 3, 1936	944	3,824	5.36	72.98	2,776,000	*3,921	*74.83	*2,846,000	
1937	1286,832	15,900	June 3, 1937	628	*3,553	*4.98	*67.54	*2,572,000	4,209	80.04	3,047,000	
1938	862	29,900	Apr. 18, 1938	791	4,154	5.82	78.95	3,008,000	3,756	71.38	2,719,000	
1939	1286,882	25,200	Jan. 1, 1939	847	*4,209	*5.89	*79.39	*3,048,000	*4,463	*84.80	*3,232,000	
1940	902	20,000	Dec. 15, 1939	952	3,600	5.04	68.61	2,613,000	3,404	64.88	2,471,000	

* Revised.

Yearly discharge, in cubic feet per second, of Sauk River near Sauk, Wash.--Continued

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1941	932	7,980	May 17, 1941	1,180	2,887	4.04	54.88	2,090,000	3,225	61.30	2,335,000	
1942	962	19,000	Dec. 2, 1941	840	3,566	4.99	67.80	2,582,000	3,179	60.45	2,302,000	
1943	982	19,500	Nov. 23, 1942	790	4,232	5.33	80.46	3,064,000	4,065	77.27	2,943,000	
1944	1012	29,900	Dec. 3, 1943	1,150	2,922	4.09	55.70	2,122,000	3,032	57.80	2,201,000	
1945	1042	26,800	Feb. 8, 1945	1,350	3,709	5.19	70.52	2,686,000	3,954	75.17	2,863,000	
1946	1062	25,000	Oct. 25, 1945	1,040	4,487	6.28	85.23	3,249,000	4,444	84.48	3,217,000	
1947	1092	33,200	Oct. 25, 1946	830	4,295	6.02	81.65	3,109,000	4,457	84.74	3,227,000	
1948	1122	35,900	Oct. 19, 1947	1,400	4,811	6.74	91.70	3,482,000	4,331	86.36	3,298,000	
1949	1152	19,700	May 13, 1949	1,030	4,430	6.20	84.22	3,207,000	5,095	96.89	3,690,000	
1950	1182	82,400	Nov. 27, 1949	1,520	5,923	8.30	112.60	4,288,000	-	-	-	

305. Jackman Creek near Concrete, Wash.

Location (revised).--Lat 48°31'25", long. 121°42'45", in NW $\frac{1}{4}$ sec. 13, T. 35 N., R. 8 E., on left bank 300 ft downstream from railroad bridge at Van Horn, an eighth of a mile upstream from mouth, and 2 miles southeast of Concrete.

Drainage area.--23.9 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 175 ft (by barometer).

Extremes.--1943-47: Maximum discharge (revised), 3,150 cfs Jan. 7, 1945 (gage height, 4.15 ft, from graph based on gage readings), from rating curve extended above 1,300 cfs; minimum observed, 8.0 cfs Aug. 25, 28, 29, Sept. 2-4, 1947.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	131	82.0	82.4	115	-	-	-	-	17.5	-
1944	55.7	81.9	146	339	161	103	113	197	105	27.0	17.5	81.3	93.5
1945	75.0	144	126	339	161	103	113	377	170	50.8	20.3	46.9	144
1946	166	262	140	132	150	165	191	397	342	152	35.0	18.2	179
1947	141	131	231	188	258	150	207	242	158	50.7	14.4	32.5	150

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	8,070	4,720	5,060	6,840	12,120	6,230	1,660	1,080	1,040	-
1944	3,430	4,870	8,970	7,730	20,870	8,950	6,330	6,700	23,200	10,100	3,120	1,080	67,890
1945	4,610	8,540	7,730	20,870	8,950	6,330	6,700	23,200	10,100	3,120	1,250	2,790	104,200
1946	10,210	15,570	8,590	8,110	8,300	10,160	11,350	24,380	20,340	9,340	2,150	1,080	129,800
1947	8,670	7,800	14,170	11,550	14,330	9,240	12,330	14,890	9,420	3,120	883	1,930	108,300

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982	-	-	-	-	-	-	-	-	-	-
1944	1012	*1,000	Dec 3, 1943	10	93.5	3.91	53.25	67,890	98.5	58.09	71,500
1945	1042	*3,150	Jan. 7, 1945	12	144	6.03	81.74	104,200	163	92.32	117,700
1946	1062	*3,020	Oct. 24, 1945	10	179	7.49	101.67	129,600	174	98.75	125,800
1947	1092	*2,240	Oct. 24, 1946	8.0	150	6.28	84.99	108,300	-	-	-

* Revised.

306. Baker River below Anderson Creek, near Concrete, Wash.

Location (revised).--Lat 48°39'50", long. 121°40'25", in SE $\frac{1}{4}$ sec. 30, T. 37 N., R. 9 E., on left bank 350 ft downstream from Anderson Creek and 9 $\frac{1}{2}$ miles northeast of Concrete.

Drainage area.--211 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 521 ft above mean sea level (river profile survey). Prior to Oct. 22, 1910, staff gage an eighth of a mile upstream at different datum. Oct. 22, 1910, to Sept. 23, 1915, staff gages at described site and datum.

Average discharge.--18 years (1910-25, 1928-31), 1,999 cfs.

Extremes.--1910-25, 1928-31: Maximum discharge, 36,800 cfs Dec. 29, 1917 (gage height, 13.7 ft), from rating curve extended above 8,100 cfs; minimum recorded, 219 cfs Dec. 15, 16, 1919.

Flood about 1815 reached a stage about 2 ft higher than that of Dec. 29, 1917.

Flood of 1897 reached a stage about equal to that of Dec. 29, 1917. Flood of November 1909 reached a stage of 15.3 ft (discharge, 46,200 cfs).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Baker River below Anderson Creek, near Concrete, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	3,400	3,500	1,900	909	503	943	1,380	2,660	4,040	3,710	2,060	1,930	2,250
1912	926	1,970	1,440	1,610	1,920	736	1,160	2,630	4,140	2,980	2,190	1,370	1,940
1913	1,120	2,360	936	688	1,190	764	1,830	3,830	5,030	4,690	2,330	1,590	2,200
1914	1,790	2,170	1,090	2,720	962	1,560	1,900	3,010	2,690	2,590	1,610	1,610	1,970
1915	1,810	2,800	777	884	856	1,300	3,040	1,990	1,800	1,900	1,810	893	1,660
1916	2,340	1,380	1,710	633	2,330	2,080	1,940	2,430	3,920	3,650	2,490	1,350	2,190
1917	730	1,270	713	734	1,050	632	1,470	3,250	4,490	4,960	2,230	1,400	1,910
1918	1,320	2,100	5,230	5,280	1,240	1,180	1,600	2,460	4,080	3,080	1,850	1,400	2,600
1919	2,360	1,430	2,410	1,370	977	790	1,960	3,100	2,910	3,350	1,890	1,130	1,980
1920	603	2,650	2,090	2,290	1,370	980	998	1,910	3,160	3,170	1,740	3,030	2,000
1921	3,510	1,470	1,490	1,450	2,230	1,360	1,400	2,880	5,050	3,110	2,020	2,240	2,350
1922	3,350	2,050	3,070	604	465	471	1,100	2,700	4,290	2,540	1,830	1,790	2,030
1923	1,820	922	1,840	1,580	732	847	1,630	2,700	3,340	2,990	1,500	1,300	1,790
1924	1,000	952	1,590	1,470	*4,720	1,110	1,360	3,460	2,720	2,010	1,510	1,480	*1,940
1925	2,510	1,650	3,260	1,360	2,220	1,110	2,030	3,860	3,280	2,730	1,550	927	2,210
1926	-	-	-	-	-	-	-	-	-	-	-	1,030	-
1929	2,430	1,280	960	558	387	883	1,140	3,070	3,370	2,120	1,390	892	1,540
1930	924	482	1,140	620	290	1,340	2,450	2,190	2,700	2,110	1,290	1,190	1,550
1931	1,460	1,140	935	2,540	1,250	1,820	1,960	2,960	3,660	2,050	1,070	1,750	1,680
1932	1,290	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	209,000	208,000	117,000	55,900	27,900	58,000	82,100	164,000	240,000	228,000	127,000	115,000	1,630,000
1912	56,900	117,000	88,500	99,000	110,050	45,300	69,000	174,000	246,000	183,000	135,000	81,500	1,410,000
1913	68,900	140,000	57,600	42,300	66,100	47,000	109,000	236,000	299,000	298,000	143,000	94,600	1,590,000
1914	114,000	29,000	67,000	167,000	53,400	95,900	113,000	185,000	160,000	154,000	99,000	95,800	1,430,000
1915	111,000	167,000	47,800	54,400	47,500	79,900	181,000	122,000	107,000	117,000	11,000	53,100	1,290,000
1916	144,000	82,100	105,000	38,900	34,000	128,000	115,000	149,000	233,000	224,000	133,000	80,300	1,590,000
1917	44,900	75,600	43,800	45,100	58,300	38,900	87,500	200,000	267,000	305,000	137,000	83,300	1,390,000
1918	81,200	125,000	32,000	325,000	68,900	72,600	107,000	151,000	243,000	189,000	114,000	83,300	1,880,000
1919	145,000	58,100	148,000	84,200	54,300	48,600	117,000	191,000	173,000	208,000	116,000	67,200	1,440,000
1920	37,100	158,000	129,000	141,000	79,800	60,300	59,400	117,000	188,000	195,000	107,000	180,000	1,450,000
1921	216,000	87,500	91,800	89,200	24,000	83,600	83,300	177,000	300,000	191,000	24,000	133,000	1,700,000
1922	206,000	122,000	189,000	37,100	25,800	29,000	65,500	166,000	255,000	156,000	13,000	107,000	1,470,000
1923	112,000	54,900	113,000	97,200	40,700	52,100	109,000	166,000	199,000	184,000	92,200	77,400	1,300,000
1924	61,500	56,600	97,600	90,400	*272,000	68,200	80,900	213,000	162,000	124,000	92,800	88,100	*1,410,000
1925	154,000	98,200	200,000	83,600	123,000	68,200	121,000	237,000	195,000	168,000	95,300	55,200	1,600,000
1926	-	-	-	-	-	-	-	-	-	-	-	61,300	-
1929	149,000	75,000	59,000	34,300	21,500	54,300	67,800	189,000	201,000	130,000	85,500	49,500	1,120,000
1930	56,800	27,500	70,100	36,100	127,000	82,400	146,000	135,000	161,000	130,000	79,700	70,800	1,120,000
1931	89,800	67,800	57,500	156,000	69,400	112,000	117,000	182,000	218,000	126,000	65,800	104,000	1,370,000
1932	79,300	-	-	-	-	-	-	-	-	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1911	312,492	*a20,000	Nov. 20	Oct. 21, 1910	410	2,250	10.7 145.25	1,630,000	1,890	120.87	1,360,000
1912	332	*a6,860	June 25	1912	524	1,940	9.19 124.97	1,410,000	1,940	125.09	1,410,000
1913	362	*a8,800	Sept. 4	1913	457	2,200	10.4 141.50	1,590,000	2,250	145.25	1,630,000
1914	312,492	a24,900	Jan. 6	1914	431	1,970	9.34 127.02	1,430,000	2,000	126.68	1,450,000
1915	412	a17,700	Apr. 2	1915	554	1,660	7.67 106.54	1,200,000	1,660	106.83	1,200,000
1916	442	14,800	Feb. 15	1916	525	2,190	10.4 141.07	1,590,000	1,960	126.45	1,420,000
1917	462	8,210	July 18	1917	508	1,910	9.05 123.16	1,390,000	1,420	126.11	1,750,000
1918	492	36,800	Dec. 29	1917	505	2,600	12.3 167.25	1,680,000	2,390	153.39	1,730,000
1919	512	16,700	Dec. 4	1918	591	1,980	9.58 127.50	1,440,000	1,910	122.85	1,380,000
1920	512	19,600	Nov. 15	1919	220	2,000	9.48 128.91	1,450,000	2,100	135.43	1,520,000
1921	532	16,700	Oct. 4	1920	660	2,350	11.1 151.11	1,700,000	2,520	161.53	1,820,000
1922	552	23,600	Dec. 12	1921	398	2,030	9.62 130.68	1,470,000	1,700	109.41	1,230,000
1923	572	11,800	Dec. 24	1922	-	1,790	6.48 115.35	1,300,000	1,700	109.41	1,230,000
1924	1346,592	28,500	(b)	-	548	*1,940	*9.19 125.01	*1,410,000	*2,260	*146.06	*1,640,000
1925	612	-	-	-	548	2,210	10.5 142.25	1,600,000	-	-	-
1926	692	-	-	-	-	-	-	-	-	-	-
1929	692	20,900	Oct. 8	1928	-	1,540	7.30 99.21	1,120,000	1,360	87.55	987,000
1930	707	7,390	Feb. 18	1930	408	1,550	7.35 99.73	1,120,000	1,640	105.47	1,180,000
1931	722	19,600	Jan. 23	1931	575	1,680	8.91 121.26	1,370,000	-	-	-
1932	722	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published.

a Maximum observed.
b Jan. 31 or Feb. 1, 1924.

307. Lake Shannon at Concrete, Wash.

Location.--Lat 48°32'55", long. 121°44'25", in SE¹/₄ sec. 2, T. 35 N., R. 8 E., on Baker Dam on Baker River near left bank half a mile north of Concrete and 1 mile upstream from mouth of Baker River.

Drainage area.--297 sq mi.

Gage.--Staff gage or water-stage indicator. Datum of gage is at mean sea level, subject to datum adjustment of 1929.

Extremes.--1925-50: Not determined.

Remarks.--Reservoir is formed by concrete dam completed to elevation 405.00 ft in November 1925 and to 435.00 ft in June 1927. Storage began in November 1925. Capacity, 132,500 acre-ft between elevations 360 ft (lowest elevation for capacity operation) and 435 ft (spillway crest). Dead storage unknown. Water is used for power development. Figures given herein represent contents above 340 ft (center line of outlet tunnel).

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1926	-	24,500	76,020	75,780	76,090	74,580	77,940	90,840	93,350	72,760	69,140	48,650
1927	92,650	95,040	91,210	90,170	76,480	54,040	92,520	132,780	145,890	155,520	151,750	154,910
1928	153,000	155,140	137,160	151,040	132,230	146,840	142,610	152,150	151,480	154,980	117,010	97,120
1929	137,420	115,410	105,570	55,010	34,800	57,010	63,190	155,790	155,720	152,060	119,900	81,970
1930	58,220	42,590	108,570	78,960	152,330	132,210	155,480	155,340	156,130	141,880	122,080	111,080
1931	126,500	85,270	84,280	155,790	130,040	154,660	155,140	155,700	155,090	146,620	93,740	86,420
1932	77,430	136,450	146,530	143,270	140,770	136,750	146,790	142,610	144,100	156,020	154,890	107,160
1933	117,950	155,790	153,470	142,590	127,420	151,550	144,750	145,340	145,630	154,120	154,400	154,890
1934	152,350	155,520	152,220	152,530	153,090	154,420	150,260	155,140	156,220	156,240	156,240	138,150
1935	156,590	154,660	149,350	154,190	139,370	132,970	119,150	139,180	151,170	154,640	121,040	117,590
1936	85,880	58,940	72,860	95,560	47,980	68,580	136,170	146,770	156,170	148,670	98,410	52,060
1937	46,660	45,170	94,030	47,860	41,090	77,240	123,550	135,280	152,940	152,400	128,390	109,080
1938	145,690	156,080	152,530	151,840	119,900	121,140	137,120	151,910	155,450	153,720	119,640	99,740
1939	108,490	118,800	141,860	138,600	115,790	107,340	141,400	153,900	153,360	156,240	134,430	123,120
1940	153,770	149,090	153,500	151,750	147,100	151,970	152,870	154,260	152,890	146,770	148,160	143,140
1941	153,880	151,420	151,840	154,010	140,150	139,090	139,240	155,360	155,360	153,900	154,640	153,700
1942	153,980	156,220	151,220	150,350	141,030	127,170	138,350	155,090	157,600	154,580	151,910	152,200
1943	155,700	156,240	155,480	147,280	153,340	155,200	151,310	152,440	152,110	158,180	153,090	152,510
1944	146,220	145,160	152,800	146,840	124,910	120,250	122,320	154,480	157,600	156,400	154,550	151,420
1945	150,710	155,490	158,940	147,960	145,760	138,840	132,420	155,560	157,570	153,770	142,830	145,780
1946	156,830	154,220	153,860	151,770	148,090	150,420	133,070	139,140	153,390	155,340	156,810	146,340
1947	154,440	159,160	155,300	156,510	154,080	156,830	156,240	151,860	157,440	156,960	155,430	147,780
1948	157,710	151,680	158,230	148,780	141,070	108,860	117,630	150,510	156,330	157,980	157,890	157,210
1949	143,400	158,090	137,540	138,620	138,210	152,310	155,410	149,220	157,350	158,050	150,860	152,040
1950	157,080	158,120	155,590	133,030	152,600	154,530	154,530	150,970	156,000	157,100	156,330	156,440

Note.--Contents prior to October 1938 not previously published.

308. Baker River at Concrete, Wash.

Location.--Lat 48°32'35", long. 121°44'35", on line between secs. 10 and 11 (revised), T. 35 N., R. 8 E., on left bank 800 ft downstream from Baker River powerplant, a quarter of a mile northeast of Concrete, and three-quarters of a mile upstream from mouth.

Drainage area.--297 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 172.6 ft above mean sea level (from river-profile survey). Sept. 11, 1910, to Mar. 4, 1915, staff gage half a mile downstream at different datum.

Average discharge.--11 years (1910-14, 1943-50), 2,512 cfs (unadjusted), 2,513 cfs (revised), adjusted for storage since November 1925.

Extremes.--1910-15, 1943-50: Maximum discharge, 35,200 cfs Nov. 27, 1949 (gage height, 20.32 ft, from high-water mark), from rating curve extended above 16,000 cfs on the basis of computation of peak flow over dam; minimum, 21 cfs Feb. 7, 1949 (gage height, 0.20 ft); minimum daily, 142 cfs Jan. 1, 1949.

Remarks.--Flow regulated since November 1925 by Baker River powerplant and Lake Shannon (see above).

Monthly and yearly mean discharge, in cubic feet per second, of Baker River at Concrete, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	4,560	4,830	2,560	1,420	736	1,280	1,630	3,210	4,470	3,770	2,170	2,550	2,760
1912	1,260	3,060	1,740	2,260	2,680	992	1,380	3,460	4,570	2,980	2,100	1,250	2,310
1913	1,360	3,080	1,800	980	1,740	1,230	1,970	3,540	5,610	5,030	2,630	2,320	2,610
1914	2,690	2,990	1,160	3,370	1,050	2,280	2,740	3,260	2,950	2,740	1,730	1,780	2,400
1915	2,190	3,260	1,010	1,280	1,070	-	-	-	-	-	-	-	-
1943	-	-	-	-	-	-	-	-	-	-	-	1,128	-
1944	1,409	1,067	1,711	1,968	1,526	1,387	1,588	2,314	2,853	1,625	1,156	1,943	1,712
1945	1,633	2,351	2,070	2,616	*2,519	1,719	1,786	4,191	3,580	2,845	1,596	1,453	*2,363
1946	*2,690	2,620	2,024	1,995	1,823	1,831	2,925	4,917	4,440	3,856	1,947	1,279	*2,701
1947	1,671	1,455	3,219	1,896	2,847	2,017	2,669	4,038	3,684	2,559	1,349	1,427	2,409
1948	3,708	2,359	2,961	1,872	1,424	1,677	1,667	3,850	6,156	3,003	2,459	2,199	2,783
1949	2,170	1,811	1,564	736	1,097	1,938	2,997	5,571	4,191	3,548	2,069	1,814	2,469
1950	1,865	4,262	2,969	1,653	1,776	2,783	2,372	3,778	6,042	5,048	3,055	1,764	3,119

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	280,000	276,000	157,000	87,300	40,900	78,700	97,000	197,000	266,000	232,000	113,000	152,000	2,000,000
1912	77,500	182,000	107,000	139,000	154,000	61,000	82,100	213,000	272,000	183,000	129,000	74,400	1,670,000
1913	63,600	193,000	111,000	60,300	96,600	75,600	117,000	218,000	334,000	309,000	162,000	138,000	1,890,000
1914	165,000	178,000	71,300	207,000	58,300	140,000	163,000	202,000	176,000	168,000	106,000	106,000	1,740,000
1915	135,000	194,000	62,100	78,700	59,400	-	-	-	-	-	-	-	-
1943	-	-	-	-	-	-	-	-	-	-	-	67,130	-
1944	86,630	63,470	105,200	121,000	87,790	85,300	94,510	142,300	169,800	99,920	71,090	115,600	1,243,000
1945	100,400	139,900	127,300	160,900	139,900	105,700	106,300	257,700	213,000	174,900	98,130	86,480	*1,711,000
1946	165,400	155,900	124,400	122,700	101,200	112,600	174,000	302,400	264,200	237,100	119,700	76,080	*1,956,000
1947	102,800	86,500	198,000	116,600	158,100	124,000	158,600	248,300	219,200	163,500	82,930	84,890	1,744,000
1948	228,000	140,900	182,100	115,100	81,900	103,100	98,210	236,700	356,300	184,600	151,200	130,800	2,020,000
1949	133,400	107,800	96,180	45,240	60,940	119,100	78,300	542,500	402,218	200,284	400,107	900	1,787,000
1950	114,700	253,600	182,500	101,600	98,620	171,100	141,200	232,300	359,500	510,400	187,900	105,000	2,258,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1911	312	\$24,600	Nov. 21, 1910	640	2,760	9.29	126.12	2,000,000	2,280	104.27	1,650,000	
1912	332	\$14,800	Nov. 18, 1911	700	2,310	7.78	105.71	1,670,000	2,320	106.42	1,690,000	
1913	362	\$18,100	Sept. 4, 1913	634	2,610	8.79	119.23	1,890,000	2,660	121.55	1,920,000	
1914	392,412	31,000	Jan. 6, 1914	695	2,400	8.08	109.91	1,740,000	2,370	108.42	1,720,000	
1915	412	-	-	-	-	-	-	-	-	-	-	

* Not previously published.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year					
		Observed					Adjusted		Observed			Adjusted		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches	
		Discharge	Date											
1943	1012	-	-	-	-	-	-	-	-	-	-	-	-	
1944	1012	*14,100	Dec. 3, 1943	304	1,712	1,243,000	1,710	5.76	78.39	1,866	1,355,000	1,847	84.67	
1945	a1042	*20,000	Feb. 8, 1945	384	*2,363	*1,711,000	*2,355	*7.93	*107.64	*2,471	*1,789,000	*2,492	*113.87	
1946	a1062	*27,000	Oct. 25, 26, 1945*	399	*2,701	*1,856,000	*2,705	9.11	123.63	2,621	1,897,000	2,623	119.87	
1947	1092	20,000	Oct. 24, 1946	332	2,409	1,744,000	2,408	8.11	110.06	2,635	1,907,000	2,639	120.62	
1948	1122	23,000	Oct. 18, 1947	446	2,783	2,020,000	2,795	9.41	128.11	2,488	1,806,000	2,460	112.71	
1949	1152	12,600	May 10, 1949	142	2,469	1,787,000	2,464	8.30	112.50	2,764	2,001,000	2,788	127.44	
1950	1182	35,200	Nov. 27, 1949	382	3,119	2,258,000	3,125	10.5	142.84	-	-	-	-	

* Revised.

† Corrected.

a See also Water-Supply Paper 1286 for revised records.

309. Skagit River near Concrete, Wash.

Location (revised).--Lat 48°31'30", long. 121°46'10", in NE¼ sec. 16, T. 35 N., R. 8 E., on right bank at The Dalles, 1½ miles southwest of Concrete, and 2½ miles downstream from Baker River.

Drainage area.--2,700 sq mi, approximately, of which 400 sq mi is in Canada.

Gage.--Water-stage recorder. Datum of gage is 130.0 ft above mean sea level, datum of 1929. Prior to Dec. 10, 1924, staff gage 200 ft upstream at datum 12.69 ft higher; Dec. 10, 1924, to Oct. 28, 1937, water-stage recorder at datum 12.69 ft higher.

Average discharge.--26 years (1924-50), 14,230 cfs (unadjusted).

Extremes.--1924-50: Maximum discharge, 154,000 cfs Nov. 27, 1949 (gage height, 40.8 ft); minimum, probably less than 2,160 cfs during period Oct. 1-24, 1925 when recorder was not operating and gates in Baker River Dam were first closed; minimum daily recorded, 2,610 cfs Nov. 14, 1936.

Maximum stage known, 69.3 ft, present datum, about 1815, from floodmarks at site 200 ft upstream (discharge, about 500,000 cfs).

Remarks.--No diversion. Flow partly regulated by powerplants on Baker and upper Skagit Rivers, and by Ross, Diablo, and Lake Shannon Reservoirs (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1925	14,000	13,800	21,300	12,700	17,800	9,160	17,600	36,300	29,700	19,600	9,330	5,300	17,200
1926	3,810	4,430	18,600	9,530	9,380	8,100	14,000	14,400	12,500	9,400	7,410	5,680	9,760
1927	14,900	10,500	12,700	10,400	8,900	7,750	10,200	20,600	36,800	19,300	10,400	12,300	14,600
1928	15,600	19,900	14,400	22,600	8,340	11,500	11,000	31,900	22,500	16,000	8,190	5,710	15,800
1929	13,100	8,460	8,850	4,670	3,190	6,220	8,990	24,100	25,000	15,000	8,850	5,690	11,100
1930	5,140	3,540	5,290	4,490	15,400	10,100	20,300	17,600	21,400	14,900	7,670	5,330	10,900
1931	7,010	6,570	5,550	11,900	10,900	12,400	14,300	26,500	25,400	13,300	7,670	9,600	12,600
1932	7,460	11,100	9,650	8,770	18,200	18,700	18,700	25,600	32,600	20,300	11,000	7,440	15,800
1933	9,750	29,300	16,300	11,700	6,360	8,650	12,500	21,300	38,300	33,800	16,800	12,500	18,100
1934	20,690	18,440	31,150	24,010	13,850	19,830	29,270	27,720	20,200	14,560	9,094	7,374	19,740
1935	9,505	22,850	14,090	25,240	19,010	10,050	8,624	19,290	26,500	18,240	9,653	8,858	15,960
1936	7,010	5,582	6,569	9,264	5,661	8,855	20,150	35,150	32,180	14,090	8,984	7,114	13,380
1937	4,614	2,876	9,393	4,604	3,991	7,721	11,350	23,800	42,130	19,790	9,245	6,440	12,190
1938	9,018	19,060	16,870	12,580	6,544	9,076	16,480	27,310	30,770	16,130	7,462	6,251	14,830
1939	6,742	8,003	12,600	16,720	7,376	9,102	16,080	28,450	25,330	21,510	10,060	6,350	14,080
1940	8,759	11,640	22,720	11,020	11,000	14,680	13,480	22,270	17,990	9,310	6,550	5,998	12,920
1941	13,790	8,307	11,670	8,882	7,869	8,083	10,810	15,300	14,330	9,337	6,403	10,480	10,450
1942	16,540	12,970	18,040	7,043	6,951	6,313	11,220	16,730	23,610	16,460	7,955	4,852	12,430
1943	4,145	11,800	12,800	9,975	9,883	10,670	21,590	20,160	30,330	27,810	10,460	6,394	14,680
1944	7,042	5,469	9,265	8,162	6,866	6,907	9,712	16,310	19,360	10,440	6,464	5,956	9,629
1945	8,511	9,450	10,170	13,720	14,170	9,192	9,574	24,520	23,980	15,620	7,874	7,952	12,890
1946	13,170	15,520	11,140	11,900	9,395	11,300	15,410	34,720	31,720	23,300	10,580	6,364	16,250
1947	8,528	8,179	16,040	10,450	14,320	13,600	16,680	24,680	25,670	15,690	8,161	6,875	14,090
1948	18,240	13,500	15,810	12,660	8,463	7,593	10,950	23,200	36,540	24,140	13,500	10,850	16,040
1949	11,950	11,430	10,500	8,098	10,060	13,100	16,620	31,410	23,170	19,830	13,180	10,470	15,020
1950	12,520	22,900	20,250	13,460	16,600	18,710	14,680	20,080	35,650	33,950	16,860	9,677	19,620

† Corrected.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1925	861	821	1,310	781	989	563	1,050	2,230	1,770	1,210	574	315	12,500
1926	234	264	1,140	586	521	498	833	885	732	578	456	338	7,060
1927	916	625	781	640	494	477	607	1,270	2,190	1,220	640	732	10,600
1928	1,020	1,180	885	1,590	480	707	655	1,960	1,340	984	504	540	11,400
1929	806	503	421	287	177	382	535	1,480	1,670	922	546	339	8,070
1930	316	211	325	276	855	621	1,210	1,080	1,270	916	472	329	7,880
1931	431	391	341	732	605	762	851	1,630	1,510	818	472	571	9,110
1932	459	660	593	539	1,050	1,150	1,110	1,570	1,940	1,250	675	443	11,400
1933	600	1,740	1,000	719	353	532	744	1,310	2,280	2,080	1,030	744	13,100
1934	1,272	1,097	1,915	1,476	768.0	1,219	1,742	1,704	1,202	895.2	559.2	438.8	14,290
1935	584.4	359	866.3	1,552	1,056	617.8	513.1	1,186	1,577	1,121	594.1	527.1	11,550
1936	431.0	332.2	391.6	569.6	325.6	544.4	1,199	2,161	1,915	866.7	552.4	423.3	9,712
1937	283.7	171.1	577.6	283.1	221.6	474.7	675.2	1,464	2,507	1,217	568.4	383.2	8,827
1938	554.5	1,134	1,037	773.3	363.4	558.0	980.4	1,679	1,631	991.7	458.8	372.0	10,730
1939	414.5	476.2	775.0	1,028	409.6	559.6	956.8	1,749	1,507	1,322	618.7	377.9	10,190
1940	538.6	692.6	1,397	677.4	632.5	902.5	802.4	1,369	1,035	572.4	402.8	356.9	9,379
1941	846.0	494.3	717.3	546.1	437.0	497.0	643.3	941.1	852.9	574.1	393.7	623.7	7,568
1942	1,017	701.9	1,109	435.1	386.1	588.2	677.8	1,029	1,405	1,012	489.2	298.7	8,396
1943	254.8	702.4	786.9	613.4	548.9	655.9	1,284	1,240	1,805	1,710	643.0	380.5	10,620
1944	433.0	325.4	569.7	501.8	394.9	424.7	577.9	1,003	1,152	642.1	397.4	568.6	6,990
1945	523.3	562.3	625.2	843.9	786.8	585.2	569.7	1,508	1,427	960.4	484.1	475.6	9,332
1946	809.6	923.7	685.0	731.7	521.8	695.0	916.9	1,515	1,887	1,433	650.2	378.7	11,770
1947	524.4	486.7	986.4	668.9	795.1	836.4	992.5	1,518	1,521	964.9	501.8	409.1	10,200
1948	1,122	805.0	1,033	778.1	486.8	454.6	651.3	1,427	1,174	1,238	850.3	545.9	11,640
1949	734.9	680.1	645.5	497.9	558.4	805.3	988.7	932	1,379	1,219	810.2	623.3	10,870
1950	770.1	1,363	1,245	827.6	921.7	1,150	873.3	1,235	2,121	2,098	1,037	575.8	14,210

† Corrected.

Yearly discharge, in cubic feet per second, of Skagit River near Concrete, Wash.

Year	W. S. P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
-	612	500,000	About 1815					
1856	612	350,000	(a)					
1898	612	275,000	Nov. 19, 1897					
1910	612	260,000	Nov. 30, 1909					
1918	612	220,000	Dec. 30, 1917					
1922	612	240,000	Dec. 13, 1921					
1925	612	92,500	Dec. 12, 1924	3,400	17,200	12,500,000	15,500	11,200,000
1926	632	51,600	Dec. 23, 1925	-	9,760	7,060,000	10,700	7,760,000
1927	652	88,900	Oct. 16, 1926	5,200	14,600	10,600,000	15,700	11,400,000
1928	672	95,500	Jan. 12, 1928	-	15,800	11,400,000	13,900	10,100,000
1929	692	74,300	Oct. 9, 1928	-	11,100	8,070,000	9,930	7,190,000
1930	707	32,200	June 7, 1930	-	10,900	7,680,000	11,300	8,160,000
1931	722	60,600	June 26, 1931	3,490	12,600	9,110,000	13,400	9,730,000
1932	737	147,000	Feb. 27, 1932	4,680	15,800	11,400,000	18,000	13,100,000
1933	752	116,000	Nov. 13, 1932	5,200	18,100	13,100,000	19,400	14,100,000
1934	767	101,000	Dec. 22, 1933	5,510	19,740	14,290,000	17,700	12,810,000
1935	792	131,000	(b)	5,360	15,960	11,550,000	13,670	9,699,000
1936	812	60,000	June 3, 1936	4,640	13,580	9,712,000	13,210	9,589,000
1937	832	68,300	June 19, 1937	2,610	12,190	8,827,000	14,530	10,520,000
1938	862	89,600	Oct. 28, 1937	3,150	14,830	10,730,000	13,360	9,673,000
1939	882	79,600	May 29, 1939	4,100	14,080	10,190,000	15,410	11,160,000
1940	902	48,200	Dec. 15, 1939	4,790	12,920	9,379,000	12,140	8,810,000
1941	932	51,000	Oct. 19, 1940	4,120	10,450	7,568,000	11,610	8,407,000
1942	962	76,300	Dec. 2, 1941	3,940	12,430	8,996,000	10,830	7,842,000
1943	982	54,000	Nov. 23, 1942	2,930	14,680	10,620,000	14,100	10,210,000
1944	1012	65,200	Dec. 3, 1943	3,740	9,629	6,990,000	10,160	7,373,000
1945	1042	70,800	Feb. 8, 1945	4,170	12,690	9,332,000	13,670	10,040,000
1946	1062	102,000	Oct. 25, 1945	3,940	16,250	11,770,000	15,670	11,350,000
1947	1092	82,200	Oct. 25, 1946	3,740	14,090	10,200,000	15,420	11,160,000
1948	1122	95,200	Oct. 19, 1947	5,350	16,040	11,640,000	14,800	10,750,000
1949	1152	55,700	May 13, 1949	5,930	15,020	10,870,000	16,840	12,190,000
1950	1182	154,000	Nov. 27, 1949	6,130	19,620	14,210,000	-	-

a Exact date unknown.

b Probably occurred Jan. 25, 1935.

310. Finney Creek near Concrete, Wash.

Location.--Lat 48°30'35", long. 121°48'45", in NE¹/₄ sec. 19, T. 35 N., R. 8 E., on left bank $1\frac{1}{2}$ miles upstream from mouth and 3 miles southwest of Concrete.

Drainage area.--55.4 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 170 ft (by barometer). Prior to Apr. 19, 1945, water-stage recorder 500 ft downstream at different datum.

Extremes.--1943-48: Maximum discharge, 4,300 cfs Oct. 19, 1947 (gage height, 6.52 ft); minimum recorded, 16 cfs Oct. 8, 9, 1943, Aug. 22, 23, 24, 1945.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	35.3	22.6	-
1944	117	-	-	-	-	-	-	-	-	30.8	21.0	110	-
1945	130	322	232	527	265	198	258	521	144	39.2	19.4	98.4	231
1946	329	536	462	488	366	440	490	534	358	125	33.1	27.9	351
1947	263	362	692	442	577	296	345	224	184	116	*42.8	*109	*303
1948	*498	412	518	360	309	255	312	556	378	91.1	79.0	156	*327

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	2,170	1,340	-
1944	7,220	-	-	-	-	-	-	-	-	1,900	1,290	6,530	-
1945	7,970	19,160	14,270	32,420	15,850	12,180	15,330	32,060	8,590	2,410	1,190	5,860	167,300
1946	20,250	31,920	28,410	30,020	21,460	27,060	29,160	32,840	21,320	7,690	2,040	1,660	253,800
1947	16,150	21,510	42,560	27,160	32,030	18,230	20,520	13,770	10,950	7,130	*2,630	*6,490	*219,100
1948	*30,640	24,530	31,870	22,150	17,790	15,690	18,570	34,160	22,520	5,600	4,860	9,260	*237,600

* Revised.

Yearly discharge, in cubic feet per second, of Pinney Creek near Concrete, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches Acre-feet	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1943	982	-	-	-	-	-	-	-	-	-	
1944	1012	-	-	-	-	-	-	-	-	-	
1945	1042	2,700	Jan. 7, 1945	16	231	4.17	56.62	167,300	285	69.87	206,600
1946	1062	3,530	Oct. 25, 1945	21	351	6.34	85.90	253,800	350	85.78	253,500
1947	1346,1092	4,080	Oct. 24, 1946	23	*303	*5.47	*74.16	*219,100	*312	*76.47	*226,000
1948	1346,1122	4,300	Oct. 19, 1947	41	*327	*5.90	*80.43	*237,600	-	-	-

* Revised.

311. Grandy Creek near Concrete, Wash.

Location.--Lat 48°32'00", long. 121°53'00", in SE $\frac{1}{4}$ sec. 10, T. 35 N., R. 7 E., on left bank 250 ft upstream from highway bridge, 1 mile upstream from mouth, and 6 miles west of Concrete.

Drainage area.--18.9 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 190 ft (by barometer). July 17 to Oct. 14, 1943, water-stage recorder 100 ft downstream at different datum.

Extremes.--1943-44: Maximum discharge recorded, 219 cfs Sept. 20, 1944 (gage height, 2.90 ft), from rating curve extended above 30 cfs; minimum recorded, 4.5 cfs Sept. 9, 10, 11, 1944.

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	11.0	7.92	-	-		
1944						-	7.54	23.6	23.8	-		

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	675	471	-	-		
1944						-	463	1,400	1,460	-		

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982,1012	-	-	5.9	-	-	-	-	-	-	-
1944	1012	-	-	44.9	-	-	-	-	-	-	-

a Minimum for water year.

312. O'Toole Creek near Hamilton, Wash.

Location.--Lat 48°30'40", long. 121°55'05", in NW $\frac{1}{4}$ sec. 21 (revised), T. 35 N., R. 7 E., on left bank 800 ft upstream from mouth and 3 miles southeast of Hamilton.

Drainage area.--5.69 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 100 ft (by barometer).

Extremes.--1943-44: Maximum discharge recorded, 137 cfs Oct. 24, 1943 (gage height, 3.20 ft), from rating curve extended above 25 cfs; minimum recorded, 2.8 cfs Sept. 10-13, 1943 (gage height, 1.46 ft).

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	6.53	4.26	19.7	-		
1944						4.87	3.72	14.7	20.6	-		

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	402	254	1,210	-		
1944						300	229	874	1,260	-		

Yearly discharge, in cubic feet per second, of O'Toole Creek near Hamilton, Wash.

Year	W.S.P. no.	The season						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-foot		Inches	Acres-foot
1943	982,1012	-	-	3.3	-	-	-	-	-	-	-
1944	1012	-	-	2.8	-	-	-	-	-	-	-

a Minimum for water year.

313. Alder Creek near Hamilton, Wash.

Location.--Lat 48°31'40", long. 121°57'00", in NE $\frac{1}{4}$ sec. 18, T. 35 N., R. 7 E., on left bank a quarter of a mile upstream from highway bridge, three-quarters of a mile upstream from mouth, and 2 miles east of Hamilton.

Drainage area.--10.7 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 125 ft (by barometer). Prior to Nov. 15, 1945, water-stage recorder 80 ft upstream at datum 1.47 ft higher. Nov. 15, 1945, to Jan. 7, 1947, water-stage recorder at present site at datum 1.58 ft higher.

Average discharge.--7 years (1943-50), 34.5 cfs.

Extremes.--1943-50: Maximum discharge (revised), 670 cfs Jan. 7, 1945 (gage height, 4.28 ft, site and datum then in use); minimum, 6.3 cfs Sept. 4-12, 1944.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	8.70	-
1944	10.1	10.9	29.5	38.4	29.2	31.5	23.1	23.1	16.9	8.96	7.15	8.91	19.8
1945	9.77	22.8	27.2	78.8	40.9	47.2	58.6	34.1	15.5	10.4	9.08	9.48	30.3
1946	35.4	65.6	50.1	62.7	51.6	62.0	45.2	27.7	20.9	15.7	10.4	8.79	37.9
1947	19.8	32.1	*82.4	64.4	65.5	38.7	38.3	23.6	17.8	13.9	10.2	11.6	*34.6
1948	37.6	60.6	63.2	62.1	47.6	44.6	49.9	45.8	21.0	15.5	12.9	11.9	39.4
1949	17.5	56.1	55.0	24.8	42.9	85.7	49.3	31.5	15.0	12.3	10.0	10.8	34.2
1950	19.9	36.1	85.8	44.9	76.8	102	66.5	45.4	25.1	15.1	13.1	12.4	45.1

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	518	-
1944	619	651	1,810	2,360	1,680	1,940	1,370	1,420	1,000	551	440	530	14,370
1945	601	1,360	1,670	4,850	2,270	2,900	3,480	2,090	1,920	640	558	564	21,900
1946	2,180	3,900	3,080	3,860	2,870	3,810	2,690	1,700	1,250	967	637	523	27,470
1947	1,160	1,910	*5,070	3,960	3,640	2,380	2,280	1,450	1,080	853	625	693	*25,080
1948	2,510	3,610	3,890	3,820	2,740	2,750	2,870	2,820	1,250	952	792	708	28,610
1949	1,080	3,340	3,380	1,530	2,380	5,270	2,930	1,940	1,895	758	615	643	24,760
1950	1,230	2,150	5,280	2,760	4,270	6,250	3,960	2,790	1,490	930	807	736	32,650

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-foot		Inches	Acres-foot
1943	982	-	-	-	-	-	-	-	-	-	-
1944	1012	137	Dec. 3, 1943	6.3	19.8	1.85	25.20	14,370	20.6	26.16	14,920
1945	1042	*670	Jan. 7, 1945	7.3	30.3	2.83	38.40	21,900	37.9	48.09	27,450
1946	1062	265	Oct. 25, 1945	8.2	37.9	3.54	48.12	27,470	*36.5	*46.32	*26,450
1947	1286,1092	*450	Dec. 11, 1946	7.9	*34.6	*3.23	*43.92	*25,080	36.9	46.86	26,750
1948	1122	241	Oct. 19, 1947	10	39.4	3.68	50.11	28,610	36.6	46.60	26,600
1949	1152	256	Dec. 1, 1948	8.9	34.2	3.70	43.38	24,760	35.4	44.88	25,620
1950	1182	477	Dec. 27, 1949	10	45.1	4.21	57.21	32,650	-	-	-

* Revised.

314. Day Creek near Lyman, Wash.

Location (revised).--Lat 48°30'05", long. 122°02'45", in NW $\frac{1}{4}$ sec. 28, T. 35 N., R. 6 E., on left end of county highway bridge 1 mile upstream from mouth and $1\frac{1}{4}$ miles southeast of Lyman.

Drainage area.--36.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 90 ft (from topographic map).

Average discharge.--7 years (1943-50), 265 cfs.

Extremes.--1943-50: Maximum discharge, 5,570 cfs Dec. 28, 1949 (gage height, 8.35 ft), from rating curve extended above 3,000 cfs; minimum, 5.9 cfs Feb. 1, 1945; minimum gage height, 0.64 ft Aug. 23, 24, 1945.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	28.4	26.6	-
1944	195	117	356	420	206	203	228	187	78.3	21.4	18.7	131	180
1945	143	498	230	530	296	283	248	397	74.9	22.1	14.2	114	235
1946	358	517	502	455	340	372	400	319	346	81.1	24.4	30.5	312
1947	240	262	584	395	436	269	349	120	187	92.2	41.0	96.8	255
1948	453	321	438	301	275	202	282	516	238	80.6	86.7	200	281
1949	200	432	226	105	380	414	375	444	203	107	65.8	99.1	253
1950	238	487	573	263	539	514	421	368	368	129	96.7	67.6	337

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	1,750	1,580	-
1944	12,020	6,980	21,900	25,810	11,850	12,480	13,560	11,490	4,680	1,320	1,150	7,790	131,000
1945	8,760	29,650	14,110	32,610	16,440	16,170	14,770	24,380	4,450	1,360	870	6,810	170,400
1946	22,040	30,740	30,870	27,990	18,880	22,880	23,810	19,610	20,590	4,980	1,500	1,810	225,700
1947	14,780	15,580	35,920	24,300	24,220	16,540	20,760	7,400	11,100	5,670	2,520	5,760	184,600
1948	27,880	19,100	26,960	18,490	15,790	12,430	16,770	31,730	14,190	3,750	5,330	11,930	204,300
1949	12,310	25,730	13,900	6,430	21,080	25,480	22,300	27,290	12,060	6,590	4,050	5,900	183,100
1950	14,640	28,960	35,230	16,150	29,940	31,620	25,080	22,640	21,870	7,930	5,950	4,020	244,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982	-	-	-	-	-	-	-	-	-	-
1944	1012	*4,370	Dec. 3, 1943	13	180	4.96	67.66	131,000	196	73.66	142,600
1945	1042	4,310	Jan. 7, 1945	9.7	235	6.47	88.01	170,400	278	104.09	201,500
1946	1062	4,310	Nov. 14, 1945	13	312	8.60	116.59	225,700	288	107.61	208,300
1947	1092	4,530	Oct. 24, 1946	18	255	7.02	95.32	184,600	265	99.28	192,200
1948	1122	4,420	Oct. 18, 1947	28	281	7.74	105.54	204,300	251	94.18	182,300
1949	1152	3,350	Feb. 16, 1949	28	253	6.97	94.58	183,100	290	108.47	210,000
1950	1182	5,570	Dec. 28, 1949	20	337	9.28	126.03	244,000	-	-	-

* Revised.

315. Jones Creek near Lyman, Wash.

Location.--Lat 48°32'15", long. 122°02'40", in SW $\frac{1}{4}$ sec. 9, T. 35 N., R. 6 E., on right bank $1\frac{1}{4}$ mile upstream from mouth and 1 mile northeast of Lyman.

Drainage area.--7.80 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 120 ft (from topographic map).

Extremes.--1943-44: Maximum discharge recorded, 46 cfs Sept. 20, 1944 (gage height, 1.94 ft); minimum recorded, 0.4 cfs Oct. 7-10, 1943.

Remarks.--Diversions for municipal and industrial use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.	Nov.	
1943						-	1.50	1.83	6.09	-	
1944						*1.38	1.26	5.10	5.55	-	

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet, of Jones Creek near Lyman, Wash.

Year						July	Aug.	Sept.	Oct.	Nov.		
1943						-	92	109	375	-		
1944						†85	78	303	341	-		

† Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982,1012	-	-	0.4	-	-	-	-	-	-	-
1944	1012	-	-	.7	-	-	-	-	-	-	-

316. Gilligan Creek near Lyman, Wash.

Location.--Lat 48°29'05", long. 122°08'00", in NW $\frac{1}{4}$ sec. 35, T. 35 N., R. 5 E., on right bank 60 ft upstream from county highway bridge, three-eighths of a mile (revised) upstream from mouth, and 4 $\frac{1}{2}$ miles southwest of Lyman.

Drainage area.--6.31 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 80 ft (from topographic map).

Extremes.--July to October 1943: Maximum discharge, 79 cfs (revised) Oct. 24 (revised) (gage height, 2.4 ft, revised, from graph based on gage readings), from rating curve extended above 10 ft; no flow for many days.

Remarks.--About 3 cfs diverted 2 miles above gage for municipal use of Sedro Woolley. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1943							-	1.03	0.57	14.5		

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1943							-	63	34	892		

317. Cool Creek near Sedro Woolley, Wash. 1/

Location.--Lat 48°32'00" (revised), long. 122°09'00", in S $\frac{1}{2}$ sec. 10, T. 35 N., R. 5 E., on right bank 400 ft upstream from bridge on State Highway 17A and 4 miles northeast of Sedro Woolley.

Drainage area.--1.8 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (by barometer).

Extremes.--1947-50: Maximum discharge, 468 cfs Dec. 27, 1949 (gage height, 3.60 ft), from rating curve extended above 140 cfs; minimum, 0.3 cfs Sept. 12-14, 1949.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	12.3	16.8	15.1	12.5	9.63	8.22	10.1	13.5	7.73	2.65	4.69	4.10	9.77
1949	5.85	14.8	8.00	3.75	14.9	19.1	10.9	10.2	3.77	2.72	1.77	3.28	8.20
1950	9.37	10.5	22.1	7.68	14.7	17.3	13.3	13.5	10.4	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	756	997	927	768	554	505	603	829	460	163	288	244	7,090
1949	360	879	432	231	827	1,170	651	626	225	167	109	195	5,930
1950	576	626	1,350	471	817	1,060	792	827	617	-	-	-	-

1/ Previously published as Coal Creek near Sedro Woolley, Wash.

Yearly discharge, in cubic feet per second, of Coal Creek near Sedro Woolley, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1122	364	Oct. 18, 1947	1.0	9.77	5.43	73.68	7,090	8.47	64.01	6,140
1949	1152	183	Feb. 16, 1949	.4	8.20	4.56	61.81	5,930	9.34	70.44	6,760
1950	1182	468	Dec. 27, 1949	-	-	-	-	-	-	-	-

318. Hansen Creek near Sedro Woolley, Wash.

Location.--Lat 48°30'30", long. 122°12'10", in NW¼ sec. 20, T. 35 N., R. 5 E., on right bank at bridge on State Highway 17A, three-quarters of a mile (revised) upstream from mouth, and 1 mile east of Sedro Woolley.

Drainage area.--10.3 sq mi.

Gage.--Staff gage. Altitude of gage is 50 ft (from topographic map).

Extremes.--1943-45: Maximum discharge, 332 cfs Jan. 7, 1945 (gage height, 7.45 ft, from Floodmarks); no flow Aug. 22, 23, 24, 1945.

Remarks.--Several small diversions for irrigation and domestic use above station, the largest of which is 0.8 cfs for use at Northern State Hospital. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	3.32	2.75	-
1944	6.10	4.82	28.6	25.8	28.4	24.8	20.0	21.5	9.83	2.58	2.26	5.97	15.0
1945	4.54	29.1	18.0	79.2	37.4	34.4	36.1	23.5	5.71	1.29	1.05	9.66	23.3

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	204	163	-
1944	375	287	1,760	1,590	1,630	1,530	1,190	1,320	585	159	139	355	10,920
1945	279	1,730	1,110	4,870	2,080	2,110	2,150	1,450	340	80	64	575	16,840

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1943	982	-	-	-	-	-	-
1944	1012	236	Dec. 3, 1943	1.1	15.0	10,920	16.0
1945	1042	332	Jan. 7, 1945	0	23.3	16,840	-

319. Skagit River near Sedro Woolley, Wash.

Location.--Lat 48°29'05", long. 122°14'30", in NW¼ sec. 36, T. 35 N., R. 4 E., at Northern Pacific Railway bridge, three-quarters of a mile downstream from entrance to Beatty's Slough, and 1½ miles south of Sedro Woolley.

Drainage area.--3,000 sq mi (revised), approximately, of which 400 sq mi is in Canada.

Gage.--Staff or chain gages. Datum of gage is extreme low sea level in Puget Sound, (levels by Corps of Engineers), which is 8.9 ft below mean sea level, unadjusted.

Average discharge.--16 years (1908-24), 16,220 cfs.

Extremes.--1908-24: Maximum discharge observed, 220,000 cfs Nov. 30, 1909 (gage height, 56.5 ft), from rating curve extended above 62,000 cfs; minimum observed, 2,830 cfs Sept. 29-30, Oct. 10-11, 1915.

Maximum stage known, approximately 63.5 ft, about 1815, estimated from height of flood plain, from stage and discharge at The Dalles and by comparison with 1856 and 1909 flood stages (discharge, about 400,000 cfs).

Remarks.--Flow in Beatty's slough which diverts from 1.5% of total flow at low stages to 8% at high stages, is included in this record. No regulation.

SKAGIT RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Skagit River near Sedro Woolley, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1908	-	-	-	-	-	-	-	15,700	26,000	25,100	10,500	5,570	-
1909	5,520	18,700	8,570	10,600	7,890	6,360	8,360	14,600	28,100	17,900	19,410	7,300	11,900
1910	7,010	33,200	23,600	11,800	9,220	19,400	22,800	35,100	24,800	19,900	10,700	6,500	18,700
1911	23,900	29,500	17,600	11,600	5,470	8,430	11,400	21,700	35,500	23,400	11,400	10,800	17,600
1912	4,930	17,500	11,500	12,800	15,300	5,990	8,870	25,200	33,200	19,300	11,600	6,490	14,400
1913	5,930	15,100	11,600	9,200	11,000	8,720	14,300	25,700	42,900	30,100	15,200	13,100	16,900
1914	14,000	16,700	8,870	22,000	8,470	15,000	19,800	26,100	23,700	19,500	10,300	9,360	16,200
1915	9,920	19,600	7,930	7,120	6,060	8,580	19,700	13,700	11,700	10,400	9,220	4,500	10,700
1916	10,000	12,100	14,300	5,460	16,400	19,100	16,900	24,000	39,400	33,300	17,600	8,620	18,100
1917	5,920	11,400	7,290	7,650	9,320	6,280	11,000	26,100	40,100	37,600	16,500	10,000	15,800
1918	8,140	11,100	36,800	32,800	14,100	11,500	16,800	23,200	36,900	22,100	12,800	8,260	19,600
1919	14,400	12,600	21,400	15,300	10,000	9,110	18,100	28,900	30,000	27,800	13,800	8,220	17,500
1920	5,990	19,100	16,900	18,000	14,100	9,400	7,200	16,300	25,100	25,500	11,900	17,300	15,600
1921	23,100	11,900	11,700	13,100	18,100	13,000	12,000	27,700	45,800	25,400	14,700	13,200	19,100
1922	15,700	19,500	34,500	6,950	5,410	5,540	9,350	24,200	41,700	18,800	11,300	10,700	17,000
1923	10,400	7,090	15,000	20,600	6,700	7,710	16,800	25,500	31,200	23,900	10,600	7,440	15,300
1924	6,370	6,900	13,700	11,000	34,600	10,500	9,540	32,600	21,500	14,700	9,370	8,330	14,900

† Corrected.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1908	-	-	-	-	-	-	-	965	1,550	1,540	646	331	-
1909	339	1,110	515	652	438	391	497	898	1,670	1,100	1,579	434	8,620
1910	451	1,980	1,450	726	512	1,190	1,360	2,160	1,480	1,220	658	387	13,600
1911	1,470	1,760	1,080	713	304	518	678	1,330	2,110	1,440	701	643	12,700
1912	303	1,040	707	787	850	368	528	1,550	1,980	1,190	713	386	10,400
1913	365	898	713	566	611	536	851	1,580	2,550	1,850	935	780	12,200
1914	861	994	545	1,350	470	922	1,180	1,600	1,410	1,200	633	557	11,700
1915	610	1,170	488	438	337	528	1,170	842	696	640	567	268	7,750
1916	615	720	879	336	943	1,170	1,010	1,480	2,340	2,050	1,080	513	13,100
1917	364	678	448	470	518	386	655	1,600	2,390	2,310	1,010	595	11,400
1918	501	660	2,230	2,020	783	707	1,000	1,450	2,200	1,360	787	492	14,200
1919	885	750	1,320	941	555	560	1,080	1,780	1,790	1,710	848	489	12,700
1920	368	1,140	1,040	1,110	811	578	428	1,000	1,490	1,570	732	1,030	11,300
1921	1,420	708	719	806	1,010	799	714	1,700	2,730	1,560	904	785	13,900
1922	965	1,160	2,120	427	500	341	555	1,490	2,480	1,160	695	637	12,300
1923	640	422	922	1,270	372	474	1,000	1,570	1,860	1,470	852	443	11,100
1924	392	411	842	676	1,990	646	568	2,000	1,260	904	576	496	10,800

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1856	552	300,000	About 1856									
1897	552	185,000	Nov. 16, 1896									
1898	552	190,000	Nov. 19, 1897									
1907	552	180,000	Nov. 16, 1906									
1908	552	*448,200	June 11, 1908	-	-	-	-	-	-	-	-	-
1909	552	*97,000	Nov. 18, 1908	3,540	11,900	3.97	53.93	8,620,000	14,500	65.56	10,500,000	
1910	552	220,000	Nov. 30, 1909	4,890	18,700	6.23	84.71	13,600,000	19,300	87.28	14,000,000	
1911	552	*114,000	Nov. 21, 1910	4,300	17,600	5.87	79.68	12,700,000	14,500	65.56	10,500,000	
1912	552	*66,800	Nov. 19, 1911	3,040	14,400	4.80	65.19	10,400,000	14,200	64.38	10,300,000	
1913	552	*70,800	June 3, 1913	3,780	16,900	5.63	76.45	12,200,000	17,500	79.14	12,700,000	
1914	552	*104,000	Jan. 7, 1914	5,770	16,200	5.40	73.30	11,700,000	16,000	72.35	11,600,000	
1915	552	*67,300	Apr. 3, 1915	2,830	10,700	3.57	48.46	7,750,000	10,600	47.92	7,700,000	
1916	552	*75,800	June 18, 1916	2,830	18,100	6.03	82.11	13,100,000	17,100	77.59	12,400,000	
1917	552	*60,400	June 16, 1917	4,500	15,800	5.27	71.48	11,400,000	18,400	83.21	13,300,000	
1918	552	195,000	Dec. 30, 1917	5,690	19,600	6.53	88.50	14,200,000	19,000	85.35	13,700,000	
1919	552	*80,200	Dec. 4, 1918*	5,900	17,500	5.85	79.32	12,700,000	17,000	76.97	12,300,000	
1920	552,870	-	-	-	15,600	5.20	70.78	11,300,000	16,000	72.55	11,600,000	
1921	552,870	-	-	-	19,100	6.37	86.47	13,900,000	21,100	95.43	15,300,000	
1922	552	210,000	Dec. 13, 1921	4,680	17,000	5.67	77.06	12,300,000	13,900	62.85	10,100,000	
1923	572	71,000	Dec. 24 or 25, 1922	-	15,300	5.10	69.32	11,100,000	14,900	67.46	10,800,000	
1924	572,870	-	-	-	14,900	4.97	67.65	10,800,000	-	-	-	

* Revised.

* Not previously published.

* Maximum during period May to September.

320. Nookachamps Creek near Mount Vernon, Wash.

Location.--Lat 48°24'05", long. 122°14'10", in SW $\frac{1}{4}$ sec. 25, T. 34 N., R. 4 E., on right bank a quarter of a mile downstream from outlet of Big Lake and 4 $\frac{1}{2}$ miles east of Mount Vernon.

Drainage area.--22.2 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 75 ft (from topographic map).

Extremes.--1943-44: Maximum discharge recorded, 9.2 cfs Oct. 31, 1943 (gage height, 1.43 ft); minimum recorded, 0.02 cfs Oct. 5-6, 1943.

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year						July	Aug.	Sept.	Oct.			
1943						-	1.00	.357	1.63			
1944						2.79	.35	1.32	-			

Monthly runoff, in acre-feet

Year						July	Aug.	Sept.	Oct.			
1943						-	61	21	100			
1944						172	21	78	-			

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	The season						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982,1012	-	-	0.03	-	-	-	-	-	-	-
1944	1012	-	-	0.02	-	-	-	-	-	-	-

a Minimum for water year.

321. East Fork Nookachamps Creek near Clear Lake, Wash.

Location (revised).--Lat 48°25'30", long. 122°12'30", in NE $\frac{1}{4}$ sec. 19, T. 34 N., R. 5 E., on right bank at county road bridge, 3 miles southeast of Clear Lake, and 3 $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--20.5 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 70 ft (from topographic map).

Average discharge.--7 years (1943-50), 90.5 cfs.

Extremes.--1943-50: Maximum discharge observed, 2,710 cfs Oct. 25, 1945 (gage height, 10.3 ft, from high-water mark), from rating curve extended above 500 cfs; minimum observed, 0.1 cfs July 8, 9, 1944.

Remarks.--Several small diversions for irrigation and municipal use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	4.92	-
1944	50.8	18.4	76.1	105	67.5	68.5	82.0	77.4	31.1	2.31	3.97	42.1	52.1
1945	27.7	179	55.4	178	84.2	81.8	111	88.0	16.1	3.91	4.49	43.7	72.5
1946	160	264	125	147	141	130	104	71.8	84.1	25.8	4.53	4.39	105
1947	84.6	115	171	157	91.1	51.4	150	43.6	68.9	15.8	6.66	45.3	83.2
1948	136	216	166	131	128	88.3	87.3	178	130	12.0	47.3	55.6	115
1949	102	145	136	39.4	217	128	96.9	86.2	41.0	40.2	23.0	21.4	88.8
1950	88.9	126	285	132	210	197	153	106	73.0	20.0	9.36	13.9	117

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	293	-
1944	3,120	1,100	4,660	6,430	3,880	4,210	4,880	4,760	1,850	142	244	2,510	37,810
1945	1,700	10,630	3,410	10,930	4,680	5,050	6,620	5,410	959	240	276	2,600	52,480
1946	9,830	15,740	7,690	9,010	7,850	8,010	6,200	4,410	5,000	1,590	278	261	75,870
1947	5,200	6,840	10,490	9,660	5,060	3,160	8,960	2,680	4,100	974	410	2,700	60,230
1948	8,350	12,860	10,220	8,040	7,390	5,430	5,190	10,950	7,750	737	2,910	3,310	83,140
1949	6,300	8,630	8,360	2,420	12,040	7,860	5,770	5,300	2,440	2,470	1,410	1,270	64,230
1950	5,470	7,500	17,540	8,110	11,690	12,130	9,990	6,490	4,340	1,230	575	828	84,990

SKAGIT RIVER BASIN

Yearly discharge, in cubic feet per second, of East Fork Nookachamps Creek near Clear Lake, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	1012	-	-	-	-	-	-	-	-	-	-
1944	1012	-	-	0.1	52.1	2.54	34.57	37,810	61.5	40.83	44,650
1945	1042	2,000	Jan. 7, 1945	1.7	72.5	3.54	47.99	52,480	96.7	64.02	70,000
1946	1062	2,710	Oct. 25, 1945	1.0	105	5.12	69.40	75,870	90.0	59.60	65,140
1947	1092	-	-	2.5	83.2	4.06	55.09	60,230	95.5	63.22	69,130
1948	1122	2,220	Oct. 19, 1947	3.5	115	5.61	78.05	83,140	103	68.65	75,020
1949	1152	2,130	Feb. 17, 1949	2.5	88.8	4.53	58.61	64,290	98.8	65.39	71,490
1950	1182	2,010	Dec. 28, 1949	1.4	117	77.74	-	84,990	-	-	-

a Maximum observed.

322. Skagit River near Mount Vernon, Wash.

Location.--Lat 48°26'40" (revised), long. 122°20'00", in SE $\frac{1}{4}$ sec. 7, T. 34 N., R. 4 E., on drawrest of, and 150 ft downstream from bridge on U. S. Highway 99 and 1 mile north of Mount Vernon.

Drainage area.--3,060 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929.

Average discharge.--10 years (1940-50), 15,270 cfs.

Extremes.--1940-50: Maximum discharge, 114,000 cfs Nov. 28, 1949 (elevation, 34.21 ft); minimum, 2,740 cfs Oct. 26, 1942 (elevation, 7.37 ft).

Maximum stage known, 37 ft in 1906 from Great Northern Railway high-water profile.

Remarks.--Flow partly regulated by powerplants on Baker and upper Skagit Rivers, and by Ross, Diablo and Lake Shannon Reservoirs (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	14,800	9,880	14,290	10,310	8,654	8,487	11,080	15,880	14,970	9,820	6,441	11,450	11,360
1942	17,350	13,860	20,490	7,658	7,628	6,856	11,510	16,870	25,400	17,250	8,375	5,023	13,220
1943	14,323	13,390	15,710	11,730	11,970	11,600	23,360	21,660	31,420	29,840	11,450	7,183	16,140
1944	8,100	6,592	10,670	9,965	8,044	7,878	10,610	17,400	19,620	10,430	6,835	9,845	10,510
1945	8,738	10,810	10,950	15,950	14,860	9,714	10,130	25,960	25,370	16,170	8,083	8,469	13,760
1946	14,340	17,990	12,540	13,670	10,680	12,820	16,580	36,530	32,810	23,750	10,590	6,745	17,460
1947	8,957	9,351	18,200	12,800	16,430	14,460	17,720	24,720	25,740	15,780	8,319	7,390	14,980
1948	19,110	15,670	19,050	15,180	10,380	8,448	11,800	24,680	39,280	20,380	13,760	11,590	17,460
1949	12,820	13,290	12,840	9,015	12,020	15,200	17,900	33,920	24,470	20,010	13,320	10,910	16,340
1950	12,970	23,740	21,630	15,560	19,740	22,610	17,720	22,020	37,920	35,710	17,060	10,200	21,440

† Corrected.

* Not previously published; estimated on the basis of records for Skagit River near Concrete, Wash.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	810.0	587.9	878.8	633.7	480.6	521.9	659.4	976.2	890.8	603.8	396.1	681.5	8,221
1942	1,066	824.9	1,260	469.5	423.6	421.5	684.7	1,038	1,511	1,059	514.8	298.9	9,572
1943	265.8	796.3	986.1	721.1	664.9	713.3	31.90	1,332	1,870	1,835	702.7	427.4	11,680
1944	498.1	392.3	656.2	612.7	462.7	484.4	631.1	1,070	1,167	641.2	420.3	591.7	7,628
1945	537.1	643.0	671.8	980.8	825.0	597.3	602.8	1,596	1,510	994.1	497.0	504.0	9,959
1946	882.0	1,071	771.2	840.3	593.2	788.1	986.5	2,246	1,952	1,460	651.2	401.4	12,640
1947	550.8	556.4	1,119	786.8	912.4	888.9	91.054	1,520	1,532	970.5	511.5	439.7	10,840
1948	1,175	932.6	1,171	933.4	596.9	519.5	702.2	1,517	2,337	1,253	846.0	689.9	12,670
1949	788.3	790.6	789.3	554.3	667.3	934.6	1,065	2,086	1,456	1,231	818.7	643.2	11,830
1950	797.3	1,412	1,342	956.6	1,096	1,402	1,054	1,354	2,258	2,196	1,049	607.2	15,520

* Not previously published; estimated on the basis of records for Skagit River near Concrete, Wash.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1941	932	-	-	-	-	11,360	8,221,000	12,420	8,995,000
1942	962	65,300	Dec. 3, 1941	3,860	13,220	9,572,000	11,870	11,870	8,449,000
1943	982	47,000	June 18, 1943	3,050	16,140	11,680,000	15,470	11,200,000	11,200,000
1944	1012	55,700	Dec. 3, 1943	4,900	10,510	7,628,000	10,930	7,333,000	7,333,000
1945	1042	59,800	Feb. 8, 1945	5,500	13,760	9,959,000	14,960	10,830,000	10,830,000
1946	1062	84,300	Oct. 26, 1945	4,380	17,460	12,640,000	16,780	12,140,000	12,140,000
1947	1092	64,900	Oct. 25, 1946	3,960	14,980	10,840,000	15,430	11,890,000	11,890,000
1948	1122	69,400	Oct. 19, 1947	6,560	17,460	12,670,000	16,460	11,760,000	11,760,000
1949	1152	56,200	May 13, 1949	6,740	16,340	11,830,000	17,980	13,010,000	13,010,000
1950	1182	114,000	Nov. 28, 1949	6,920	21,440	15,520,000	-	-	-

* Not previously published.

323. Friday Creek near Burlington, Wash.

Location.--Lat 48°34'20" (revised), long. 122°20'15", in NE¹NE¹ sec. 31, T. 36 N., R. 4 E., on left bank 1 $\frac{1}{4}$ miles upstream from mouth and 6 miles north of Burlington.

Drainage area.--37.1 sq mi. At site 1943-45, 38.0 sq mi.

Gage.--Water stage recorder. Altitude of gage is 130 ft (from topographic map). Apr. 11, 1943, to Oct. 23, 1945, staff gage three-quarters of a mile downstream at different datum.

Average discharge.--5 years (1943-48), 74.9 cfs.

Extremes.--1943-48: Maximum discharge observed, 1,090 cfs Oct. 25, 1945 (discharge measurement); minimum observed, 1.3 cfs Sept. 9, 1944.

Remarks.--Some regulation and possibly some diversion at low flow, purpose unknown.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	3.61	-
1944	9.60	13.0	71.1	87.6	107	75.1	48.6	32.7	23.5	4.73	2.60	5.92	40.0
1945	8.47	120	94.1	267	113	105	76.2	45.9	9.69	2.53	2.11	4.21	70.5
1946	123	211	124	203	195	193	136	35.2	37.1	19.7	3.41	2.77	106
1947	13.4	45.3	170	227	143	94.5	101	32.3	8.55	4.45	6.16	7.23	70.8
1948	37.3	134	173	192	167	112	64.9	78.3	52.1	11.8	8.91	16.8	87.2
1949	28.3	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	-	215	-
1944	590	773	4,370	5,390	6,170	4,620	2,890	2,010	1,400	160	352	29,020	-
1945	521	7,160	5,790	16,390	6,290	6,440	4,530	2,820	576	155	130	251	51,050
1946	7,560	12,570	7,640	12,510	10,830	11,880	8,070	2,160	2,210	1,210	210	165	77,020
1947	825	2,700	10,470	13,940	7,940	5,810	5,990	1,980	509	273	379	430	51,250
1948	2,290	7,980	10,620	11,830	9,630	6,890	3,860	4,820	3,100	728	548	997	63,290
1949	1,740	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30										Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		Inches	Acre-feet
1943	982	-	-	-	-	-	-	-	-	-	-	-	-	-
1944	1012	al 95	Dec. 3, 1943	1.3	40.0	1.05	14.31	29,020	50.6	18.12	36,750	-	-	-
1945	1042	960	Jan. 7, 8, 1945	1.5	70.5	1.86	25.18	51,050	90.3	32.48	65,350	-	-	-
1946	1062	al, 090	Oct. 25, 1945	2.3	106	2.86	38.82	77,020	87.4	31.95	63,240	-	-	-
1947	1092	825	Dec. 11, 1946	2.3	70.8	1.91	25.91	51,250	80.3	29.40	58,140	-	-	-
1948	1122	537	Jan. 4, 1948	4.0	87.2	2.35	31.99	63,290	-	-	-	-	-	-
1949	1122	-	-	-	-	-	-	-	-	-	-	-	-	-

a Maximum observed.

324. Samish River near Burlington, Wash.

Location (revised).--Lat 48°32'45", long. 122°20'15", in SE¹ sec. 6, T. 35 N., R. 4 E., on left bank 500 ft downstream from bridge on U. S. Highway 99, half a mile downstream from Friday Creek, and 5 miles north of Burlington.

Drainage area.--87.8 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 45 ft (from topographic map). Prior to Dec. 1, 1948, water-stage recorder 500 ft upstream at different datum.

Average discharge.--7 years (1943-50), 246 cfs.

Extremes.--1943-50: Maximum discharge, 5,830 cfs Dec. 28, 1949 (gage height, 11.89 ft); minimum recorded, 18 cfs July 16, 1944, but may have been less during period of no gage-height record during July and August 1944.

Remarks.--State fish hatchery on Friday Creek diverts about 4 cfs which is returned above station. There is evidence of slight regulation and there may be some pumping for irrigation.

SAMISH RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Samish River near Burlington, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	35.0	30.5	-
1944	55.2	64.2	221	232	254	203	151	125	80.9	27.4	25.1	44.1	123
1945	50.0	298	231	*758	353	319	258	174	49.9	27.7	25.2	38.7	*215
1946	444	649	370	552	556	547	401	183	136	71.9	30.9	29.4	329
1947	84.4	181	490	530	360	280	293	113	70.0	41.4	31.0	41.2	209
1948	194	391	446	476	405	317	244	260	159	65.4	69.2	80.2	259
1949	146	420	582	203	656	439	216	184	66.2	50.2	39.0	54.9	252
1950	113	264	798	555	696	698	469	202	103	46.4	38.0	33.6	332

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1943	-	-	-	-	-	-	-	-	-	-	2,150	1,810	-
1944	3,390	3,820	13,580	14,280	14,630	12,460	8,980	7,690	4,810	1,680	1,540	2,630	89,490
1945	3,070	17,760	14,200	45,350	21,430	19,630	15,320	10,720	2,970	1,700	1,550	2,300	*156,000
1946	27,290	38,600	22,740	33,940	30,890	33,610	23,830	11,250	8,120	4,420	1,900	1,750	238,300
1947	5,190	10,780	30,130	32,570	20,000	17,230	17,430	6,940	4,170	2,540	1,910	2,450	151,300
1948	11,900	23,290	27,420	29,290	23,320	19,470	14,510	15,960	9,480	4,020	4,250	4,770	187,700
1949	8,960	24,980	35,780	12,500	36,410	27,020	12,880	11,330	3,940	3,090	2,400	3,270	182,600
1950	6,920	15,730	49,090	34,150	38,120	42,940	27,880	12,450	6,100	2,850	2,340	2,000	240,600

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1943	982	-	-	-	-	-	-	-	-	-	-
1944	1012	*998	Dec. 3, 1943	19	123	1.40	19.11	89,490	143	22.15	103,700
1945	1286,1042	*2,820	Jan. 7, 1945	22	*215	*2.45	*33.30	*156,000	*290	*44.75	*209,600
1946	1062	4,310	Oct. 25, 1945	26	329	3.75	50.90	238,300	270	41.82	195,800
1947	1092	2,750	Dec. 11, 1946	25	209	2.38	32.32	151,300	232	35.84	167,800
1948	1122	1,210	Oct. 19, 1947	31	259	2.95	40.08	187,700	288	41.60	194,800
1949	1152	4,990	Feb. 17, 1949	25	252	2.87	38.99	182,600	255	39.42	184,600
1950	1182	5,830	Dec. 28, 1949	26	332	3.78	51.37	240,600	-	-	-

* Revised.

WHATCOM CREEK BASIN

325. Austin Creek near Bellingham, Wash.

Location.--Lat 48°42'45" (revised), long. 122°19'50", in SW¼NW¼ sec. 8, T. 37 N., R. 4 E., on left bank at county road crossing, three-quarters of a mile upstream from mouth, and 5 miles southeast of Bellingham.

Drainage area.--7.80 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 330 ft (from topographic map).

Extremes.--July to September 1948: Maximum discharge, 13 cfs Sept. 23 (gage height, 1.35 ft); minimum, 0.8 cfs Aug. 12, 13, 17, 18 (gage height, 0.78 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1948							2.15	3.45	4.89			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1948							132	212	291			

326. Whatcom Creek near Bellingham, Wash.

Location.--Lat 48°45'10", long. 122°25'40", in NW¼SE¼ sec. 28, T. 38 N., R. 3 E., on left bank in Whatcom Falls Park, three-quarters of a mile downstream from Lake Whatcom, and 2 miles east of Bellingham.

Drainage area.--55.4 sq mi (revised).

Supplemental records available.--October 1912 to September 1914, gage heights and discharge measurements only.

Gage.--Water-stage recorder. Datum of gage is 200.00 ft above mean sea level (levels by city of Bellingham). Nov. 1, 1910, to Sept. 30, 1914, staff gage half a mile upstream at datum 108.53 ft higher.

Average discharge.--8 years (1911-12, 1939-46), 70.8 cfs.

Extremes.--1910-12, 1939-46: Maximum discharge observed, 739 cfs Nov. 20, 21, 1911 (gage height, 5.50 ft, site and datum then in use); minimum discharge, 0.1 cfs Aug. 1, 2, Sept. 25-29, 1946.

Remarks.--Flow regulated by Lake Whatcom (usable capacity, 28,800 acre-ft). City of Bellingham diverts about 30 cfs from lake for municipal use. Records do not include about 1.5 cfs diverted around station by fish hatchery.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	342	406	397	202	160	60.7	24.4	18.6	19.6	24.3	25.1	-
1912	19.0	310	341	249	278	121	70.0	87.5	59.4	28.5	25.9	40.6	135
1939	-	-	-	-	-	-	-	-	-	-	4.70	20.1	-
1940	41.9	22.4	228	281	148	214	23.9	25.9	1.59	3.92	14.8	4.32	84.5
1941	2.36	5.90	.83	143	61.9	2.10	12.5	1.85	2.27	2.00	1.59	3.25	19.8
1942	14.5	59.2	320	51.4	.58	39.5	12.7	39.5	55.5	6.64	4.81	49.3	-
1943	7.98	10.6	101	242	291	17.5	115	20.8	22.0	7.59	4.34	2.23	68.7
1944	1.87	1.92	2.37	87.5	118	44.6	10.3	4.28	4.28	1.44	1.03	1.11	22.9
1945	2.11	3.18	61.9	374	166	164	48.3	7.28	19.9	2.54	2.72	1.43	72.6
1946	25.2	319	165	306	245	151	165	1.51	1.29	.57	.30	.53	114

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	20,400	25,000	24,400	11,200	9,840	3,610	1,500	1,110	1,210	1,490	1,490	-
1912	1,170	18,400	21,000	15,300	16,000	7,440	4,170	5,380	3,530	1,750	1,590	2,420	98,200
1939	-	-	-	-	-	-	-	-	-	-	†290	1,200	-
1940	2,580	1,330	14,020	17,270	6,500	13,140	1,420	1,590	95	241	909	257	61,350
1941	145	351	51	8,610	3,440	129	745	113	135	123	98	193	14,330
1942	889	3,520	19,680	3,160	32	2,430	756	1,160	3,310	408	54	286	35,680
1943	491	628	6,200	14,900	16,150	1,080	6,820	1,290	1,310	467	267	133	49,740
1944	115	114	146	5,380	6,790	2,740	615	263	255	88	63	66	16,640
1945	130	189	5,040	22,990	9,220	10,060	2,880	448	1,180	156	167	85	52,540
1946	1,550	18,990	10,130	18,830	13,620	9,310	9,840	93	77	35	19	32	82,530

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1911	312	-	-	-	-	-	133	96,400
1912	332,902	†739	Nov. 20, 21, 1911	9	135	98,200	-	-
1939	902	-	-	-	-	-	-	-
1940	902	412	Mar. 16, 1940	.9	84.5	61,350	60.6	43,970
1941	932	473	Jan. 23, 1941	.4	19.8	14,330	52.3	37,880
1942	962	538	Dec. 6, 1941	.4	49.3	35,680	26.1	18,920
1943	982	473	Apr. 9, 1943	.3	68.7	49,740	59.1	42,790
1944	1012	154	Jan. 25, 1944	.4	22.9	16,640	29.8	23,620
1945	1042	590	Jan. 10, 1945	.4	72.6	52,540	108	77,860
1946	1062	505	Mar. 30, 1946	.2	114	82,530	-	-

a Maximum observed.

WHATCOM CREEK BASIN

327. Whatcom Creek below hatchery, near Bellingham, Wash.

Location.--Lat 48°45'10", long. 122°25'40", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 28, T. 38 N., R. 3 E., on right bank in Whatcom Falls Park, seven-eighths of a mile downstream from Lake Whatcom, and 2 miles east of Bellingham.

Drainage area.--55.5 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 252.55 ft above mean sea level (city of Bellingham benchmark).

Average discharge.--5 years (1945-50), 109 cfs (unadjusted).

Extremes.--1945-50: Maximum discharge, 1,350 cfs probably Dec. 29, 1949 (gage height, 6.0 ft, from recorded range in stage); minimum, 2.5 cfs Oct. 14, 21, 1946.

Remarks.--Flow completely regulated by Lake Whatcom (usable capacity, about 28,800 acre-ft under normal operating conditions). City of Bellingham diverts about 30 cfs from this lake for municipal use. Records include return flow from fish hatchery which diverts water 1,000 ft upstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	38.2	342	176	317	254	158	199	6.30	5.67	5.05	5.13	5.57	125
1947	3.65	50.2	258	211	219	121	52.3	21.2	6.80	7.34	7.08	5.48	79.7
1948	67.8	140	170	214	164	175	37.6	10.2	18.4	7.30	7.05	5.45	84.8
1949	6.28	208	344	35.6	326	250	6.23	18.2	6.48	6.59	7.29	5.67	100
1950	5.69	50.5	469	333	338	437	191	11.3	4.92	4.19	6.21	5.07	154

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	2,350	20,360	10,800	19,520	14,090	9,070	11,860	387	337	311	315	331	90,360
1947	225	2,990	15,880	12,990	12,160	7,440	3,110	1,310	405	451	435	326	57,700
1948	4,170	8,360	10,450	13,150	9,450	10,780	2,240	827	1,090	449	433	324	61,520
1949	386	12,400	21,140	2,190	18,080	15,380	371	1,120	385	405	448	337	72,640
1950	350	3,010	28,850	20,460	18,750	26,880	11,350	692	293	258	382	302	111,600

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1946	1062	544	Mar. 31, 1946	3.5	125	90,360	105	75,930	
1947	1092	638	Jan. 27, 28, 1947	2.8	79.7	57,700	85.1	61,610	
1948	1122	505	Jan. 5, 1948	5.3	84.8	61,520	99.8	72,470	
1949	1152	662	Feb. 19, 1949	3.8	100	72,640	98.0	70,930	
1950	1182	1,350	Dec. 29, 1949	2.6	154	111,600	-	-	

† Corrected.

SQUALICUM CREEK BASIN

328. Squalicum Creek at Bellingham, Wash.

Location.--Lat 48°46'50", long. 122°26'25", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 16, T. 38 N., R. 3 E., on right bank at Bellingham city limits, 50 ft downstream from railroad bridge, and $3\frac{1}{2}$ miles upstream from mouth.

Drainage area.--12.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 120 ft (from topographic map).

Extremes.--July to December 1948: Maximum discharge, 269 cfs Dec. 1 (gage height, 4.21 ft), from rating curve extended above 77 cfs by logarithmic plotting; minimum, 0.2 cfs July 25, 26, Aug. 1-5, 10, 11; minimum gage height, 1.33 ft July 25, 26, Aug. 1, 2.

Remarks.--No diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1948							0.56	0.46	0.85	4.32	32.9	43.8

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1948							34	29	51	265	1,960	2,700

329. Nooksack River at Excelsior, Wash.

Location (revised).--Lat 48°54'20", long. 121°49'10", in sec. 31, T. 40 N., R. 8 E., on highway bridge near right bank, 600 ft downstream from Nooksack Falls powerplant, half a mile downstream from Wells Creek, and 6 miles east of Glacier.

Drainage area.--95.7 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 1,320 ft (from river-profile map).

Extremes.--1920-21: Maximum discharge observed, 4,650 cfs Oct. 4, 1920 (gage height, 5.4 ft); minimum observed, 186 cfs Feb. 5-9, 1921.

Remarks.--Entire flow above Nooksack Falls, half a mile upstream, is diverted at low flow through powerplant and returned to stream 600 ft above gage. Small diurnal fluctuation by powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	-	-	885	-
1921	1,190	512	374	339	537	326	345	1,010	1,990	1,290	928	698	796

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	-	-	52,700	-
1921	73,200	30,500	23,000	20,800	29,800	20,000	20,500	62,100	118,000	79,300	57,100	41,500	576,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1920	532	-	-	-	-	-	-	-	-	-	-
1921	532	4,650	Oct. 4, 1920	186	796	8.32	112.98	576,000	-	-	-

330. Nooksack River above Cascade Creek, near Glacier, Wash.

Location.--Lat 48°54'20", long. 121°50'30" (revised), in NW $\frac{1}{4}$ sec. 1, T. 39 N., R. 7 E., on left bank a quarter of a mile upstream from Cascade Creek, half a mile downstream from Dead Horse Creek, 4 $\frac{1}{2}$ miles east of Glacier, and 6 miles upstream from Glacier Creek.

Drainage area.--105 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,245 ft (from river-profile map).

Average discharge.--13 years (1937-50), 727 cfs.

Extremes.--1937-50: Maximum discharge, 10,300 cfs Nov. 26, 1949 (gage height, 10.50 ft), from rating curve extended above 2,700 cfs on basis of contracted-opening determination of peak flow of Dec. 24, 1950 at gage height 8.13 ft; minimum, 73 cfs Feb. 16, 1949.

Remarks.--No diversion. Some diurnal fluctuation at low flow caused by powerplant at Excelsior above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	746	885	684	432	184	309	611	1,096	1,506	1,158	639	504	732
1939	481	402	767	648	206	335	749	1,419	1,402	1,435	775	430	759
1940	613	687	1,354	605	463	569	567	1,280	1,018	725	537	426	739
1941	1,011	405	685	428	415	352	544	881	893	786	473	625	627
1942	995	903	820	257	249	215	462	843	1,228	1,067	606	442	677
1943	296	539	598	497	351	306	864	850	1,425	1,550	670	431	699
1944	434	355	478	397	226	261	372	863	1,176	785	527	602	540
1945	495	661	453	550	513	266	322	1,187	1,294	1,130	599	494	664
1946	855	736	491	419	353	328	552	1,546	1,606	1,478	819	478	808
1947	501	366	560	368	751	502	705	1,356	1,332	1,023	552	476	704
1948	1,039	601	613	383	245	191	312	1,329	2,459	1,185	936	793	842
1949	822	460	257	178	208	425	720	1,579	1,461	1,137	758	643	707
1950	501	1,070	594	472	508	490	474	949	2,190	1,955	1,261	945	952

NOOKSACK RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Nooksack River above Cascade Creek, near Glacier, Wash.													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	45,850	52,670	42,060	26,540	10,210	16,990	36,340	67,400	89,610	71,200	39,310	29,990	530,200
1939	29,600	23,950	47,160	39,830	11,460	20,610	44,560	87,240	83,440	88,260	47,640	25,610	549,400
1940	37,680	40,890	83,240	37,180	26,630	34,990	33,750	78,690	60,570	44,570	33,020	25,330	536,500
1941	62,160	24,130	42,090	26,340	23,050	21,640	32,370	54,170	53,150	48,340	29,090	37,180	453,700
1942	61,210	53,740	50,420	15,830	13,840	13,240	27,470	51,850	73,090	65,580	37,240	26,300	489,800
1943	18,170	32,100	36,740	29,950	19,500	18,790	51,420	52,260	84,810	95,290	41,180	25,670	505,900
1944	26,660	21,120	29,410	24,400	13,020	16,060	22,150	53,070	69,980	48,250	32,380	35,850	392,400
1945	30,430	39,310	27,870	33,790	28,470	16,330	19,160	72,990	76,690	69,480	36,830	29,370	481,000
1946	52,590	43,780	30,220	25,790	19,600	20,160	32,830	95,040	95,540	90,900	50,330	28,440	†585,200
1947	30,850	21,780	34,410	22,600	40,590	30,850	41,930	82,170	79,280	62,880	33,960	28,330	†509,600
1948	63,920	35,740	37,660	23,550	14,090	11,710	18,560	81,730	146,300	72,880	57,560	47,180	†610,900
1949	38,220	27,340	15,830	10,940	11,580	26,140	42,850	97,080	86,940	69,880	46,620	38,260	511,700
1950	30,790	63,690	36,520	29,030	28,220	30,130	28,230	58,360	130,300	120,200	77,510	56,210	689,200

† Corrected.

Yearly discharge, in cubic feet per second													
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Momentary		Maximum	Minimum	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date					Inches	Acre-feet		Inches	Acre-feet	
1938	862	9,670	Oct. 28, 1937	130	732	6.97	94.53	530,200	677	87.41	490,300		
1939	882	5,100	May 28, 1939	149	759	7.23	98.14	549,400	843	109.06	610,500		
1940	902	4,950	Dec. 10, 1939	150	739	7.04	95.82	536,500	693	89.86	503,100		
1941	932	6,300	Oct. 19, 1940	168	627	5.97	81.01	453,700	678	87.61	490,700		
1942	962	7,450	Dec. 2, 1941	187	677	6.45	87.47	489,800	568	73.48	411,400		
1943	982	3,250	July 3, 1943	171	699	6.66	90.33	505,900	685	88.57	496,100		
1944	1012	3,900	Dec. 3, 1943	141	540	5.14	70.07	392,400	569	73.72	412,800		
1945	1042	4,100	Dec. 5, 1944	151	664	6.32	85.89	481,000	704	91.07	510,000		
1946	1092	8,490	Oct. 25, 1945	174	808	7.70	104.51	†585,200	754	97.44	†545,600		
1947	1092	6,100	Oct. 24, 1946	204	704	6.70	91.01	†509,600	773	99.99	†553,900		
1948	1122	6,690	Oct. 19, 1947	159	842	8.02	109.09	†610,900	774	99.11	†555,000		
1949	1152	5,540	Oct. 4, 1948	110	707	6.75	91.36	511,700	765	100.21	561,300		
1950	1182	10,300	Nov. 26, 1949	270	952	9.07	123.06	689,200	-	-	-		

† Corrected.

331. Nooksack River near Glacier, Wash. 1/

Location.--Lat 48°54'15" (revised), long. 121°59'30", in NE¼ sec. 2, T. 39 N., R. 6 E., on left bank 275 ft downstream from highway bridge, 600 ft downstream from Canyon Creek, and 2½ miles northwest of Glacier.

Drainage area.--195 sq mi.

Supplemental records available.--Sept. 7 to Dec. 19, 1910, fragmentary gage heights and discharges, and discharge measurements only.

Gage.--Water-stage recorder. Altitude of gage is 720 ft (from river-profile map). Sept. 7, 1910, to Sept. 30, 1911, staff gage 50 ft upstream at different datum.

Average discharge.--5 years (1933-38), 1,147 cfs.

Extremes.--1911, 1933-38: Maximum discharge, 9,400 cfs Oct. 28, 1937 (gage height, 7.74 ft), from rating curve extended above 6,000 cfs; minimum recorded, 130 cfs Oct. 17, 1934.

Remarks.--Minor diurnal fluctuation caused by powerplant at Excelsior 9 miles above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	2,380	2,350	1,440	1,390	-
1934	1,750	1,500	2,150	1,500	754	1,111	1,941	1,961	1,371	1,230	1,130	801	1,439
1935	792	1,584	1,001	1,657	1,101	512	471	1,215	1,996	1,637	901	888	1,154
1936	670	549	540	708	269	593	1,389	2,263	2,212	1,290	872	532	992
1937	502	300	928	267	265	678	870	1,706	3,087	1,699	704	629	979
1938	1,054	1,536	1,312	924	354	535	1,032	1,721	2,297	1,792	805	634	1,171

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	142,000	144,000	88,500	82,700	-
1934	107,600	89,260	132,200	92,230	41,880	68,300	115,500	120,600	81,560	75,640	69,480	47,680	1,042,000
1935	48,670	94,230	61,530	101,900	61,160	31,460	28,040	74,740	118,800	100,700	55,420	58,800	835,400
1936	41,180	32,650	33,200	43,530	15,480	36,470	82,650	139,100	131,600	79,340	53,620	31,680	720,500
1937	30,860	17,870	57,040	16,420	14,710	41,690	51,740	104,900	83,700	104,500	48,200	37,420	709,000
1938	64,790	91,430	80,690	58,840	19,680	32,920	61,410	105,800	136,700	110,200	49,520	37,710	847,700

1/ Published as North Fork of Nooksack River near Glacier, 1910-11.

Yearly discharge, in cubic feet per second, of Nooksack River near Glacier, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	-	-	-	-	-	-	-	-	-	-
1934	767,870	-	-	-	1,439	7.38	100.20	1,042,000	1,267	88.25	917,300
1935	792	8,810	Nov. 5, 1934	160	1,154	5.92	80.28	835,400	1,019	70.94	738,000
1936	812	4,240	June 11, 1936	140	992	5.09	69.23	720,500	991	69.09	719,200
1937	862	6,150	June 21, 1937	186	979	5.02	68.16	709,000	1,160	80.78	840,200
1938	862	9,400	Oct. 28, 1937	280	1,171	6.01	81.55	847,700	-	-	-

332. Kendall Creek at Kendall, Wash.

Location.--Lat 48°55'05", long. 122°08'35", in NW $\frac{1}{4}$ sec. 34, T. 40 N., R. 5 E., on left bank at Kendall, $1\frac{1}{2}$ miles upstream from mouth.

Drainage area.--24.0 sq mi (revised), of which 5.6 sq mi is in Canada.

Gage.--Water-stage recorder. Altitude of gage is 430 ft (from topographic map).

Extremes.--1948-50: Maximum discharge, 162 cfs Dec. 29, 1949 (gage height, 2.70 ft); no flow Sept. 10 to Nov. 26, 1949 except for partial day Sept. 17.

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	8.19	4.07	1.61	-
1949	1.85	14.7	36.7	27.2	36.4	49.9	38.3	27.3	15.5	8.18	3.05	.28	21.7
1950	0	.20	22.0	32.0	49.0	95.5	85.3	56.7	39.8	23.2	14.2	7.60	35.4

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	504	250	96	-
1949	114	875	2,380	1,670	2,020	3,070	2,280	1,680	922	503	187	17	15,720
1950	0	12	1,350	1,970	2,720	5,870	5,080	3,490	2,370	1,430	870	452	25,610

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1122	-	-	-	-	-	-	-	-	-	-
1949	1152	-	-	0	21.7	0.904	13.08	15,720	18.9	10.72	13,710
1950	1182	162	Dec. 29, 1949	0	35.4	1.48	20.00	25,610	-	-	-

333. Coal Creek near Kendall, Wash.

Location.--Lat 48°53'20" (revised), long. 122°09'05", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 10, T. 39 N., R. 5 E., on left bank a quarter of a mile upstream from mouth and 2 miles south of Kendall.

Drainage area.--4.57 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 400 ft (from river-profile map).

Extremes.--July to September 1948: Maximum discharge, 70 cfs Sept. 22 (gage height, 2.10 ft); minimum, 0.7 cfs Aug. 13 (gage height, 0.78 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1948							2.08	8.61	10.4			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1948							128	530	619			

334. Middle Fork Nooksack River near Deming, Wash.

Location.--Lat 48°46'45" long. 122°06'20", in SW $\frac{1}{4}$ sec. 13, T. 38 N., R. 5 E., on left bank half a mile upstream from Heislars Creek, three-quarters of a mile upstream from highway bridge, and 6 miles southeast of Deming.

Drainage area.--68.4 sq mi (revised); at site 1910-11, 1920-21, 70.5 sq mi (revised).

Supplemental records available.--October 1910 to March 1911, fragmentary gage heights and discharge measurements only.

Gage.--Staff gage. Altitude of gage is 590 ft (from river-profile map). Oct. 11, 1910, to Mar. 14, 1911, and Aug. 28, 1920, to Sept. 30, 1921, staff gages three-quarters of a mile downstream at different datums. Feb. 18 to Apr. 6, 1934, staff gage and Apr. 7 to Sept. 14, 1934, water-stage recorder at described site and datum.

Extremes.--1920-21, 1934-35: Maximum discharge not determined, probably occurred Nov. 5, 1934 (gage height, 15.0 ft, from floodmarks); minimum observed, 127 cfs Apr. 9, 1935.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	-	-	796	-
1921	1,270	585	559	493	955	363	380	780	1,200	654	417	434	665
1934	-	-	-	-	531	603	553	688	418	440	332	397	-
1935	484	924	574	867	671	247	208	458	506	366	250	350	490

Monthly and yearly runoff, in acre feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	-	-	47,400	-
1921	78,100	54,800	34,400	30,700	47,500	22,300	22,600	48,000	71,400	40,200	25,600	25,800	481,000
1934	-	-	-	-	29,500	37,060	32,930	42,300	24,840	27,040	20,420	23,640	-
1935	29,750	54,950	35,290	53,340	37,240	15,190	12,360	28,160	30,090	22,500	15,350	20,840	†355,100

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1920	532	-	-	-	-	-	-	-	-	-	-
1921	532	7,500	Oct. 4, 1920	195	665	9.43	128.09	481,000	-	-	-
1934	767	-	-	-	-	-	-	-	-	-	-
1935	792	-	-	127	490	7.16	97.32	†355,100	-	-	-

† Corrected.

335. Canyon Creek at Kulshan, Wash.

Location.--Lat 48°50'00" (revised), long. 122°08'05", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 27, T. 39 N., R. 5 E., on left bank at county road crossing at Kulshan and a quarter of a mile upstream from mouth.

Drainage area.--8.70 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 350 ft (from river-profile map).

Extremes.--1948-50: Maximum discharge, 1,660 cfs Nov. 27, 1949 (gage height, 4.78 ft), from rating curve extended above 160 cfs by logarithmic plotting; minimum, 5.4 cfs Sept. 12-14, 1949 (gage height, 0.59 ft).

Remarks.--No known diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	24.2	30.5	33.3	-
1949	36.0	67.0	30.9	20.0	33.7	57.5	65.0	110	59.5	41.4	19.9	19.8	46.6
1950	33.1	78.8	85.5	37.7	51.5	76.6	55.6	81.2	116	51.2	21.0	13.9	58.5

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	1,490	1,870	1,980	-
1949	2,210	3,990	1,900	1,230	1,870	3,530	3,750	6,760	3,540	2,540	1,220	1,180	33,720
1950	2,040	4,690	5,260	2,320	2,860	4,710	3,310	4,990	6,910	3,150	1,290	825	42,360

Yearly discharge, in cubic feet per second, of Canyon Creek at Kulshan, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1122	-	-	-	-	-	-	-	-	-	-
1949	1152	378	Nov. 23, 1948	5.6	46.6	5.36	72.69	33,720	51.9	81.05	37,610
1950	1182	1,660	Nov. 27, 1949	6	58.5	6.72	91.26	42,360	-	-	-

336. South Fork Nooksack River near Wickersham, Wash.

Location.--Lat 48°39'50", long. 122°07'50", in lot 2, SW¹ sec. 26, T. 37 N., R. 5 E., on left bank three-quarters of a mile upstream from Skookum Creek and 4 miles east of Wickersham.

Drainage area.--103 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 385 ft (from river-profile map). Prior to July 9, 1934, staff gage at same site and datum.

Average discharge.--17 years (1933-50), 715 cfs.

Extremes.--1933-50: Maximum discharge, 15,800 cfs Nov. 27, 1949 (gage height, 12.01 ft); minimum, 66 cfs Oct. 9, 1940, Sept. 11-13, 1944.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1934	1,200	1,000	2,200	1,900	900	1,000	800	714	308	281	138	306	899
1935	506	1,449	1,138	1,688	961	531	475	962	911	411	141	309	789
1936	392	462	616	907	375	744	1,152	1,666	1,135	358	132	220	661
1937	164	126	1,162	194	310	774	925	1,230	1,740	390	190	125	612
1938	667	1,660	1,251	838	380	575	994	915	545	204	102	86.4	686
1939	342	628	1,364	1,238	445	623	934	1,242	1,063	646	181	152	741
1940	646	886	1,535	658	966	1,187	697	777	309	123	95.7	81.4	664
1941	695	623	1,007	948	647	574	453	712	359	140	104	734	583
1942	1,068	1,020	1,026	414	418	516	676	648	900	317	113	84.4	601
1943	222	1,114	1,093	666	774	650	1,289	972	965	589	170	147	719
1944	376	311	794	803	490	527	606	612	484	147	110	385	488
1945	380	948	586	1,248	885	582	667	1,419	556	246	122	349	664
1946	1,110	1,132	975	1,092	777	739	910	1,052	1,125	541	195	131	815
1947	657	531	1,290	945	1,259	775	1,040	873	672	352	140	271	731
1948	1,337	872	1,144	707	493	477	675	1,502	1,339	410	321	412	809
1949	548	865	516	292	666	979	1,048	1,594	1,042	645	296	394	748
1950	643	1,251	1,265	698	1,003	1,093	693	1,173	1,576	832	376	288	923

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1934	73,790	59,500	135,300	116,800	49,980	61,490	47,600	43,910	18,340	17,260	8,460	18,230	650,700
1935	31,130	86,230	69,960	103,900	53,390	32,650	28,280	59,140	54,190	25,240	8,670	18,410	571,100
1936	24,120	27,490	37,870	55,800	21,540	45,780	68,580	102,500	67,560	22,020	8,140	13,080	494,500
1937	10,100	7,520	71,440	11,910	17,230	47,580	55,020	75,640	103,500	24,010	11,660	7,420	443,000
1938	41,030	98,780	76,940	51,500	21,080	35,340	59,130	56,240	32,430	12,550	6,300	5,140	496,500
1939	21,040	37,340	65,890	76,130	24,730	38,310	55,580	76,370	63,230	39,690	11,140	9,030	536,500
1940	39,700	52,690	94,400	40,430	55,570	72,960	41,460	47,760	18,410	7,570	5,680	4,840	481,700
1941	42,710	37,100	61,950	58,290	35,950	35,300	26,940	43,780	21,360	8,630	6,370	43,680	422,100
1942	65,690	60,670	63,080	25,450	23,210	31,720	40,230	39,830	53,530	19,490	7,300	5,020	435,200
1943	13,660	66,290	67,190	40,970	42,960	39,950	76,690	59,750	57,420	36,240	10,430	8,730	520,500
1944	23,110	18,500	48,800	49,400	28,200	32,420	36,060	49,910	28,770	9,060	6,780	22,920	353,900
1945	23,340	56,410	36,030	76,760	49,170	35,760	39,690	87,270	33,070	15,130	7,500	20,750	480,900
1946	68,270	67,360	59,970	67,160	43,160	45,460	54,180	64,680	66,920	33,290	11,980	7,820	590,200
1947	40,410	31,620	79,310	58,090	69,920	47,640	61,860	53,700	39,990	21,630	8,620	16,110	528,900
1948	82,200	51,910	70,360	43,490	28,340	29,360	40,180	92,380	79,680	25,210	19,720	24,500	587,300
1949	33,690	57,420	31,730	17,960	36,980	80,200	62,350	97,980	62,030	39,680	18,200	23,430	541,600
1950	39,540	74,420	77,790	42,910	55,700	67,210	53,140	72,110	93,780	51,180	23,090	17,160	668,000

Yearly discharge, in cubic feet per second, of South Fork Nooksack River near Wickersham, Wash.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1934	767,870	-	-	-	899	8.73	118.50	850,700	787	103.58	569,400
1935	832	11,200	Nov. 5, 1934	103	789	7.66	103.95	571,100	654	86.17	473,200
1936	832	3,770	May 4, 1936	95	681	6.61	90.03	494,500	681	89.96	494,100
1937	832	8,470	Dec. 6, 1936	87	612	5.94	80.62	443,000	788	103.78	570,700
1938	862	12,900	Oct. 28, 1937	72	686	6.66	90.30	496,500	583	76.78	422,000
1939	882	7,760	Jan. 1, 1939	77	741	7.19	97.64	536,500	803	105.78	581,000
1940	902	6,380	Dec. 15, 1939	67	664	6.45	87.68	481,700	602	79.49	436,700
1941	932	5,340	Jan. 18, 1941	69	583	5.66	76.83	422,100	649	85.51	469,800
1942	962	7,370	Nov. 13, 1941	73	601	5.83	79.23	435,200	543	71.53	392,900
1943	982	9,430	Jan. 14, 1943	90	719	6.98	94.72	520,300	640	84.39	465,600
1944	1012	9,090	Dec. 3, 1943	66	488	4.74	64.42	353,900	522	69.04	379,300
1945	1042	11,300	Jan. 7, 1945	90	564	6.45	87.55	480,900	775	102.08	560,700
1946	1062	14,400	Oct. 25, 1945	102	815	7.91	107.45	590,200	754	99.40	546,000
1947	1092	15,600	Oct. 24, 1946	102	731	7.10	96.29	528,900	804	105.95	582,000
1948	1122	14,400	Oct. 18, 1947	128	809	7.85	106.91	587,300	697	92.05	505,700
1949	1152	4,950	Feb. 16, 1949	136	748	7.26	98.59	541,600	843	111.14	610,600
1950	1182	15,800	Nov. 27, 1949	132	923	8.96	121.60	668,000	-	-	-

337. Skookum Creek near Wickersham, Wash.

Location (revised).--Lat 48°40'20", long. 122°08'25", in NE $\frac{1}{4}$ sec. 27, T. 37 N., R. 5 E., on right bank 100 ft upstream from private road crossing, 500 ft upstream from mouth, and $3\frac{1}{2}$ miles northeast of Wickersham.

Drainage area.--23.1 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 400 ft (from river-profile map).

Extremes.--1948-50: Maximum discharge, 3,050 cfs Nov. 27 or Dec. 1, 1949 (gage height, 9.0 ft, from floodmark), from rating curve extended above 400 cfs by logarithmic plotting; minimum (revised), 17 cfs Feb. 9-10, 1949; minimum gage height, 1.74 ft Sept. 23, 1950.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	81.6	82.9	92.2	-
1949	102	191	80.3	44.1	111	172	178	277	169	107	63.0	80.0	131
1950	87.2	208	230	107	196	220	150	189	276	129	66.0	42.6	158

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	5,020	5,100	5,480	-
1949	6,250	11,390	4,930	2,710	6,160	10,590	10,580	17,050	10,050	6,600	3,870	4,760	94,940
1950	5,360	12,400	14,120	6,570	10,910	13,550	8,910	11,640	16,450	7,950	4,060	2,540	114,400

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1122	-	-	-	-	-	-	-	-	-	-
1949	1152, 1182	893	Sept. 15, 1949	19	131	5.67	77.08	94,940	144	84.62	104,200
1950	1182	3,050	(a)	17.5	158	6.84	92.87	114,400	-	-	-

* Not previously published.

a Nov. 27 or Dec. 1, 1949.

338. South Fork Nooksack River at Saxon Bridge, Wash.

Location.--Lat 48°40'40", long. 122°09'55", in SE $\frac{1}{4}$ sec. 21, T. 37 N., R. 5 E., on downstream side of left pier of Saxon Bridge, $1\frac{1}{2}$ miles (revised) downstream from Skookum Creek, and $2\frac{1}{2}$ miles northeast of Wickersham.

Drainage area.--129 sq mi.

Gage.--Staff gage. Altitude of gage is 350 ft (from river-profile map). Aug. 30, 1920, to Sept. 30, 1921, at different datum.

Extremes.--1920-21, 1933-34: Maximum discharge observed, 13,100 cfs Feb. 11, 1921 (gage height, 9.0 ft, datum then in use); minimum observed, 111 cfs Sept. 4, 1934 (gage height, 1.22 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of South Fork Nooksack River at Saxon Bridge, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	-	-	1,800	-
1921	1,880	1,020	-	1,160	-	-	-	1,050	1,120	-	244	1,080	-
1933	-	-	-	-	-	-	-	-	-	1,120	370	941	-
1934	1,341	1,118	2,418	2,125	1,041	1,176	947	841	373	552	186	361	1,027

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	-	-	-	-	107,000	-
1921	116,000	60,700	-	71,300	-	-	-	64,600	66,800	-	15,000	64,300	-
1933	-	-	-	-	-	-	-	-	-	68,900	22,800	56,000	-
1934	82,470	66,550	148,700	130,600	57,800	72,310	56,370	51,690	22,170	21,660	11,460	21,490	743,300

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1920	532	-	-	-	-	-	-	-	-	-	-
1921	532	13,100	Feb. 11, 1921	-	-	-	-	-	-	-	-
1933	752	-	-	-	-	-	-	-	-	-	-
1934	767	7,100	Dec. 21, 1933	114	1,027	7.96	108.01	743,300	-	-	-

339. Nooksack River at Deming, Wash. 1/

Location.--Lat 48°48'40" (revised), long. 122°12'15", in lot 12, sec. 6, T. 38 N., R. 5 E., on left bank 800 ft downstream from South Fork and 1 mile southeast of Deming.

Drainage area.--580 sq mi.

Supplemental records available.--Sept. 6 to Nov. 24, 1910 and Dec. 5, 1910, to Mar. 31, 1911, gage heights and discharge measurements only.

Gage.--Water-stage recorder. Datum of gage is 203.6 ft above mean sea level, datum of 1929. Prior to Dec. 5, 1910, staff gage at site 1-1/8 miles downstream at different datum. Dec. 5, 1910, to Mar. 31, 1911, staff gage at Nugent's bridge 5 miles downstream at different datum.

Average discharge.--15 years (1935-50), 3,100 cfs.

Extremes.--1935-50: Maximum discharge, 38,000 cfs probably Oct. 25, 1945, from rating curve extended above 25,000 cfs; maximum gage height, 15.11 ft Nov. 27, 1949; minimum discharge recorded, 560 cfs Nov. 9, 10, 1936.

Remarks.--No diversion above station. Slight regulation by powerplant at Excelsior.

Yearly discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1935	-	-	-	-	-	-	-	-	-	2,659	1,400	1,957	-
1936	2,042	1,903	1,997	3,727	1,349	3,228	4,861	6,750	5,266	2,525	1,450	1,594	3,063
1937	1,104	672	4,528	957	1,504	3,163	3,491	4,643	7,815	3,281	1,720	1,226	2,848
1938	2,781	6,405	5,039	3,532	1,600	2,110	3,519	3,914	3,640	2,463	1,317	1,176	3,133
1939	1,543	2,238	4,966	5,098	2,123	2,447	3,492	4,716	4,536	3,778	1,895	1,222	3,183
1940	2,624	3,322	6,376	2,932	3,568	4,409	2,776	3,767	2,368	1,652	1,334	1,186	3,030
1941	2,841	2,026	3,521	2,947	2,395	2,063	1,924	3,135	2,463	1,862	1,339	2,789	2,444
1942	4,102	3,714	4,173	1,688	1,635	1,784	2,368	2,950	4,227	2,730	1,584	963	2,667
1943	1,091	3,348	4,054	2,607	2,988	2,264	5,011	4,040	4,511	4,023	1,715	1,300	3,075
1944	1,723	1,370	3,233	2,771	1,701	1,990	2,283	3,372	3,142	1,798	1,324	1,983	2,227
1945	1,751	3,276	2,430	4,456	3,179	2,472	2,619	5,480	3,617	2,696	1,490	1,748	2,934
1946	4,102	5,010	3,481	3,558	3,007	3,098	3,725	6,123	5,327	3,761	1,949	1,245	3,703
1947	2,331	2,099	4,459	3,435	4,420	2,974	3,774	4,413	4,030	2,564	1,348	1,495	3,104
1948	4,815	3,921	4,752	3,542	2,505	2,063	2,636	5,637	6,550	3,027	2,742	2,587	3,736
1949	2,800	4,063	2,523	1,430	2,731	3,706	4,029	6,109	4,538	3,405	2,201	2,161	3,309
1950	2,405	4,462	4,931	3,146	3,817	4,782	3,631	4,630	7,207	4,963	2,668	1,864	4,041

1/ Published as Nooksack River near Deming, 1910-11.

NOOKSACK RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Nooksack River at Deming, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1935	-	-	-	-	-	-	-	-	-	163,500	86,100	16,400	-
1936	125,500	113,200	122,800	229,200	77,570	196,500	289,300	415,000	313,400	155,300	89,160	94,830	2,224,000
1937	67,880	39,970	78,400	58,840	83,540	194,500	207,700	285,500	465,000	201,700	105,800	72,950	2,062,000
1938	171,000	381,100	309,900	217,200	88,840	29,700	209,400	240,700	216,600	152,700	81,000	69,990	2,268,000
1939	94,890	133,200	505,400	313,500	117,900	150,400	207,800	290,000	289,900	232,300	116,500	72,710	2,304,000
1940	161,300	197,700	592,100	180,300	205,200	271,100	165,200	231,800	440,900	101,600	82,010	70,550	2,200,000
1941	174,700	120,600	216,500	181,200	133,000	126,900	114,500	192,800	146,600	114,500	82,310	166,000	1,770,000
1942	252,200	221,000	256,600	103,800	90,830	109,700	140,900	181,400	251,500	167,800	97,410	57,310	1,930,000
1943	67,100	199,200	249,200	160,300	165,900	139,200	298,200	248,400	268,400	247,400	105,500	77,350	2,226,000
1944	105,900	81,490	198,800	170,400	97,840	22,300	135,900	207,300	187,000	110,500	81,400	118,000	1,617,000
1945	107,700	194,900	149,400	274,000	176,500	152,000	155,800	356,900	215,200	165,800	91,640	104,000	2,124,000
1946	252,200	298,100	214,000	218,800	167,000	190,500	221,600	376,500	517,000	231,200	119,800	74,070	2,681,000
1947	143,300	124,900	274,200	211,200	245,500	182,900	224,600	271,400	239,800	157,600	82,870	88,960	2,247,000
1948	296,100	233,300	292,200	217,800	144,100	126,900	156,900	346,600	589,800	186,100	168,600	153,900	2,712,000
1949	172,200	241,800	155,100	87,910	151,700	227,900	239,700	375,600	70,000	209,400	135,300	128,600	2,395,000
1950	147,900	265,500	505,200	193,400	212,000	294,000	216,100	284,700	428,900	305,200	164,000	110,900	2,926,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1935	812	-	-	-	-	-	-	-	-	-	-
1936	812	12,100	May 4, 1936	600	3,063	5.28	71.85	2,224,000	3,097	72.64	2,249,000
1937	832	20,100	Dec. 22, 1936	560	2,848	4.91	66.67	2,062,000	3,505	82.00	2,538,000
1938	862	33,200	Oct. 28, 1937	802	3,133	5.40	73.27	2,268,000	2,679	62.71	1,940,000
1939	882	23,000	Jan. 1, 1939	640	3,183	5.49	74.48	2,304,000	3,484	81.50	2,522,000
1940	902	14,200	Dec. 15, 1939	644	3,030	5.22	71.08	2,200,000	2,700	63.56	1,960,000
1941	932	15,000	Jan. 18, 1941	692	2,444	4.21	57.20	1,770,000	2,745	64.23	1,988,000
1942	962	15,800	(a)	767	2,667	4.60	62.41	1,930,000	2,371	55.50	1,716,000
1943	982	17,200	Jan. 15, 1943	645	3,075	5.30	71.97	2,226,000	2,896	67.78	2,097,000
1944	1012	23,300	Dec. 3, 1943	844	2,227	3.84	52.25	1,617,000	2,318	54.38	1,683,000
1945	1042	28,800	Jan. 7, 1945	800	2,934	5.06	68.66	2,124,000	3,365	78.76	2,436,000
1946	1062	38,000	(b)	906	3,703	6.38	86.66	2,681,000	3,396	79.48	2,459,000
1947	1092	29,900	Oct. 25, 1946	805	3,104	5.35	72.64	2,247,000	3,489	81.66	2,526,000
1948	1122	31,400	Oct. 19, 1947	1,210	3,736	6.44	87.68	2,712,000	3,388	79.53	2,460,000
1949	1152	-	-	810	3,309	5.71	77.43	2,395,000	3,512	82.19	2,543,000
1950	1182	36,500	Nov. 27, 1949	1,060	4,041	6.97	94.56	2,926,000	-	-	-

† Corrected.

a Dec. 2, 1941, June 15, 1942.

b Probably occurred Oct. 25, 1945.

340. Anderson Creek at Goshen, Wash.

Location.--Lat 48°51'20", long. 122°20'20", in E½ sec. 19, T. 39 N., R. 4 E., on right bank at downstream side of county bridge at Goshen and half a mile upstream from mouth.

Drainage area.--12.9 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 145 ft (from topographic map).

Extremes.--July to September 1948: Maximum discharge, 25 cfs Aug. 26 (gage height, 1.45 ft); minimum, 0.4 cfs Aug. 5, 9-12, 17, 18; minimum gage height, 0.79 ft Aug. 18.

Remarks.--Minor diversions for irrigation and domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1948							1.22	4.05	4.91			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1948							75	249	292			

341. Nooksack River near Lynden, Wash.

Location.--Lat 48°55'10", long. 122°29'10", in NE¼NE¼ sec. 36 T. 40 N., R. 2 E., on right bank 150 ft downstream from bridge on State Highway B, 1½ miles upstream from Fishtrap Creek, 2 miles southwest of Lynden, and 12 miles upstream from mouth.

Drainage area.--636 sq mi.

Gage.--Water-stage recorder. Datum of gage is 24.4 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--6 years (1944-50), 3,730 cfs.

Extremes.--1944-50: Maximum discharge, 44,500 cfs Oct. 26, 1945 (gage height, 21.58 ft); minimum, probably less than 850 cfs during period of no gage-height record in February 1949.

Remarks.--No known diversion above station. Slight regulation by powerplant at Excelsior not effective at this station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	\$1,930	\$3,640	2,734	5,468	3,818	2,894	2,987	6,412	4,143	2,891	1,618	1,911	\$3,369
1946	4,933	5,327	3,681	3,876	3,267	3,397	4,093	6,550	5,652	3,841	2,018	1,366	4,005
1947	2,397	2,145	4,701	3,761	4,738	3,005	3,779	4,430	4,063	2,570	1,412	1,558	3,204
1948	4,896	3,941	4,866	3,766	2,644	2,228	2,714	5,955	6,816	3,047	2,739	2,618	3,875
1949	2,804	4,326	2,854	1,511	3,392	4,334	4,158	6,886	4,727	3,567	2,316	2,305	3,597
1950	2,396	4,930	5,600	3,447	4,235	5,460	4,068	4,744	7,428	5,083	2,783	1,843	4,333

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	\$18,700	\$26,600	168,100	356,200	212,000	178,000	177,700	\$94,200	246,500	177,700	99,510	113,700	\$2,439,000
1946	303,300	317,000	226,400	238,300	181,400	208,900	243,600	402,700	336,300	236,200	124,100	81,300	2,900,000
1947	147,400	127,600	289,000	231,200	263,100	184,800	224,800	272,400	241,800	158,000	86,820	92,710	2,320,000
1948	501,000	234,500	299,200	32,800	163,600	137,000	161,500	366,100	405,600	187,300	68,400	55,800	2,813,000
1949	172,400	257,400	175,500	92,930	188,400	266,500	247,400	423,400	281,300	219,400	42,400	137,100	2,604,000
1950	147,300	295,400	644,300	212,000	235,200	355,700	242,100	291,700	441,900	352,500	171,100	109,700	3,137,000

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	\$35,300	Jan. 7, 1945	-	\$3,369	\$5.30	\$71.91	\$2,439,000	3,843	82.02	2,782,000
1946	1062	44,500	Oct. 26, 1945	1,080	4,005	6.30	85.48	2,900,000	3,615	77.15	2,617,000
1947	1092	\$31,000	Dec. 11, 1946	1,000	3,204	5.04	68.40	2,320,000	3,578	76.37	2,590,000
1948	1122	\$31,600	Oct. 19, 1947	1,240	3,875	6.09	82.91	2,813,000	3,559	76.15	2,583,000
1949	1152	17,500	Feb. 17, 1949	850	3,597	5.66	76.76	2,604,000	3,845	82.06	2,784,000
1950	1182	\$41,200	Nov. 27, 1949	1,210	4,533	6.81	92.48	3,137,000	-	-	-

* Revised.

* Not previously published.

342. Fishtrap Creek at Lynden, Wash.

Location.--Lat 48°57'50", long. 122°26'00", on north line sec. 16, T. 40 N., R. 3 E., on right bank at downstream side of bridge on State Highway 1A, 1 mile north of Lynden.

Drainage area.--24.1 sq mi, of which 18.5 sq mi is in Canada.

Gage.--Water-stage recorder. Altitude of gage is 110 ft (from topographic map).

Extremes.--1948-50: Maximum discharge, 342 cfs Dec. 28, 1949 (gage height, 5.40 ft, from recorded range in stage); minimum, 0.4 cfs Sept. 10, 1949 (gage height, 1.00 ft, with -0.13 ft shift).

Remarks.--Probably some small diversion for minor irrigation and domestic use above station. No regulation. Large part of flood flow bypasses gage through sloughs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	7.46	7.95	7.73	-
1949	15.4	51.4	66.0	27.8	60.9	52.5	29.9	21.5	8.96	6.96	3.47	2.43	28.7
1950	5.63	21.1	73.8	42.0	130	118	84.9	42.6	17.8	9.45	7.34	6.72	46.1

NOOKSACK RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Fishtrap Creek at Lynden, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	459	469	460	-
1949	948	3,060	4,060	1,710	3,380	3,230	1,790	1,320	533	428	213	144	20,810
1950	346	1,260	4,540	2,580	7,210	7,260	5,050	2,620	1,060	581	451	400	33,360

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1948	1122	-	-	-	-	-	-	-
1949	1152	289	Feb. 17, 1949	0.8	28.7	20,810	26.1	18,880
1950	1182	342	Dec. 28, 1949	2.8	46.1	33,360	-	-

343. Bertrand Creek near Lynden, Wash.

Location.--Lat 48°55'30", long. 122°31'50", in SE $\frac{1}{4}$ sec. 27, T. 40 N., R. 2 E., on left bank three-quarters of a mile upstream from mouth and 3 miles west of Lynden.

Drainage area.--40.3 sq mi, of which 23.1 sq mi is in Canada.

Gage.--Water-stage recorder. Altitude of gage is 35 ft (from topographic map).

Extremes.--July to September 1948: Maximum discharge, 34 cfs Aug. 21 (gage height, 1.68 ft); minimum, 11.5 cfs Aug. 13; minimum gage height, 1.07 ft Sept. 15.

Remarks.--Minor diversions for domestic use above station. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1948							15.2	15.8	15.4				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1948							935	970	916				

344. Tenmile Creek near Ferndale, Wash.

Location.--Lat 48°51'15", long. 122°32'25", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 22, T. 39 N., R. 2 E., on right bank 100 ft downstream from county bridge and 2 miles east of Ferndale.

Drainage area.--22.7 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Extremes.--July to September 1948: Maximum discharge, 14.5 cfs Aug. 21 (gage height, 2.75 ft); minimum, 5.2 cfs Aug. 13 (gage height, 1.82 ft).

Remarks.--No known diversion or regulation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1948							7.80	8.40	9.02				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1948							480	516	537				

DAKOTA CREEK BASIN

275

345. Dakota Creek near Blaine, Wash.

Location.--Lat 48°57'25", long. 122°39'30", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 14, T. 40 N., R. 1 E., on right bank 50 ft upstream from county road crossing, $3\frac{1}{2}$ miles upstream from mouth, and $4\frac{1}{2}$ miles southeast of Blaine.

Drainage area.--15.2 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

Extremes.--1948-50: Maximum discharge, 669 cfs (revised) Dec. 27, 1949 (gage height, 9.16 ft); minimum, 0.1 cfs Aug. 11, 1950.

Remarks.--Probably some small diversion for minor irrigation and domestic use above station. Some diurnal fluctuation at low flow from unknown cause.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	3.09	3.71	3.57	-
1949	12.3	111	75.4	116.7	48.8	37.0	16.4	12.5	3.29	2.61	1.52	2.35	28.1
1950	3.24	21.9	*117	65.5	166	132	56.3	17.8	5.87	3.25	3.38	2.28	*48.9

* Revised.

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	190	228	212	-
1949	758	6,610	4,640	1,030	2,710	2,280	974	771	196	161	93	140	20,360
1950	199	1,300	*7,720	4,030	9,200	6,120	3,350	1,090	349	200	208	136	*35,900

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1948	1122	-	-	-	-	-	-	-	-
1949	1152	*612	Nov. 23, 1948	0.7	28.1	20,360	*23.6	*17,570	-
1950	1286, 1182	*669	Dec. 27, 1949	1.6	*48.9	*35,900	-	-	-

* Revised.

FRAZIER RIVER BASIN

346. Sumas River near Sumas, Wash.

Location.--Lat 48°58'30" (revised), long. 122°15'00", in NE $\frac{1}{4}$ sec. 11, T. 40 N., R. 4 E., on left bank $1\frac{1}{2}$ miles south of Sumas.

Drainage area.--33.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

Extremes.--1948-50: Maximum discharge, 800 cfs Dec. 28, 1949 (gage height, 8.89 ft); minimum, 13.5 cfs Sept. 27 to Oct. 4, 1949.

Remarks.--Probably some small diversions for minor irrigation and domestic use above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	21.6	26.6	27.2	-
1949	38.9	127	114	50.8	122	104	59.8	39.1	24.0	21.8	19.9	16.9	61.3
1950	23.2	39.1	129	102	198	209	153	71.7	34.0	22.5	20.3	16.9	84.3

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	1,330	1,640	1,620	-
1949	2,390	7,570	7,040	3,130	6,750	6,380	3,560	2,400	1,430	1,230	1,340	1,180	44,400
1950	1,450	2,330	7,960	6,270	11,010	12,840	9,110	4,410	2,030	1,380	1,250	1,000	61,020

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1948	1122	-	-	-	-	-	-	-	-
1949	1152	660	Feb. 17, 1949	13.5	61.3	44,400	54.0	39,120	-
1950	1182	800	Dec. 28, 1949	13.5	84.3	61,020	-	-	-

347. Saar Creek near Sumas, Wash.

Location--Lat 49°00'00", long. 122°11'50", in E $\frac{1}{2}$ sec. 31, T. 41 N., R. 5 E., on left bank at road crossing, a quarter of a mile upstream from international boundary, and 3 miles east of Sumas.

Drainage area--11 sq mi, approximately.

Gage--Water-stage recorder and wooden control. Altitude of gage is 30 ft (from topographic map).

Extremes--July to September 1948: Maximum discharge, 30 cfs Sept. 22 (gage height, 2.32 ft); minimum, 0.9 cfs Aug. 13 (gage height, 1.38 ft).

Remarks--Probably some small diversions for domestic use. No regulation.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1948							2.56	4.82	6.90				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1948							157	296	411				

348. Kootenay River at Newgate, British Columbia

(International gaging station)

Location.--Lat 49°00'52", long. 115°10'23", on left bank at old highway bridge site, 0.7 mile northwest of Newgate, and 0.9 mile north of international boundary.

Drainage area.--7,660 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 2,310.23 ft above mean sea level (Geodetic Survey of Canada, adjustment of 1945). Prior to Oct. 1, 1940, staff gage at datum 1.00 ft higher. Oct. 1, 1940, to May 1, 1947, staff gage at present datum.

Average discharge.--20 years (1930-50), 9,610 cfs.

Extremes.--1930-50: Maximum discharge, 98,200 cfs May 28, 1948 (gage height, 15.02 ft); minimum observed, 994 cfs Feb. 7, 1936; minimum gage height observed, 0.21 ft Jan. 11, 1944.

Remarks.--No diversion or regulation above station. Records give total flow of main channel and slough.

Cooperation.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	3,670	2,720	2,120	1,970	1,870	1,990	2,880	16,600	20,700	9,880	5,350	4,340	6,190
1932	3,020	2,440	2,300	1,800	2,400	3,280	6,570	27,500	43,900	16,500	8,090	5,310	10,300
1933	4,190	4,080	2,530	2,610	2,130	2,560	5,910	22,400	49,500	25,300	10,400	7,550	11,600
1934	8,200	7,380	5,320	4,490	3,550	4,350	24,100	41,400	49,500	13,400	6,850	4,480	12,700
1935	3,470	4,220	2,750	2,610	3,160	2,700	4,600	21,100	37,500	23,300	9,590	5,230	10,000
1936	3,590	2,760	2,270	1,990	1,540	2,210	8,660	26,600	22,000	9,330	5,470	3,880	7,540
1937	2,880	2,100	1,910	1,570	1,700	1,760	3,010	18,300	26,400	13,900	6,930	4,490	7,100
1938	4,230	5,060	2,900	2,760	2,270	2,720	9,370	30,900	41,700	17,800	6,570	4,920	11,000
1939	4,090	3,010	2,330	2,490	1,870	2,770	8,190	24,300	22,300	16,800	6,440	4,560	8,150
1940	5,240	4,620	3,540	2,340	2,370	2,840	7,260	25,900	22,200	10,000	5,780	5,580	8,950
1941	5,050	3,340	2,730	2,310	2,120	3,110	7,930	16,700	17,500	8,970	5,580	7,810	6,950
1942	7,410	5,050	5,750	3,130	2,560	2,450	8,090	27,600	35,900	27,900	11,400	6,910	12,100
1943	5,210	3,870	3,060	2,380	2,630	2,600	15,900	19,600	31,000	28,600	9,710	5,230	10,800
1944	4,390	3,220	2,280	2,090	1,970	1,960	3,580	15,200	19,900	8,320	5,770	4,620	6,110
1945	4,130	2,860	1,960	1,870	1,860	1,900	2,540	17,700	30,600	16,800	6,740	5,550	7,890
1946	4,300	3,750	2,610	2,230	2,070	2,690	9,010	35,200	39,000	20,500	8,810	7,400	11,500
1947	5,210	3,420	2,740	1,890	2,510	3,230	8,950	36,700	33,200	17,600	8,120	6,680	10,900
1948	11,600	7,240	4,200	2,900	2,520	2,660	7,010	40,100	51,100	17,800	10,900	5,920	13,700
1949	4,590	3,580	2,360	2,380	2,520	2,830	7,450	28,200	21,100	10,100	6,580	4,790	8,070
1950	4,040	3,930	3,220	2,370	2,240	2,670	5,050	20,400	46,700	28,300	10,600	6,120	11,300

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	226	162	130	121	104	122	171	1,020	1,230	608	329	258	4,480
1932	186	145	141	111	138	200	391	1,690	2,610	1,010	497	316	7,435
1933	285	243	156	160	122	145	352	1,380	2,940	1,550	641	449	8,400
1934	504	439	327	276	197	268	1,440	2,550	1,700	821	421	267	9,210
1935	213	251	169	160	176	166	274	1,300	2,250	1,430	590	311	7,270
1936	221	164	140	122	88.4	136	515	1,640	1,310	574	336	231	5,480
1937	177	125	117	96.7	94.7	108	179	1,120	1,570	854	426	267	5,130
1938	260	301	178	170	126	167	558	1,900	2,480	1,100	404	293	7,940
1939	252	179	143	153	104	170	488	1,500	1,330	1,030	396	271	6,020
1940	322.5	275.2	217.8	144	136.2	174.5	432	1,591	1,319	617.8	355.1	332.3	5,917
1941	310.3	198.7	168	141.9	117.6	191.1	471.81	1,028	1,042	551.5	343.1	464.6	5,029
1942	455.8	300.8	353.9	192.3	142.3	150.6	481.21	897	2,134	1,714	699.2	111.3	8,733
1943	320.4	230.2	188	146.1	146.3	159.6	946.11	1,206	1,842	1,759	597.3	311.4	7,852
1944	269.7	191.6	140	128.7	113.1	120.4	213	933.7	1,182	511.5	354.9	274.8	4,433
1945	254.1	169.9	120.5	114.9	103.6	117.1	151.21	1,088	1,819	1,030	414.5	330	5,713
1946	264.2	223.2	160.6	136.9	115	165.5	536.42	1,262	2,321	1,260	541.6	440.6	8,327
1947	320.5	203.3	168.4	116.1	139.4	198.6	532.32	258	1,876	1,084	499.4	397.6	7,894
1948	714.1	431.1	258.1	179.3	144.8	165.5	417.12	464	3,039	1,094	669.2	352.5	9,926
1949	282.3	231.2	145	146.6	140	174.3	443	1,736	1,255	620	404.4	284.8	5,845
1950	248.2	233.7	197.7	145.6	124.6	164.4	300.51	1,255	2,778	1,739	650.2	363.9	8,201

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30										Calendar year		
		Momentary maximum		Minimum		Per square mile		Runoff		Mean		Runoff		
		Discharge	Date	day	Mean	square mile	Inches	Acre-feet	Mean	Inches	Acre-feet	Mean	Inches	
1931	767	a32,800	May 16, 1931		1,500	6,190	0.80	10.99	4,480,000	6,129	10.88	4,435,000		
1932	767	a60,500	June 15, 1932		1,500	10,300	1.34	18.22	7,435,000	10,520	18.66	7,620,000		
1933	767	a80,000	June 18, 1933		1,200	11,600	1.51	20.56	8,400,000	12,450	22.06	9,013,000		
1934	767	a63,400	May 30, 1934		2,650	12,700	1.66	22.51	9,210,000	11,800	20.96	8,570,000		
1935	792	a45,200	May 24, 1935		1,580	10,000	1.31	17.78	7,270,000	9,900	17.52	7,160,000		

a Maximum observed.

KOOTENAI RIVER BASIN

Yearly discharge, in cubic feet per second, of Kootenai River at Newgate, B. C.--Continued.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1936	812	a49,100	June 1, 1936	994	7,540	0.98	13.34	5,480,000	7,390	13.14	5,370,000
1937	832	a37,800	June 3, 1937	1,160	7,100	.93	12.59	5,130,000	7,540	13.37	5,450,000
1938	862	a68,800	May 27, 1938	1,850	11,000	1.44	19.42	7,940,000	10,700	19.01	7,770,000
1939	882	a37,200	May 17, 1939	1,280	8,300	1.08	14.71	6,020,000	8,630	15.29	6,258,000
1940	902	a43,600	May 26, 1940	1,590	8,150	1.06	14.48	5,917,000	7,960	14.17	5,779,000
1941	932	a23,300	June 3, 1941	1,770	6,950	.91	12.32	5,029,000	7,540	13.37	5,462,000
1942	962	a57,100	May 27, 1942	2,160	12,100	1.58	21.38	8,733,000	11,500	20.47	8,361,000
1943	982	a45,100	June 19, 1943	1,650	10,800	1.41	19.22	7,652,000	10,700	18.89	7,715,000
1944	1012	a27,000	June 14, 1944	1,670	6,110	.80	10.86	4,433,000	6,030	10.71	4,377,000
1945	1042	a46,900	June 1, 1945	1,440	7,890	1.03	13.97	5,713,000	8,034	14.23	5,816,000
1946	1062	a65,000	May 29, 1946	1,830	11,500	1.50	20.40	8,327,000	11,600	20.51	8,371,000
1947	1092	62,200	May 11, 1947	1,740	10,900	1.42	19.30	7,894,000	11,900	21.03	8,605,000
1948	1122	98,200	May 28, 1948	1,910	13,700	1.79	24.34	9,926,000	12,620	22.47	9,162,000
1949	1152	48,700	May 15, 1949	1,800	8,070	1.08	14.30	5,845,000	8,127	14.40	7,984,000
1950	1182	71,400	June 23, 1950	1,770	11,300	1.48	20.07	8,201,000	-	-	-

a Maximum observed.

349. Fortine Creek near Trego, Mont.

Location.--Lat 48°38'40", long. 114°54'40", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 11, T. 33 N., R. 26 W., on downstream side of private bridge a quarter of a mile upstream from Edna Creek, 1 mile downstream from Stewart Creek, and 5 miles (corrected) southwest of Trego.

Drainage area.--112 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 3,340 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 1,810 cfs May 16, 1950 (gage height, 11.8 ft, from high water mark), from rating curve extended above 1,500 cfs; minimum observed, 5.0 cfs Sept. 7, 1949, but may have been less during winter periods of 1946-48.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	14.5	11.7	23.1	75.7	422	362	120	25.4	11.9	12.4	-
1948	62.4	40.2	30.0	25.0	11.9	23.7	288	625	147	54.9	32.0	10.7	113
1949	11.5	12.4	11.1	9.00	8.04	13.4	255	370	44.5	18.2	7.86	7.61	64.4
1950	11.7	15.7	14.5	10.3	16.3	37.2	169	574	278	50.2	19.6	11.1	101

* Not previously published; partly estimated on the basis of records for Lake Creek at Troy.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	895	722	1,290	4,660	25,090	22,270	7,110	1,560	732	737	-
1948	3,840	2,390	1,840	1,540	684	1,460	17,120	38,400	8,760	3,370	1,970	634	82,010
1949	708	736	680	553	446	823	15,190	22,750	2,650	1,120	483	453	46,590
1950	722	935	893	635	904	2,290	10,040	35,320	16,510	3,090	1,200	658	73,200

* Not previously published; partly estimated on the basis of records for Lake Creek at Troy.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1947	1092	948	Apr. 29, 1947	5	-	-	-	-	99.8	12.08	72,240
1948	1122	1,000	May 22, 1948	5	113	1.01	13.72	82,010	105	12.72	76,060
1949	1152	754	May 11, 1949	5.0	64.4	1.575	7.79	46,590	64.9	7.87	47,020
1950	1182	1,810	May 16, 1950	7.5	101	.902	12.25	73,200	-	-	-

350. Grave Creek near Fortine, Mont.

Location.--Lat 48°49'20", long. 114°51'30", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 5, T. 35 N., R. 25 W., on right bank 5 miles upstream from confluence with Fortine Creek, and 4 miles northeast of Fortine.

Drainage area.--64.9 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 3,140 ft (from topographic map).

Extremes.--1923-24: Maximum discharge observed, 690 cfs June 11, 1923 (gage height, 3.00 ft); minimum observed, 18 cfs Apr. 1-5, 1924.

Remarks.--No diversion or regulation above station.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	-	-	-	-	-	-	\$68.1	367	472	190	-	-	-
1924	38.8	32.2	\$37.2	-	-	-	45.9	383	331	-	80.2	52.0	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	-	-	-	-	-	-	\$4,050	22,600	28,100	11,700	4,930	3,090	-
1924	2,390	1,920	\$2,290	-	-	-	2,730	23,600	19,700	-	-	-	-

* Not previously published; see footnote to preceding table.

Location.--Lat 48°52', long. 115°14', in sec. 21, T. 36 N., R. 28 W., on downstream side of Highway bridge, 300 ft downstream from Sullivan Creek, and 1.1 miles southwest of Rexford.

Drainage area.--8,420 sq mi, approximately.

Gage.--Wire-weight gage. Altitude of gage is 2,260 ft (from river-profile map). Mar. 24, 1929, to Oct. 15, 1931, June 5, 1932, to Sept. 30, 1935, staff gage and Oct. 16, 1931, to June 4, 1932, water-stage recorder at same site and datum.

Average discharge.--11 years (1929-40), 9,614 cfs.

Extremes.--1929-40: Maximum discharge observed, 79,900 cfs June 18, 1933 (gage height, 15.70 ft), from rating curve extended above 60,000 cfs; minimum, 1,100 cfs Feb. 7, 1936; minimum gage height, 0.12 ft Dec. 7, 1936.

Remarks.--No diversion or regulation.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Monthly and yearly mean discharge, in cubic feet per second

[illegible]

Monthly and yearly runoff, in thousands of acre-feet

[illegible]

Yearly discharge, in cubic feet per second, of Kootenai River near Rexford, Mont.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff Inches	Acre-feet	Mean	Runoff	
		Discharge	Date							Inches	Acre-feet
1929	692	52,900	June 3, 1929	-	-	-	-	-	-	-	-
1930	707	46,400	June 1, 1930	1,750	8,900	1.06	14.35	6,450,000	8,942	14.42	6,480,000
1931	722	34,700	May 17, 1931	1,590	6,630	.787	10.72	4,810,000	6,569	10.61	4,763,000
1932	737	62,300	June 15, 1932	1,280	10,900	1.29	17.61	7,920,000	11,220	18.12	8,147,000
1933	752,1042	79,900	June 18, 1933	1,650	12,100	1.44	19.58	8,790,000	12,360	20.89	9,376,000
1934	767	65,000	May 31, 1934	2,720	13,240	1.57	21.34	9,584,000	12,320	19.88	8,924,000
1935	792	47,500	May 24, 1935	1,700	10,450	1.24	16.82	7,566,000	10,330	16.62	7,478,000
1936	812	48,400	June 1, 1936	1,100	8,009	.951	12.86	5,814,000	7,800	12.61	5,662,000
1937	832	37,200	June 4, 1937	1,120	7,200	.855	11.62	5,215,000	7,683	12.40	5,562,000
1938	862	69,900	May 27, 1938	2,080	11,450	1.36	18.47	8,292,000	11,210	18.07	8,114,000
1939	882	39,100	May 17, 1939	1,200	8,663	1.03	13.98	6,272,000	8,981	14.49	6,502,000
1940	902	47,200	May 26, 1940	1,650	8,371	.994	13.53	6,077,000	-	-	-

352. Granite Creek near Libby, Mont.

Location.--Lat. 48°18'10", long. 115°35'25", in NW¼ SE¼ sec. 5, T. 29 N., R. 31 W., on left bank 2½ miles upstream from Cherry Creek and 7 miles southwest of Libby.

Drainage area.--23.6 sq mi.

Gage.--Staff gage and concrete control. Altitude of gage is 2,780 ft (from topographic map). Prior to Sept. 9, 1938, staff gage 25 ft upstream at same datum.

Average discharge.--7 years (1936-43), 62.6 cfs.

Extremes.--1933, 1936-43: Maximum discharge observed, 1,960 cfs Apr. 18, 1938 (gage height, 4.40 ft, prior to construction of concrete control); no flow Jan. 4, 1933 (creek blocked by snow slide).

Remarks.--No diversion. Some fluctuation at low flow caused by concentrating mill above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1933	-	-	-	26.3	*13.8	18.0	97.9	193	434	134	37.5	31.6	-
1934	74.0	92.5	158	-	-	-	-	-	-	-	-	-	-
1936	-	-	-	-	-	-	-	-	-	-	*12	7.28	-
1937	7.67	5.35	8.71	3.94	4.50	8.97	75.6	270	189	45.2	12.8	7.79	53.5
1938	15.8	37.5	26.0	26.7	15.6	32.7	258	276	188	44.8	10.2	8.38	78.4
1939	22.1	16.0	19.2	16.2	11.5	39.9	153	252	114	46.6	13.0	*7.98	59.5
1940	9.24	12.9	31.5	14.8	12.1	47.6	109	220	96.9	24.5	8.64	12.4	50.1
1941	12.9	11.6	10.5	9.68	8.61	26.6	86.2	161	111	31.3	10.7	43.6	43.7
1942	61.8	55.2	125	23.1	14.5	18.5	116	183	178	81.5	18.9	8.73	74.0
1943	7.18	22.4	17.9	16.5	12.8	31.8	189	207	269	139	27.5	9.88	79.2
1944	13.5	8.32	-	-	-	-	-	-	-	-	-	-	-

* Revised.

† Corrected.

* Not previously published; partly estimated on the basis of one discharge measurement and records for Kootenai River at Libby.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1933	-	-	-	1,620	*768	1,110	5,830	11,900	25,800	8,240	2,310	1,880	-
1934	4,550	5,500	9,720	-	-	-	-	-	-	-	-	-	-
1936	-	-	-	-	-	-	-	-	-	-	*738	433	-
1937	471	318	536	242	250	551	4,500	16,620	11,250	2,780	787	464	38,770
1938	973	2,230	1,600	1,640	865	2,010	15,380	16,960	11,200	2,750	626	498	56,730
1939	1,360	950	1,180	994	637	2,460	9,100	15,470	6,760	2,870	800	475	43,060
1940	568	770	1,940	908	697	2,930	6,490	13,520	5,770	1,510	531	738	36,370
1941	791	692	644	595	478	1,640	5,130	9,880	6,610	1,930	660	2,590	31,640
1942	3,800	3,280	7,700	1,420	807	1,140	6,900	11,230	10,580	5,010	1,160	520	53,550
1943	441	1,330	1,100	1,010	712	1,960	11,250	12,710	16,020	8,540	1,690	588	57,350
1944	831	495	-	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Granite Creek near Libby, Mont.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1933	1246,752	al,360	June 10, 1933	-	-	-	-	-	109	62.94	*79,230
1934	752	-	-	-	-	-	-	-	-	-	-
1936	832	-	-	-	-	-	-	-	-	-	-
1937	832	a415	May 26, 1937	-	53.5	2.27	30.74	38,770	58.3	33.50	42,250
1938	862	al,960	Apr. 18, 1938	4.5	78.4	3.32	45.03	56,730	76.6	44.00	55,420
1939	882	a534	May 3, 1939	5.2	59.5	2.52	34.28	43,060	59.2	34.09	42,840
1940	902	a408	May 11, 25, 1940	4.5	50.1	2.12	28.89	36,370	48.5	27.99	35,220
1941	932	a430	May 17, 1941	6.8	43.7	1.85	25.12	31,640	61.2	35.17	44,290
1942	962	965	Dec. 3, 1941	7.0	74.0	3.14	42.56	53,550	57.5	33.10	41,640
1943	982	a575	June 18, 1943	6.2	79.2	3.36	45.59	57,350	-	-	-
1944	982	-	-	-	-	-	-	-	-	-	-

* Maximum observed.

* Revised.

353. Kootenai River at Libby, Mont.

Location.--Lat 48°24'00", long. 115°33'10", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 34, T. 31 N., R. 31 W., on right bank 1,800 ft downstream from highway bridge at Libby and 1 mile downstream from Libby Creek.

Drainage area.--10,240 sq mi.

Gage.--Water-stage recorder. Datum of gage is 2,041.54 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Apr. 28, 1931, staff, chain, and wire-weight gages 1,800 ft upstream at different datum.

Average discharge.--40 years (1910-50), 11,490 cfs.

Extremes.--1910-50: Maximum discharge, 121,000 cfs (revised) June 21, 1916 (gage height, 20.7 ft, present datum); minimum, 895 cfs Jan. 11, 1930, discharge measurement (stage-discharge relation affected by ice).

Remarks.--Diversion for irrigation of about 4,200 acres from tributaries above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	\$9,140	7,910	\$4,460	\$2,620	\$2,590	\$4,800	10,600	22,700	53,500	28,700	12,200	8,040	\$14,000
1912	5,780	\$4,710	\$2,800	\$2,500	\$2,960	2,930	9,080	22,500	26,100	19,600	12,300	8,940	\$10,900
1913	6,410	6,080	3,510	2,710	2,980	3,110	11,300	26,900	51,700	20,300	13,000	9,580	13,100
1914	7,260	5,560	2,730	4,260	3,130	4,300	11,500	30,700	37,000	25,400	10,100	7,360	12,600
1915	8,000	8,570	4,270	3,270	2,790	3,540	11,300	19,600	21,200	20,600	11,700	6,840	10,200
1916	6,180	5,420	3,880	\$2,890	\$3,690	\$7,240	12,800	23,500	59,600	45,800	15,200	11,300	\$16,500
1917	6,480	5,000	\$3,530	\$3,120	\$2,610	\$2,620	5,910	25,800	42,700	28,300	10,900	6,730	\$12,000
1918	5,070	3,830	4,080	5,480	3,560	4,280	10,700	22,800	44,100	17,400	10,400	6,850	11,600
1919	6,350	4,660	3,900	\$8,130	3,430	3,600	11,800	35,700	37,600	17,900	10,600	6,330	\$12,400
1920	\$4,190	\$3,550	\$2,470	\$2,490	\$2,420	3,380	5,400	17,200	35,000	56,200	12,400	8,860	\$11,100
1921	8,820	\$5,530	\$4,030	\$3,580	4,620	5,310	10,600	35,200	49,700	21,600	10,500	5,880	\$13,900
1922	5,360	4,880	\$4,650	\$2,260	\$2,830	\$3,120	5,040	23,800	41,300	14,600	8,510	6,000	\$10,200
1923	4,400	3,610	\$2,860	\$3,580	\$2,410	2,930	9,040	27,500	50,100	21,200	9,350	5,920	\$11,800
1924	4,240	3,310	\$3,040	\$2,540	\$3,010	2,830	4,330	24,300	18,700	11,800	8,810	5,550	\$7,730
1925	4,320	\$4,870	\$4,910	\$4,150	\$6,230	\$4,360	\$17,800	42,700	36,300	17,300	9,170	6,200	\$13,200
1926	4,510	3,340	2,790	2,400	2,430	2,780	9,610	15,200	12,300	9,180	\$5,110	\$6,290	\$6,510
1927	9,450	\$5,860	\$4,500	\$3,610	\$3,390	\$3,320	\$7,630	\$22,110	52,500	\$27,200	\$11,540	\$15,500	\$13,900
1928	\$12,800	\$9,610	\$7,550	\$4,940	\$4,350	\$5,320	9,180	46,800	32,700	25,400	9,240	5,440	\$14,500
1929	6,360	3,910	2,940	2,460	2,730	2,970	4,190	21,200	37,900	14,500	7,810	5,050	\$9,350
1930	3,740	2,500	2,820	2,420	3,080	2,930	12,500	21,100	35,200	18,900	8,650	5,550	9,960
1931	4,140	3,330	2,560	2,710	2,380	2,590	3,940	20,700	23,800	12,000	6,060	4,730	7,430
1932	3,440	2,860	2,620	2,090	3,120	4,450	10,300	34,000	47,000	18,000	9,070	6,170	11,900
1933	4,700	4,930	4,190	3,340	2,420	3,240	9,240	28,400	55,000	28,400	11,100	\$8,440	\$13,600
1934	\$9,290	\$9,630	\$11,500	\$7,760	5,951	7,604	31,060	45,350	32,180	15,280	7,874	5,265	\$15,780
1935	4,293	6,193	3,590	3,700	4,469	3,874	7,698	27,090	40,210	29,380	10,830	5,912	11,960
1936	4,101	3,391	2,784	2,161	1,728	3,104	12,960	31,430	25,020	10,340	5,816	4,154	8,927
1937	3,177	2,409	2,340	1,764	2,152	2,423	4,480	22,370	29,250	15,600	7,425	4,818	8,211
1938	4,494	5,807	3,382	3,514	2,820	3,587	12,900	35,960	45,810	18,130	7,250	5,385	12,440
1939	4,661	3,675	2,698	3,261	2,312	3,701	10,970	28,300	24,170	18,050	7,095	4,966	9,531
1940	5,515	5,142	4,025	2,602	2,736	3,808	8,994	28,250	24,320	10,350	6,001	5,770	8,970
1941	5,360	3,861	3,179	2,611	2,417	3,594	8,764	18,830	19,210	9,535	5,862	8,194	7,647
1942	8,542	6,076	7,641	3,872	3,261	3,107	10,860	31,340	38,290	28,660	11,770	7,199	13,430
1943	5,472	4,471	3,586	2,781	3,340	3,820	22,600	24,760	34,300	30,550	10,850	5,950	12,810
1944	5,034	3,967	2,843	2,423	2,448	2,529	4,367	16,360	21,600	9,346	6,345	5,077	6,867
1945	4,472	3,411	2,265	2,251	2,389	2,476	3,468	19,990	33,580	18,276	7,223	5,831	8,942
1946	4,734	4,538	3,382	3,092	2,733	3,795	13,000	40,960	42,380	22,570	9,628	8,048	13,280
1947	5,922	4,007	4,219	3,234	4,129	5,639	14,790	43,250	37,260	19,310	8,918	7,567	13,210
1948	13,680	8,417	4,984	3,599	3,246	3,447	11,710	49,050	58,430	20,270	12,690	6,956	16,980
1949	5,307	4,070	2,718	2,615	2,875	4,050	12,730	36,090	24,740	11,670	7,520	5,429	10,020
1950	4,535	4,927	4,033	2,835	3,473	4,917	9,497	27,170	53,530	31,350	11,220	6,358	13,680

* Revised.

† Corrected.

* Not previously published; estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in thousands of acre-feet, of Kootenai River at Libby, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	*562	471	*274	*161	*144	*295	631	1,400	3,180	1,760	750	478	*10,100
1912	355	*280	*172	*154	*170	180	540	1,380	1,550	1,210	756	532	*7,280
1913	394	362	204	170	166	191	672	1,650	3,080	1,250	799	570	9,510
1914	446	331	229	262	174	264	684	1,890	2,200	1,560	621	438	9,100
1915	492	510	263	201	155	218	672	1,210	1,260	1,270	719	407	7,380
1916	380	323	239	*178	*212	*445	762	1,440	*3,550	2,820	935	672	*12,000
1917	398	238	*217	*192	*145	*161	352	1,590	2,540	1,740	870	400	*8,700
1918	312	228	251	337	198	263	637	1,400	2,620	1,070	640	408	8,360
1919	390	277	240	*377	190	221	702	2,200	2,240	1,100	652	377	*8,970
1920	†258	*211	*152	*153	*129	208	321	1,060	2,080	1,230	762	527	*8,090
1921	542	*329	*248	*220	257	326	631	2,160	2,960	1,330	646	350	*9,990
1922	330	290	*286	*139	*157	*192	300	1,460	2,460	898	523	357	*7,390
1923	271	215	*176	*220	*134	180	538	1,690	2,980	1,300	575	352	*8,630
1924	261	197	*187	*156	*175	174	258	1,490	1,110	726	542	350	*5,600
1925	266	*290	*302	*255	*346	*268	*1,080	2,630	2,160	1,060	564	369	*9,570
1926	277	199	172	148	135	171	572	935	732	564	*314	*493	*4,710
1927	581	*350	*277	*234	*188	*204	*454	*1,360	*3,120	*1,670	*707	*922	*10,100
1928	*787	*572	*464	*304	*250	*327	546	2,680	1,950	1,560	568	324	*10,500
1929	391	233	181	151	152	183	249	1,300	2,260	892	480	301	6,770
1930	230	149	173	149	171	180	748	1,300	2,090	1,160	532	330	7,210
1931	255	198	157	167	132	159	234	1,270	1,420	738	373	281	5,380
1932	212	170	161	129	179	274	613	2,090	2,800	1,110	558	367	8,660
1933	289	293	258	205	134	199	550	1,750	*3,270	1,750	682	*502	*9,880
1934	*571.2	*573	*707.1	*477.1	330.5	479.8	1,848	2,787	1,915	958.2	484.2	313.4	*11,420
1935	264	368.5	220.7	227.6	248.2	238.2	458.1	1,666	2,393	1,560	665.7	345.8	8,656
1936	252.2	201.8	171.2	132.9	99.39	190.8	771	1,932	1,489	635.5	357.6	247.2	6,481
1937	195.4	143.3	143.9	108.5	119.5	149	266.6	1,375	1,740	959.1	456.6	286.7	5,944
1938	276.3	345.5	207.9	216.1	156.6	220.5	767.8	2,211	2,728	1,115	445.8	320.4	9,009
1939	286.6	218.7	165.9	200.5	128.4	227.5	652.7	1,740	1,943	1,110	436.2	295.5	6,900
1940	339.1	306	247.5	160	157.3	234.1	535.2	1,737	1,447	636.3	369	345.4	6,512
1941	329.6	229.7	195.5	169.7	134.2	221	521.5	1,158	1,413	586.3	360.4	487.6	5,536
1942	513.7	361.5	469.8	238.1	181.1	191	646.2	1,927	2,278	1,763	723.7	428.4	9,722
1943	336.5	266.1	220.5	171	190.5	234.9	356	1,523	2,073	878	666.9	354	9,270
1944	309.5	236	174.8	149	140.8	155.5	259.9	1,007	1,285	574.7	390.1	302.1	4,984
1945	275	202.9	159.2	150.7	132.7	152.3	206.4	1,229	1,998	1,124	444.1	347	6,401
1946	391.1	270	207.9	190.1	151.8	233.3	773.8	2,518	2,522	1,388	592	478.9	9,617
1947	364.1	238.4	259.4	198.9	229.3	346.7	880.1	2,658	2,217	1,188	548.3	438.3	9,566
1948	841	500.8	300.3	221.3	186.7	212	697	3,016	3,477	1,246	780.2	415.9	11,890
1949	326.3	242.2	167.1	160.8	159.7	249	757.7	2,219	1,472	717.4	462.4	323	7,257
1950	278.8	293.2	248	174.3	192.9	302.3	565.1	1,670	3,185	1,928	689.9	378.3	9,906

* Revised.

† Corrected.

* Not previously published; estimated on the basis of records for nearby stations.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	72,500	June 16, 1911	-	*14,000	*1.37	*18.60	*10,100,000	*13,300	*17.60	*9,610,000
1912	332	*36,800	May 18, 1912	-	*10,000	*.977	*13.30	*7,280,000	*10,240	*13.60	*7,430,000
1913	362	77,500	June 4, 1913	2,040	13,100	1.28	17.38	9,510,000	13,200	17.48	9,550,000
1914	392	56,900	June 5, 1914	1,690	12,600	1.23	16.67	9,100,000	12,900	17.13	9,360,000
1915	412	*36,100	June 28, 1915	2,500	10,200	.966	13.48	7,380,000	9,730	12.90	7,050,000
1916	1246,442	*121,000	June 21, 1916	-	*16,500	*1.61	*21.91	*12,000,000	*16,400	*21.79	*11,900,000
1917	462	85,000	June 18, 1917	-	*12,000	*1.17	*15.88	*8,700,000	*11,800	*15.71	*8,580,000
1918	482	*77,500	June 13, 1918	1,960	11,600	1.13	15.34	8,360,000	11,700	15.55	*8,480,000
1919	512	*80,200	May 29, 1919	2,160	*12,400	*1.20	*16.29	*9,970,000	*12,000	*15.89	*8,680,000
1920	532	60,500	July 4, 1920	-	*11,100	*1.08	*14.70	*8,090,000	*11,800	*15.73	*8,590,000
1921	532	72,900	June 9, 1921	-	*13,800	*1.35	*18.32	*9,990,000	*13,500	*17.93	*9,790,000
1922	552	69,200	June 6, 1922	-	*10,200	*.996	*13.52	*7,390,000	*9,870	*13.09	*7,150,000
1923	572	71,300	May 14, 1923	-	*11,900	*1.16	*15.75	*8,630,000	*11,900	*15.77	*8,610,000
1924	592	*45,100	May 18, 1924	-	*7,730	*.755	*10.27	*5,600,000	*8,020	*10.66	*5,820,000
1925	612	*78,200	May 23, 1925	-	*13,200	*1.29	*17.51	*9,570,000	*12,900	*17.14	*9,360,000
1926	632	*26,400	May 1, 1926	2,160	*6,510	*.636	*8.56	*4,710,000	*7,280	*9.65	*5,270,000
1927	652	*83,100	June 12, 1927	-	*13,900	*1.36	*18.46	*10,100,000	*14,800	*19.59	*10,700,000
1928	672	70,200	May 27, 1928	-	*14,500	*1.42	*19.27	*10,500,000	*13,100	*17.41	*9,510,000
1929	692	57,400	June 4, 1929	2,160	*9,350	*.913	*12.39	6,770,000	9,010	11.95	6,520,000
1930	707	52,100	June 1, 1930	-	9,960	.973	13.20	7,210,000	10,000	13.31	7,270,000
1931	722	41,200	May 17, 1931	1,990	7,430	.726	9.86	5,380,000	7,340	9.74	5,320,000
1932	737	61,800	June 16, 1932	1,520	11,900	1.16	*15.79	8,680,000	12,300	16.41	8,960,000
1933	752,1042	85,600	June 18, 1933	1,320	*13,500	*1.33	*18.05	*9,980,000	*15,000	*19.96	*10,900,000
1934	767	63,700	May 31, 1934	-	*15,780	*1.54	*20.90	*14,420,000	*14,400	*19.10	*10,430,000
1935	792	52,500	May 24, 1935	1,800	11,960	1.17	15.86	8,656,000	11,640	15.44	8,428,000
1936	812	49,400	June 1, 1936	-	8,927	.872	11.85	6,841,000	8,731	11.59	6,338,000
1937	832	41,000	May 28, 1937	1,230	8,211	.802	10.88	5,944,000	8,690	11.52	6,291,000
1938	862	78,800	May 28, 1938	1,800	12,440	1.21	16.51	9,009,000	12,220	16.21	8,850,000
1939	882	41,000	May 18, 1939	-	9,531	.931	12.62	6,900,000	9,837	13.03	7,121,000
1940	902	48,500	May 26, 1940	1,700	8,970	.876	11.93	6,512,000	8,780	11.68	6,374,000

* Revised.

* Not previously published.

Yearly discharge, in cubic feet per second, of Kootenai River at Libby, Mont.--Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1941	932	26,800	May 19, 1941	1,710	7,647	0.747	10.14	5,556,000	8,462	11.22	6,127,000
1942	962	67,900	May 27, 1942	2,400	13,430	1.31	17.80	9,722,000	12,710	16.85	9,200,000
1943	982	50,100	June 19, 1943	1,400	12,810	1.25	16.98	9,270,000	12,660	16.79	9,168,000
1944	1012	27,800	June 1, 1944	1,850	8,867	.871	9.11	4,984,000	6,724	8.91	4,881,000
1945	1042	51,600	June 2, 1945	1,390	8,847	.863	11.71	6,401,000	9,052	11.99	6,553,000
1946	1062	74,300	May 30, 1946	1,980	13,280	1.30	17.61	9,617,000	13,410	17.80	9,710,000
1947	1092	74,300	May 11, 1947	2,000	13,210	1.29	17.52	9,566,000	14,290	18.94	10,350,000
1948	1122	109,000	May 28, 1948	2,200	16,380	1.60	21.77	11,890,000	15,130	20.11	10,990,000
1949	1152	61,900	May 15, 1949	2,000	10,020	.979	13.28	7,257,000	10,140	13.45	7,341,000
1950	1182	79,100	June 23, 1950	1,900	13,680	1.34	18.14	9,906,000	-	-	-

354. Lake Creek at Troy, Mont.

Location.--Lat 48°26'40" long. 115°52'30", in SW $\frac{1}{4}$ sec. 18, T. 31 N., R. 33 W., on right bank a quarter of a mile downstream from power plant, half a mile upstream from mouth, and $\frac{1}{4}$ miles southeast of Troy.

Drainage area.--210 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,900 ft (from topographic map). Prior to Nov. 1, 1946, wire-weight gage a quarter of a mile upstream at different datum.

Average discharge.--5 years (1945-50), 534 cfs.

Extremes.--1945-50: Maximum discharge, 3,250 cfs May 30, 1948 (gage height, 8.28 ft); minimum 2.0 cfs (regulated) Sept. 1, 1947, Sept. 15, 1948; minimum daily, 65 cfs Jan. 26 to Feb. 7, 1949.

Remarks.--Some regulation by small dam at power-plant diversion; water diverted returns to stream at power plant above station. Natural regulation by Bull and Spar Lakes.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	#123	148	120	184	1,205	782	288	169	135	-
1946	193	316	320	257	196	364	827	1,397	1,309	564	224	167	512
1947	176	293	467	270	411	503	852	1,654	961	394	208	154	521
1948	401	303	216	218	201	233	482	1,591	2,118	711	291	166	561
1949	152	157	132	76.0	111	200	990	1,902	1,094	345	213	152	462
1950	143	310	356	261	308	552	726	1,202	1,934	1,005	334	202	612

* Not previously published; partly estimated on the basis of weather records and records for Kootenai River at Libby.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	-	#7,550	8,240	7,360	10,950	74,110	46,550	17,740	10,410	8,020	-
1946	11,880	18,780	19,670	15,790	10,890	22,380	49,230	85,900	77,870	34,690	13,780	9,960	370,800
1947	10,810	17,430	28,700	16,610	22,880	30,930	50,720	95,560	57,210	24,210	12,780	9,190	377,000
1948	24,660	18,040	13,290	13,420	11,590	14,330	28,680	85,560	126,000	43,690	17,860	9,860	407,000
1949	9,330	9,330	8,090	4,670	6,170	12,270	58,910	16,900	65,060	21,230	13,080	9,030	334,100
1950	8,800	18,450	21,880	16,060	17,090	33,920	43,190	73,920	115,100	61,800	20,520	12,050	442,800

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1945	1042	2,350	May 29, 1945	-	-	-	-	-	333	21.53	241,300
1946	1062	2,000	May 28, 1946	122	512	2.44	33.09	370,800	521	33.70	377,400
1947	1092	2,400	May 9, 1947	92	521	2.48	33.69	377,000	519	33.60	376,000
1948	1122	3,250	May 30, 1948	140	561	2.67	36.37	407,000	520	33.76	377,700
1949	1152	2,950	May 14, 1949	65	462	2.20	29.83	334,100	492	31.84	356,500
1950	1182	2,470	June 21, 1950	73	612	2.91	39.55	442,800	-	-	-

355. Callahan Creek at Troy, Mont.

Location (revised).--Lat 48°27'00", long. 113°53'50", in W $\frac{1}{2}$ sec. 13, T. 31 N., R. 34 W., on right upstream side of highway bridge, three-quarters of a mile upstream from mouth, and half a mile south of Troy.

Drainage area.--85.8 sq mi.

Gage.--Staff gage. Altitude of gage is 1,900 ft (from topographic map). Prior to Oct. 12, 1913, staff gage at same site at datum 1.6 ft higher.

Extremes.--1911-16: Maximum discharge observed, 1,680 cfs May 23, 1913 (gage height, 4.0 ft); minimum daily, 12 cfs Oct. 29-31, 1911.

Remarks.--A few small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	\$520	75.0	28.5	23.8	-
1912	23.9	-	-	-	-	-	\$420	\$930	\$580	-	-	-	-

* Not previously published; partly estimated on the basis of gage heights and records for St. Regis River near St. Regis.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	\$30,900	4,610	1,750	1,420	-
1912	1,470	-	-	-	-	-	\$25,000	\$57,200	\$22,600	-	-	-	-

* Not previously published; see footnote to preceding table.

356. Kootenai River at Leonia, Idaho

Location.--Lat 48°37'00", long. 116°03'00", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 20 (revised), T. 33 N., R. 34 W., on right bank at Leonia, 450 ft east of Montana-Idaho State line and a half a mile upstream from Boulder Creek.

Drainage area.--11,740 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 1,700.25 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Mar. 25 to Nov. 12, 1928, chain gage 250 ft upstream at 0.41 ft lower datum.

Average discharge.--22 years (1928-50), 12,800 cfs.

Extremes.--1928-50: Maximum discharge, 123,000 cfs May 28, 1948 (gage height, 123.40 ft); minimum, 996 cfs Dec. 9, 1936; minimum gage height, 97.56 ft Dec. 10, 1923.

Floods of 1894 and 1916 reached stages of 124.6 ft and 121.6 ft, respectively, from information furnished by Great Northern Railway Co.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	12,700	54,800	35,400	27,400	10,400	6,680	-
1929	7,280	5,130	3,620	2,900	3,120	3,860	6,240	26,800	40,000	14,400	7,810	5,180	10,500
1930	4,150	3,090	3,220	2,730	3,540	3,820	15,700	23,800	38,200	19,800	8,840	5,900	11,100
1931	4,620	3,760	2,860	2,850	2,870	3,490	5,810	24,900	25,000	11,900	6,280	5,120	†8,320
1932	3,870	3,390	2,880	2,800	3,840	6,420	14,900	42,900	53,100	19,900	9,760	6,550	14,200
1933	5,180	5,920	5,360	4,110	3,140	4,020	13,300	35,800	64,900	30,800	12,300	9,100	16,200
1934	10,120	11,280	13,700	11,330	8,304	10,390	39,940	51,880	33,690	15,710	8,233	5,606	18,380
1935	4,728	8,447	4,412	5,107	5,916	5,162	10,470	34,540	44,440	25,690	11,110	6,245	13,880
1936	4,618	3,765	3,081	2,891	1,994	3,748	18,930	37,450	27,300	11,060	6,373	4,744	10,340
1937	3,532	2,748	2,717	1,922	2,380	2,695	6,586	28,200	32,410	18,170	7,921	5,307	9,414
1938	4,829	6,768	4,252	4,463	3,387	4,788	19,270	43,920	50,090	20,080	7,762	5,682	14,636
1939	4,900	3,952	3,176	3,642	2,700	4,373	14,120	33,310	27,010	18,940	7,574	5,292	10,800
1940	5,785	5,495	4,636	2,974	3,252	4,781	11,700	32,430	25,700	10,860	6,382	5,962	10,010
1941	5,514	4,104	3,457	3,079	2,841	4,227	10,650	21,560	20,630	10,300	6,142	8,804	8,460
1942	9,272	7,008	11,120	4,715	3,864	3,895	14,260	35,770	43,240	31,390	12,680	7,579	15,460
1943	5,784	5,051	4,122	3,182	3,772	4,472	31,220	31,380	40,380	32,520	11,400	8,108	14,980
1944	5,171	4,131	3,140	2,815	2,863	2,695	5,265	18,630	22,830	9,819	6,518	5,257	7,416
1945	4,772	3,672	2,477	2,824	2,840	2,834	4,334	26,590	36,420	18,860	7,490	6,218	9,973
1946	5,232	5,335	4,021	3,672	3,104	5,179	17,960	48,690	47,720	24,090	10,170	8,424	15,350
1947	6,446	4,806	5,294	4,264	5,431	7,667	20,060	52,170	40,690	20,240	9,362	7,688	15,390
1948	15,540	9,954	6,045	4,745	4,147	4,696	15,660	59,620	65,610	22,260	13,470	7,325	19,030
1949	5,667	4,423	3,156	3,103	3,525	4,501	17,850	44,350	26,700	12,010	7,596	5,510	11,560
1950	4,975	5,998	4,935	3,409	4,159	8,643	13,230	35,530	62,260	34,760	12,330	6,599	16,270

† Corrected.

Monthly and yearly runoff, in thousands of acre-feet, of Kootenai River at Leonia, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	756	3,360	2,110	1,680	640	397	-
1929	448	305	223	178	175	237	371	1,650	2,380	885	480	309	17,640
1930	254	184	198	168	197	235	934	1,450	2,270	1,220	544	351	8,000
1931	284	224	176	175	159	215	346	1,530	1,490	732	386	305	6,020
1932	238	202	177	160	221	395	887	2,640	3,160	1,220	600	390	10,300
1933	319	352	330	253	174	247	791	2,200	3,800	1,890	756	541	11,700
1934	622.1	671.2	842.1	696.5	461.2	638.8	2,377	3,190	2,004	966.1	508.2	333.6	13,310
1935	290.7	502.6	271.3	314	328.3	317.4	622.8	2,124	2,644	1,579	682.9	371.6	10,050
1936	284	224	189.4	177.1	114.7	230.4	1,007	2,303	1,624	680.3	391.9	282.3	7,508
1937	217	163.5	167	118.2	132.2	165.7	391.9	1,734	1,929	994	487	315.8	6,816
1938	296.9	402.7	261.4	274.4	188.1	294.4	1,147	2,700	2,981	1,235	477.2	338.1	10,600
1939	301.5	235.2	195.3	224	150	268.9	840.4	2,048	1,607	1,164	465.7	314.9	7,815
1940	355.7	327	285.1	182.9	187	294	696.3	1,994	1,529	667.6	392.4	354.8	7,266
1941	339	244.2	212.6	189.3	157.8	259.9	633.8	1,326	1,228	633.4	377.7	523.9	61,260
1942	570.1	417	683.4	289.9	214.6	239.5	848.3	2,199	2,573	1,930	779.5	451	11,200
1943	355.7	300.6	253.5	195.7	209.5	275	1,858	1,930	2,403	2,000	700.7	363.5	10,850
1944	318	245.8	193.1	172.9	153.2	165.6	313.3	1,146	1,359	603.7	400.8	312.8	5,384
1945	293.4	218.5	152.3	173.7	157.7	174.3	257.9	1,635	2,167	1,160	460.5	370	7,220
1946	321.7	317.4	247.3	225.8	172.4	318.4	1,069	2,994	2,840	1,481	625.2	501.2	11,110
1947	396.4	286	325.5	262.2	301.6	471.4	1,194	3,208	2,421	1,240	575.7	457.5	11,140
1948	955.3	592.3	371.7	291.8	238.5	288.8	931.9	3,604	3,904	1,369	628	435.9	13,810
1949	348.5	263.2	194.1	190.8	195.8	276.8	1,050	2,727	1,589	758.5	467	327.8	8,368
1950	306	356.9	303.4	209.6	231	408.5	787.2	2,185	3,705	2,137	758.1	392.7	11,780

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	692	61,000	June 4, 1929	2,500	10,500	0.894	12.20	17,640,000	10,100	11.66	7,300,000
1930	707	57,300	June 12, 1930	2,000	11,100	.945	12.80	8,000,000	11,100	12.87	8,050,000
1931	722	46,600	May 17, 1931	2,050	18,320	.708	9.60	6,020,000	8,220	9.49	5,950,000
1932	737	70,900	June 16, 1932	1,900	14,200	1.21	16.42	10,300,000	14,700	17.04	10,700,000
1933	752	95,500	June 18, 1933	1,700	16,200	1.38	18.71	11,700,000	17,800	20.52	12,850,000
1934	767	75,200	Apr 29, 1934	4,730	18,380	1.57	21.25	13,310,000	16,900	19.53	12,240,000
1935	792	63,600	May 24, 1935	1,900	13,860	1.18	16.04	10,050,000	13,370	15.46	9,682,000
1936	812	54,200	June 1, 1936	1,320	10,340	.881	12.00	7,508,000	10,140	11.77	7,358,000
1937	832	47,900	May 28, 1937	1,070	9,414	.802	10.90	6,816,000	9,985	11.55	7,229,000
1938	862	83,000	May 28, 1938	2,570	14,636	1.25	16.91	10,600,000	14,320	16.55	10,370,000
1939	882	47,500	May 18, 1939	1,500	10,800	.920	12.48	7,815,000	11,120	12.86	8,051,000
1940	902	52,000	May 26, 1940	1,850	10,010	.853	11.61	7,266,000	9,773	11.33	7,094,000
1941	832	31,900	May 17, 1941	2,000	8,460	.721	9.78	6,126,000	9,668	11.18	7,000,000
1942	862	74,300	May 27, 1942	2,800	15,460	1.32	17.87	11,200,000	14,410	16.65	10,430,000
1943	982	58,000	May 29, 1943	1,600	14,980	1.28	17.31	10,850,000	14,770	17.07	10,630,000
1944	1012	30,000	June 1, 1944	2,100	7,416	.632	8.59	5,384,000	7,288	8.44	5,292,000
1945	1042	57,700	June 2, 1945	1,450	9,973	.849	11.53	7,220,000	10,280	11.88	7,442,000
1946	1062	77,000	May 30, 1946	2,400	15,350	1.31	17.76	11,110,000	15,520	17.96	11,230,000
1947	1092	82,500	May 11, 1947	2,700	15,390	1.31	17.80	11,140,000	16,650	19.26	12,050,000
1948	1122	123,000	May 28, 1948	2,900	19,030	1.62	22.08	13,810,000	17,490	20.30	12,698,000
1949	1152	75,200	May 15, 1949	2,500	11,560	.985	13.37	9,368,000	11,780	13.62	8,529,000
1950	1182	87,100	June 23, 1950	2,200	16,270	1.39	18.61	11,780,000	-	-	-

† Corrected.

357. Boulder Creek near Leonia, Idaho

Location.--Lat 48°36', long. 116°06', in NE $\frac{1}{4}$ sec. 32, T. 61 N., R. 3 E., on right bank three-quarters of a mile downstream from McGinty Creek, three-quarters of a mile upstream from buildings of Idamont Lead-Zinc Mines Co., $2\frac{1}{2}$ miles southwest of Leonia, and $2\frac{1}{2}$ miles upstream from mouth.

Drainage area.--53 sq mi, approximately. At site May 1925 to November 1933, 58 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage 2,600 feet (from topographic map). May 21 to Nov. 19, 1928, staff gage and Nov. 20, 1928, to Nov. 29, 1933, water-stage recorder, half a mile downstream at different datum. Dec. 30, 1933, to Oct. 12, 1934, staff gage and Oct. 13, 1934, to Sept. 27, 1946, water-stage recorder, 1,600 ft upstream at different datum.

Average discharge.--22 years (1928-50), 107 cfs.

Extremes.--1928-50: Maximum discharge, 2,700 cfs Oct. 19, 1947 (gage height, 7.85 ft), by contracted opening determination; minimum, 2 cfs Aug. 25, Sept. 5, 1931.

Remarks.--Diversion of 1 to 3 cfs above station at times during November 1928 to October 1935, for mining use below station.

Monthly and yearly mean discharge, in cubic feet per second, of Boulder Creek near Leonia, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	126	44.6	11.1	*14.3	-
1929	*32.9	*27.0	14.6	10.2	9.62	37.6	146	387	112	16.9	13.3	8.36	*68.4
1930	8.5	8.7	28.0	11.4	44.8	50.7	342	177	92.9	18.7	6.9	7.2	66.0
1931	12.4	13.1	9.2	19.3	25.1	54.3	190	377	62.3	14.6	3.8	7.2	66.1
1932	12.6	20.6	16.7	16.0	116	97.2	361	626	226	26.0	6.8	5.9	127
1933	16.3	*112	103	48.2	28.4	40.7	272	644	512	75.4	11.2	17.6	157
1934	58.4	106	293	187	131	167	626	422	70.9	13.3	4.4	5.6	174
1935	22.9	222	53.3	65.9	71.8	67.4	195	623	241	44.5	11.4	8.0	136
1936	8.7	11.3	9.6	9.9	7.8	21.1	367	435	71.3	16.3	5.7	9.0	81.1
1937	9.3	7.3	19.4	7.9	8.4	18.4	120	527	243	46.5	15.0	11.0	86.4
1938	20.4	92.2	74.3	72.7	39.7	66.4	408	582	206	31.2	10.5	8.8	135
1939	15.1	12.6	18.2	22.5	14.4	60.5	288	370	107	25.2	8.3	8.0	79.5
1940	10.8	13.3	50.3	22.5	18.8	74.7	249	320	54.6	11.7	6.3	8.3	70.2
1941	13.2	13.7	20.2	16.1	16.0	72.8	190	249	75.8	24.1	11.4	35.5	61.7
1942	97.6	112	291	49.8	33.5	35.9	245	321	173	72.5	21.8	11.9	123
1943	12.0	37.7	27.1	18.8	17.1	51.6	449	480	309	66.0	16.4	9.8	122
1944	15.8	14.0	27.6	16.0	16.2	19.2	109	223	66.0	14.3	8.2	9.7	45.0
1945	11.7	19.0	19.7	30.1	34.1	28.5	70.5	494	156	23.9	8.7	13.5	76.4
1946	20.5	48.0	35.9	31.3	24.0	66.3	286	652	301	58.4	13.0	10.8	129
1947	22.1	24.8	45.8	42.7	84.4	104	358	529	142	30.1	16.0	17.8	118
1948	223	107	53.3	43.0	42.3	39.7	213	723	341	53.3	30.3	16.0	158
1949	22.6	20.1	17.7	16.8	25.3	36.3	301	669	168	31.8	15.3	15.0	112
1950	22.5	106	67.2	33.9	38.1	83.1	196	616	573	107	25.3	15.6	157

* Not previously published; estimated on the basis of weather records and records for Moyie River stations.

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	7,500	2,740	682	*851	-
1929	*2,020	*1,610	898	627	534	2,510	8,690	23,800	6,660	1,040	818	497	*49,500
1930	523	518	1,720	701	2,490	3,120	20,400	10,900	5,550	1,150	424	428	47,900
1931	762	780	566	1,190	1,390	3,340	11,300	23,200	3,710	898	234	428	47,800
1932	775	1,230	1,030	984	6,670	5,980	21,500	38,500	13,400	1,600	418	351	92,400
1933	1,000	6,660	6,330	2,960	1,580	2,500	16,200	39,600	30,500	4,640	689	1,050	114,000
1934	3,590	6,310	18,040	11,500	7,260	10,270	37,250	25,970	4,220	817	268	333	125,800
1935	1,410	13,240	3,280	4,050	3,990	4,140	11,630	38,290	14,340	2,740	700	478	98,290
1936	558	674	589	609	446	1,300	21,840	26,740	4,240	1,000	349	534	58,860
1937	573	434	1,190	468	464	1,010	7,110	32,410	14,460	2,860	924	653	62,580
1938	1,260	5,490	4,570	4,470	2,200	4,080	24,300	35,790	12,240	1,920	643	522	97,480
1939	930	752	1,120	1,390	797	3,720	17,160	22,750	6,370	1,550	508	478	57,520
1940	662	793	3,090	1,390	1,080	4,590	14,810	19,700	3,250	720	387	492	50,960
1941	809	813	1,240	988	891	4,480	11,330	15,310	4,510	1,480	702	2,110	44,660
1942	6,000	6,640	17,910	3,060	1,860	2,090	14,590	19,750	10,300	4,450	1,340	706	88,700
1943	738	2,240	1,660	1,150	950	3,180	25,010	29,510	18,380	4,060	1,010	583	88,470
1944	974	833	1,700	984	932	1,180	6,500	13,710	3,930	879	504	575	32,700
1945	722	1,130	1,210	1,850	1,890	1,750	4,200	30,400	9,310	1,470	538	805	55,280
1946	1,260	2,860	2,210	1,920	1,330	4,080	17,010	40,120	17,900	3,590	797	641	93,720
1947	1,360	1,470	2,820	2,630	4,490	6,370	21,290	32,540	8,430	1,850	984	1,060	85,490
1948	13,740	6,370	3,280	2,640	2,430	2,440	12,660	44,450	20,320	3,280	1,860	950	114,400
1949	1,390	1,200	1,090	1,030	1,400	2,230	17,920	41,120	10,010	1,960	942	893	81,180
1950	1,390	6,330	4,130	2,080	2,120	5,110	11,630	37,870	34,090	6,570	1,560	928	113,800

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Momentary		Maximum	Minimum	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date					Inches	Acre-feet		Inches	Acre-feet	
1928	672	-	-	-	-	-	-	-	-	-	-	-	-
1929	692	880	May 12, 1929	5	4	*68.4	1.23	17.54	*49,500	66.0	16.91	47,700	
1930	707	683	Apr. 14, 1930	4	4	66.0	1.25	16.90	47,900	65.1	16.67	47,300	
1931	722	835	May 2, 1931	2	4	66.1	1.25	16.90	47,800	67.3	17.21	48,700	
1932	737	1,330	May 7, 1932	5	5	127	2.40	32.67	92,400	142	36.56	103,000	
1933	752	1,330	May 26, 1933	4	4	157	2.96	40.27	114,000	176	45.20	128,000	
1934	767	-	-	4	4	174	3.28	44.52	125,800	160	40.97	115,800	
1935	792	1,540	Nov. 7, 1934	6	4	136	2.57	34.81	98,290	115	29.12	82,160	
1936	812	1,010	May 4, 1936	4	4	81.1	1.53	20.84	58,860	81.6	20.97	59,260	
1937	832	920	May 4, 1937	5	5	86.4	1.63	22.12	62,580	99.0	25.34	71,700	
1938	862	2,050	Apr. 18, 1938	7	7	135	2.55	34.50	97,480	123	31.51	89,970	
1939	882	854	May 3, 1939	6	6	79.5	1.50	20.34	57,520	81.9	20.95	59,270	
1940	902	760	May 11, 1940	4	4	70.2	1.32	18.03	50,960	67.9	17.44	49,280	
1941	932	1,200	May 17, 1941	7	7	61.7	1.16	15.79	44,660	100	25.58	72,350	
1942	962	2,170	Dec. 2, 1941	9	9	123	2.32	31.40	88,700	86.7	22.23	62,780	
1943	982	1,170	May 25, 1943	8	8	122	2.30	31.30	88,470	121	30.89	87,340	
1944	1012	468	May 9, 1944	6	6	45.0	.849	11.56	32,700	44.4	11.42	32,260	
1945	1042	1,080	May 5, 1945	6	6	78.4	1.44	19.56	55,280	80.9	20.71	58,540	
1946	1062	1,220	May 4, 1946	9	9	129	2.43	33.15	93,720	129	32.91	93,040	
1947	1092	1,140	May 2, 1947	10	10	118	2.23	30.23	85,490	143	36.50	103,200	
1948	1122	2,700	Oct. 19, 1947	14	14	158	2.98	40.47	114,400	130	33.49	94,710	
1949	1152	1,340	May 13, 1949	10	10	112	2.11	28.72	81,180	123	31.63	89,560	
1950	1182	1,770	Nov. 27, 1949	12	12	157	2.96	40.27	113,800	-	-	-	

* Not previously published.

358. Kootenai River at Katka, Idaho

Location.--Lat 48°42'10", long. 116°08'00", in NE $\frac{1}{4}$ sec. 25, T. 62 N., R. 2 E., on left bank at Katka, 3,000 ft downstream from Great Northern Railway station, and $3\frac{1}{4}$ miles upstream from Moyie River.

Drainage area.--11,860 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 1,700.10 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--5 years (1928-33), 12,170 cfs.

Extremes.--1928-33: Maximum discharge, 96,500 cfs June 18, 1933 (gage height, 96.80 ft); minimum, 1,750 cfs Feb. 10, 1933; minimum gage height, 73.74 ft Dec. 11, 1929.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	12,800	55,400	36,300	27,900	10,700	6,690	-
1929	7,660	5,210	3,700	2,940	3,150	3,960	6,490	22,500	39,900	14,800	7,710	5,180	10,600
1930	4,190	3,120	3,270	2,760	3,620	3,880	16,100	23,900	38,000	19,800	8,830	5,780	11,100
1931	4,670	3,800	2,880	2,890	2,920	3,560	6,070	24,900	24,800	12,100	6,320	5,130	8,360
1932	3,930	3,480	2,910	2,630	3,980	6,530	15,400	43,400	53,600	20,100	9,830	6,570	14,400
1933	5,150	6,170	5,520	4,190	3,180	4,120	13,400	36,600	65,400	31,000	12,500	9,100	16,400

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	764	3,410	2,160	1,720	658	398	-
1929	471	310	228	181	175	243	566	1,630	2,370	910	474	308	7,690
1930	258	186	201	170	201	259	955	1,470	2,260	1,220	543	344	8,050
1931	287	226	177	178	162	219	361	1,530	1,480	744	389	305	6,060
1932	242	207	179	162	229	402	916	2,670	3,190	1,240	604	391	10,400
1933	317	367	339	258	177	253	797	2,250	3,890	1,910	769	541	11,900

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches Acre-feet	Mean	Runoff Inches Acre-feet		
		Discharge	Date								
1928	672	77,800	May 25, 27, 1928	-	-	-	-	-	-	-	-
1929	692	60,300	June 4, 1929	2,500	10,600	0.894	12.16	7,690,000	10,100	11.57	7,320,000
1930	707	58,400	June 1, 1930	2,020	11,100	.936	12.75	8,050,000	11,200	12.80	8,090,000
1931	722	46,200	May 17, 1931	2,070	8,360	.705	9.57	6,060,000	8,270	9.47	6,000,000
1932	737	70,500	June 16, 1932	1,930	14,400	1.21	16.49	10,400,000	14,900	17.12	10,800,000
1933	752	96,500	June 18, 1933	1,750	16,400	1.38	18.76	11,900,000	-	-	-

359. Moyie River at Eastport, Idaho
(International gaging station)

Location.--Lat 49°00', long. 116°11', in SE $\frac{1}{4}$ sec. 10, T. 65 N., R. 2 E., on left bank at Eastport, 1,000 ft downstream from international boundary.

Drainage area.--570 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 2,620.06 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.--21 years (1929-50), 653 cfs.

Extremes.--1929-50: Maximum discharge, 8,030 cfs May 24, 1948 (gage height, 10.25 ft); minimum, 23 cfs Nov. 7, 1936 (gage height, 3.20 ft).

Remarks.--No diversion or regulation above station.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Monthly and yearly mean discharge, in cubic feet per second, of Moyle River at Eastport, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	-	68.2	-
1930	64.0	56.7	62.4	53.4	80.5	171	1,560	1,910	1,560	308	100	73.4	484
1931	79.0	85.7	68.3	71.6	81.2	156	524	1,830	526	175	64.0	56.1	312
1932	55.3	86.5	84.9	91.8	131	367	1,360	3,400	2,070	318	93.1	61.8	682
1933	86.1	246	370	198	131	172	1,220	3,120	3,530	675	148	123	836
1934	338	641	718	647	454	626	3,303	3,095	918	208	81.8	60.6	925
1935	78.1	249	174	241	296	255	905	2,742	1,978	503	166	87.2	641
1936	85.3	87.4	75.5	74.5	67.8	131	1,656	2,327	652	150	58.1	59.6	452
1937	49.1	42.2	58.3	41.9	54.7	79.4	514	2,405	1,920	401	131	81.1	483
1938	115	516	233	245	203	385	2,179	3,644	2,200	421	112	68.6	845
1939	77.7	81.4	87.2	136	80.5	310	1,608	2,366	1,102	363	78.6	59.1	531
1940	74.3	116	191	117	113	364	1,313	2,087	673	127	58.9	60.2	442
1941	91.0	129	111	99.3	101	412	1,234	1,388	604	209	83.3	273	395
1942	490	456	1,062	247	179	175	1,462	2,719	2,586	946	239	124	893
1943	99.4	127	148	134	138	231	2,977	2,746	2,442	798	167	81.5	940
1944	76.2	82.8	69.9	60.4	65.0	69.4	422	1,742	622	173	64.9	46.6	244
1945	56.9	66.6	53.3	60.8	75.8	102	390	3,102	1,749	308	79.8	60.8	512
1946	73.5	161	153	140	128	296	1,977	4,179	1,944	464	112	92.9	813
1947	119	117	153	144	255	511	2,167	3,875	1,492	309	117	115	783
1948	907	677	284	219	206	192	1,469	4,318	2,848	573	257	134	1,008
1949	136	125	112	107	142	193	1,841	3,565	955	225	96.5	77.0	634
1950	92.4	198	311	147	165	323	1,188	3,948	3,774	1,035	208	108	961

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	-	4,060	-
1930	3,940	3,370	3,840	3,280	4,470	10,500	92,800	117,000	80,900	18,900	6,150	4,370	350,000
1931	4,860	5,100	4,200	4,400	4,510	9,590	31,200	113,000	31,300	10,800	3,940	3,340	226,000
1932	5,150	5,150	5,220	5,640	11,000	22,600	80,900	209,000	23,000	19,600	5,720	3,680	495,000
1933	5,290	14,600	22,800	12,200	7,280	10,600	72,600	192,000	21,000	41,500	9,100	7,320	605,000
1934	20,790	38,160	44,150	39,800	25,200	38,520	136,500	390,300	54,610	12,810	5,050	3,610	669,500
1935	4,800	14,800	10,700	14,830	16,440	15,670	53,870	168,600	17,700	30,920	10,230	5,190	465,800
1936	5,250	5,200	4,640	4,580	3,900	8,050	98,560	143,100	38,790	9,230	3,570	3,550	328,400
1937	3,020	2,510	3,460	2,570	3,040	4,880	30,590	147,900	14,300	24,630	8,070	4,830	349,800
1938	7,100	18,800	14,300	15,080	11,290	23,680	129,600	224,100	30,900	25,860	6,860	4,080	611,700
1939	4,780	4,840	5,360	8,390	4,470	19,050	95,660	145,500	65,600	22,350	4,840	3,510	384,400
1940	4,570	6,910	11,760	7,180	6,500	22,360	78,160	128,300	40,030	7,800	3,620	3,580	320,800
1941	5,600	7,680	6,830	6,110	5,640	25,300	73,420	85,350	35,910	12,840	5,120	16,270	286,100
1942	30,100	27,140	65,320	15,170	9,940	10,740	87,010	167,200	53,900	58,170	14,680	7,360	646,700
1943	6,110	7,540	9,130	8,210	7,650	14,170	177,100	168,800	45,300	49,070	10,300	4,850	608,200
1944	4,690	4,930	4,300	3,710	3,740	4,270	25,080	72,180	37,010	10,670	3,990	2,770	177,500
1945	3,500	3,960	3,280	3,740	4,210	6,290	23,210	190,700	04,100	18,940	4,910	3,620	370,500
1946	4,520	9,590	9,390	8,630	7,110	18,200	117,700	257,000	15,700	28,510	6,910	5,530	588,800
1947	7,310	6,970	9,410	8,860	14,140	31,400	128,900	238,300	68,760	18,970	7,180	8,820	567,000
1948	55,800	40,290	17,440	13,460	11,840	11,790	87,430	265,500	68,500	35,210	15,770	7,770	732,000
1949	8,330	7,430	6,910	6,570	7,900	11,870	109,600	219,200	58,820	13,820	5,930	4,580	459,000
1950	5,680	11,760	19,130	9,060	9,190	19,870	70,700	242,800	224,600	65,620	12,820	6,400	659,600

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1929	692	-	-	-	-	-	-	-	-	-	-	
1930	707	3,330	May 31, 1930	34	484	0.849	11.53	350,000	488	11.63	352,500	
1931	722	2,870	May 14, 15, 1931	46	312	.547	7.44	226,000	366	7.42	225,800	
1932	737	5,440	May 22, 1932	50	682	1.20	16.28	495,000	722	17.23	523,900	
1933	752	5,120	May 31, 1933	52	836	1.50	19.90	605,000	919	21.88	665,700	
1934	767	6,240	Apr. 28, 1934	53	925	1.62	22.02	669,500	824	19.64	598,700	
1935	792	4,420	May 23, 1935	55	641	1.12	15.27	463,800	620	14.76	448,500	
1936	812	3,740	Apr. 18, 1936	46	452	.793	10.80	328,400	444	10.60	322,300	
1937	832	3,300	May 28, 1937	35	483	.847	11.51	349,800	526	12.54	381,000	
1938	862	6,080	Apr. 18, 1938	57	845	1.48	20.12	611,700	810	19.30	586,400	
1939	882	3,740	May 4, 1939	47	531	.932	12.65	384,400	542	12.92	392,600	
1940	902	3,150	May 12, 1940	45	442	.775	10.57	320,800	438	10.45	317,600	
1941	932	2,560	May 17, 1941	57	395	.693	9.38	286,100	537	12.76	388,500	
1942	962	5,680	May 27, 1942	107	893	1.57	21.26	646,700	755	17.98	547,000	
1943	982	5,920	Apr. 19, 1943	63	840	1.47	20.01	608,200	828	19.71	599,400	
1944	1012	1,500	May 9, 1944	37	244	.428	5.82	177,300	240	5.73	174,200	
1945	1042	4,370	May 6, 1945	43	512	.898	12.18	370,500	529	12.60	383,200	
1946	1062	6,060	May 6, 1946	59	813	1.43	19.36	588,800	813	19.36	589,000	
1947	1092	6,800	May 10, 1947	55	783	1.37	18.65	567,000	907	21.61	656,900	
1948	1122	8,030	May 24, 1948	120	1,008	1.77	24.08	732,000	885	21.08	642,900	
1949	1152	6,190	May 14, 1949	59	634	1.11	15.09	459,000	653	15.56	472,900	
1950	1182	6,650	May 15, 1950	74	961	1.69	22.89	659,600	-	-	-	

360. Moyie River at Snyder, Idaho

Location.--Lat 48°52', long. 116°10', in sec. 23, T. 64 N., R. 2 E., on left bank at Snyder Ranger Station, a quarter of a mile west of Snyder Station on Spokane International Railroad, 3½ miles downstream from Round Prairie Creek, and 12 miles upstream from mouth.

Drainage area.--656 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 2,473 ft (river-profile map). March 1911 to February 1912, staff gage 1 mile downstream at different datum.

Average discharge.--9 years (1911-16, 1919-23), 829 cfs.

Extremes.--1911-16, 1919-1923: Maximum discharge observed, 10,800 cfs June 19, 1916 (gage height, 11.0 ft); minimum observed, 56 cfs Oct. 25, 26, 1919 (gage height, 2.80 ft).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
The year												
1911	-	-	-	-	-	679	1,610	3,820	3,770	849	249	174
1912	220	175	151	221	144	147	1,350	2,940	1,220	710	243	219
1913	202	479	199	216	314	280	1,640	4,380	3,640	763	251	219
1914	*207	*250	*183	423	220	487	2,160	4,460	2,560	743	190	145
1915	213	666	221	163	128	258	1,460	1,820	901	470	195	136
1916	58	206	186	159	236	927	1,990	3,750	5,500	*1,530	250	142
1919	-	-	-	-	-	244	2,020	4,260	2,420	516	144	93.2
1920	78.4	106	102	83.9	89.5	156	478	2,510	2,650	779	164	196
1921	418	332	254	239	418	543	1,460	4,190	3,050	509	145	103
1922	108	124	169	84.2	74.6	111	454	2,750	2,360	279	110	88.0
1923	119	129	120	170	105	149	1,210	3,260	2,950	656	186	106

* Not previously published; estimated on basis of records for Callahan Creek at Troy, Mont., and Coeur d'Alene River at Prichard, Idaho.

Monthly and yearly runoff, in acre-feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
The year												
1911	-	-	-	-	-	29,600	95,800	235,000	224,000	52,200	15,300	10,400
1912	13,500	10,400	9,280	13,600	8,280	9,040	79,100	81,000	72,600	43,700	14,900	13,000
1913	12,400	28,500	12,200	13,300	17,400	17,200	97,600	269,000	217,000	46,900	15,400	13,000
1914	*12,700	*14,900	*11,300	26,000	12,200	29,900	129,000	274,000	152,000	45,700	11,700	8,630
1915	13,100	39,600	13,600	10,000	7,110	15,900	86,900	112,000	53,600	28,900	12,000	8,090
1916	9,720	12,300	11,400	9,780	13,600	57,000	118,000	231,000	327,000	*93,800	15,400	8,450
1919	-	-	-	-	-	15,000	120,000	262,000	144,000	31,700	8,850	5,550
1920	4,820	6,310	6,270	5,160	5,150	9,590	28,400	142,000	158,000	47,900	10,100	11,700
1921	25,700	19,800	15,600	14,700	23,200	33,400	86,900	258,000	181,000	31,300	8,920	6,130
1922	6,640	7,580	10,400	5,180	4,140	6,820	27,000	169,000	140,000	17,200	6,760	5,240
1923	7,320	7,680	7,380	10,500	5,830	9,160	72,000	200,000	76,000	40,300	11,400	6,310

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Maximum		Observed Date	Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge						Inches	Acre-feet		Inches	Acre-feet
1911	312	6,680	May 7, 1911	-	-	-	-	-	-	-	-	-
1912	322	4,120	May16,18,1912	91	645	0.983	13.38	468,000	673	13.95	488,000	-
1913	362	8,020	(a)	170	1,050	1.60	21.68	760,000	1,030	21.28	746,000	-
1914	392	6,120	May 16, 1914	100	*1,010	1.54	20.80	*728,000	1,040	21.58	755,000	-
1915	412	2,700	May 15, 1915	100	553	.843	11.44	401,000	508	10.50	368,000	-
1916	442	10,800	June 19, 1916	115	\$1,250	1.91	25.93	\$907,000	-	-	-	-
1919	512	7,230	May 23, 1919	-	-	-	-	-	-	-	-	-
1920	512	4,200	May 18, 1920	56	600	.915	12.44	435,000	660	13.68	479,000	-
1921	532	7,230	May 26, 1921	92	974	1.48	20.14	705,000	923	19.0	668,000	-
1922	552	5,010	June 4, 1922	60	561	.855	11.60	406,000	558	11.54	404,000	-
1923	572	5,860	June 1, 1923	70	765	1.17	15.83	554,000	-	-	-	-

* Not previously published; records estimated on the basis of records for Callahan Creek at Troy, Mont., and Coeur d'Alene River at Prichard, Idaho.
a May 31, June 1, 2, 1913.

361. Moyie River at Eileen, Idaho

Location.--Lat 48°46', long. 116°10', in NE $\frac{1}{4}$ sec. 35, T. 63 N., R. 2 E., on right bank an eighth of a mile downstream from Skin Creek, a quarter of a mile southeast of Eileen, and 4 miles upstream from mouth.

Drainage area.--755 sq mi.

Gage.--Water-stage recorder. Datum of gage is 2,124.5 ft above mean sea level (river-profile survey). Oct. 1, 1925, to May 31, 1928, staff gage and June 1, 1928, to Sept. 30, 1944, water-stage recorder, at same site at datum 1 ft higher.

Average discharge.--25 years (1925-50), 813 cfs.

Extremes.--1925-50: Maximum discharge, 9,650 cfs May 26, 1948 (gage height, 6.51 ft); minimum, 40 cfs Nov. 27, 1936; minimum gage height, 0.50 ft, present datum, Feb. 22, 1944.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	112	112	127	125	151	224	1,210	1,340	347	172	112	200	353
1927	766	455	552	330	288	286	1,470	3,350	3,530	710	274	902	1,080
1928	1,150	904	839	486	355	678	1,350	4,580	1,410	763	262	151	1,080
1929	228	187	122	89.0	94.6	183	560	2,480	1,850	363	128	100	534
1930	96.1	89.0	93.2	83.2	126	255	1,880	2,160	1,570	400	145	104	584
1931	120	128	102	113	147	273	719	2,240	674	246	97.8	86.7	415
1932	87.7	128	121	138	287	474	1,860	4,360	2,570	429	139	108	892
1933	135	388	506	301	202	275	1,710	3,910	4,240	803	206	175	1,070
1934	402	821	991	942	708	901	4,281	3,933	1,081	264	109	93.1	1,211
1935	109	347	234	323	403	385	1,264	3,574	2,407	641	214	127	837
1936	124	132	114	114	90.1	199	2,200	2,865	813	200	91.2	94.7	587
1937	83.3	440	91.8	289.7	85.7	130	739	2,910	2,238	502	181	124	604
1938	158	440	350	408	284	615	2,808	4,341	2,524	517	160	113	1,062
1939	126	126	130	201	127	402	1,875	2,833	1,320	477	118	91.3	654
1940	106	152	264	152	153	486	1,628	2,467	800	167	87.9	89.1	547
1941	122	161	154	142	144	578	1,500	1,727	789	282	122	354	507
1942	672	639	1,444	357	266	261	1,880	3,254	3,043	1,201	325	176	1,130
1943	145	201	224	186	193	333	3,574	3,326	2,933	968	229	123	1,036
1944	124	130	117	102	97.4	109	575	1,441	774	223	97.0	77.3	323
1945	84.1	93.6	87.8	94.6	116	148	521	3,487	1,914	408	117	95.5	601
1946	106	211	205	189	169	463	2,498	4,930	2,321	306	156	137	1,003
1947	170	170	229	243	432	743	2,661	4,343	1,733	398	176	173	958
1948	1,102	843	392	303	279	301	1,875	5,205	3,343	745	351	180	1,245
1949	188	180	165	155	208	322	2,275	4,357	1,775	308	143	117	803
1950	144	296	441	209	236	485	1,689	4,837	4,401	1,205	271	144	1,200

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	6,890	6,660	7,810	7,690	8,390	13,800	72,000	82,400	20,600	10,600	6,890	11,900	256,000
1927	47,100	27,100	33,900	20,300	16,000	17,600	87,500	208,000	210,000	43,700	18,800	53,700	780,000
1928	70,700	53,800	51,600	29,900	20,400	41,700	80,300	282,000	83,900	46,900	16,100	8,980	786,000
1929	14,000	11,100	7,500	5,470	5,250	11,500	33,500	152,000	10,000	22,500	7,870	5,950	386,000
1930	5,910	5,300	5,730	5,120	7,000	15,700	112,000	133,000	93,400	24,600	8,920	6,190	423,000
1931	7,380	7,620	6,270	6,950	8,160	16,800	42,800	138,000	40,100	15,100	6,010	5,160	300,000
1932	5,390	7,620	7,440	8,480	16,500	29,100	111,000	268,000	153,000	26,400	8,550	6,430	648,000
1933	8,300	23,100	31,100	18,500	11,200	16,900	102,000	240,000	252,000	49,400	12,700	10,400	776,000
1934	24,730	48,860	60,930	57,930	39,340	55,380	254,700	241,800	64,300	16,230	6,720	5,540	876,500
1935	6,680	20,670	14,370	19,830	22,370	25,660	75,220	179,000	43,200	39,420	13,160	7,550	605,800
1936	7,610	7,840	7,000	7,000	5,180	12,230	130,900	176,200	48,390	12,270	5,610	5,640	425,900
1937	5,120	4,130	5,650	4,290	4,760	8,000	44,000	178,900	33,200	30,800	11,100	7,410	437,400
1938	9,730	26,150	21,750	24,970	15,780	37,790	167,100	266,900	103,100	31,780	9,830	6,730	768,700
1939	7,720	7,530	8,010	12,360	7,060	24,750	111,600	174,200	78,530	29,330	7,250	5,430	473,800
1940	6,520	9,020	16,240	9,340	8,810	29,880	96,870	151,700	47,590	10,260	5,410	5,300	396,900
1941	7,520	9,580	9,470	8,740	7,990	35,540	89,240	106,200	46,930	17,340	7,470	21,040	367,100
1942	41,310	38,050	98,820	21,930	14,790	16,050	111,900	200,100	81,100	75,850	19,970	10,450	818,300
1943	8,900	11,940	13,900	11,460	10,750	20,460	212,700	204,500	174,500	59,540	14,100	7,310	749,900
1944	7,640	7,760	7,200	6,270	5,600	6,710	34,200	88,560	46,050	13,710	5,960	4,600	234,300
1945	5,170	5,570	5,400	5,820	6,450	9,110	31,020	114,400	113,900	25,080	7,200	5,680	434,800
1946	6,500	12,570	12,580	11,840	9,370	28,470	148,600	303,100	138,100	37,270	9,600	8,160	726,000
1947	10,460	10,130	14,100	14,920	24,000	45,690	158,300	267,000	103,100	24,450	10,840	10,290	693,300
1948	67,740	50,180	24,080	18,610	16,020	16,490	111,600	320,000	198,900	45,800	21,560	10,750	903,700
1949	11,540	10,690	10,140	9,560	11,560	19,790	135,400	267,900	69,910	18,960	8,770	6,980	581,200
1950	8,880	17,590	27,150	12,850	13,100	29,820	100,500	297,400	261,900	74,080	16,680	8,540	668,500

Yearly discharge, in cubic feet per second, of Moyie River at Eileen, Idaho

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff-ft		Mean	Runoff	
		Discharge	Date				Inches	Acre-foot		Inches	Acre-foot
1926	652	-	-	88	353	0.468	6.33	256,000	473	8.46	342,000
1927	652	-	-	220	1,080	1.43	19.36	780,000	1,170	21.06	848,000
1928	672	-	-	127	1,080	1.43	19.53	786,000	885	15.98	643,000
1929	692	4,820	May 24, 1929	80	534	.707	9.61	386,000	513	9.21	370,000
1930	707	3,680	May 31, 1930	60	584	.774	10.49	423,000	590	10.74	427,000
1931	722	3,540	May 15, 1931	72	415	.550	7.46	300,000	414	7.43	300,000
1932	737	6,840	May 22, 1932	77	892	1.18	16.04	648,000	950	17.09	690,000
1933	752	6,390	May 31, 1933	87	1,070	1.42	19.26	776,000	1,171	21.05	847,600
1934	767	8,780	Apr. 29, 1934	88	1,211	1.60	21.78	876,500	1,083	19.48	783,700
1935	792	6,230	May 23, 1935	88	837	1.11	15.05	605,800	810	14.57	586,600
1936	812	4,950	Apr. 26, 1936	81	587	.777	10.57	425,900	576	10.38	418,300
1937	832	3,850	May 5, 1937	50	604	.800	10.86	437,400	663	11.92	480,100
1938	862	7,680	Apr. 18, 1938	101	1,062	1.41	19.09	768,700	1,014	18.24	734,300
1939	882	4,500	May 3, 1939	75	854	.866	11.76	473,800	666	11.96	482,300
1940	902	3,630	May 12, 1940	72	547	.725	9.84	396,900	540	9.73	391,700
1941	932	3,290	May 17, 1941	85	507	.672	9.14	367,100	703	12.65	508,700
1942	962	6,320	May 27, 1942	152	1,130	1.50	20.33	818,300	946	17.01	684,800
1943	982	6,680	Apr. 19, 1943	102	1,036	1.37	18.62	749,900	1,019	18.32	737,900
1944	1012	1,840	May 9, 1944	66	323	.428	5.82	234,300	314	5.66	227,800
1945	1042	4,780	May 6, 1945	70	601	.796	10.79	434,800	622	11.17	450,300
1946	1062	6,900	May 6, 1946	90	1,003	1.33	18.03	726,000	1,007	18.11	729,000
1947	1092	7,210	May 10, 1947	80	958	1.27	17.22	693,500	1,106	19.89	800,600
1948	1122	9,650	May 26, 1948	160	1,245	1.65	22.46	903,700	1,094	19.74	794,100
1949	1152	7,430	May 13, 1949	91	803	1.06	14.44	581,200	832	14.96	602,500
1950	1182	8,090	(a)	111	1,200	1.59	21.57	868,500	-	-	-

a May 15 or 16, 1950.

362. Kootenai River at Boom Camp, near Bonners Ferry, Idaho

Location.--Lat 48°42'05", long. 116°14'30", in NW 1/4 sec. 29, T. 62 N., R. 2 E., on left bank 600 ft east of Boom Camp, 3 1/2 miles upstream from Bonners Ferry, and 4 miles downstream from Moyie River.

Drainage area.--12,950 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 1,700.00 ft above mean sea level, adjustment of 1929; gage readings have been reduced to elevations above mean sea level. Prior to Aug. 23, 1934, staff gage at datum 54.08 ft higher.

Extremes.--1927-50: Maximum elevation recorded, 1,779.87 ft May 28, 1948; minimum elevation, 1,755.53 ft Dec. 9, 1936.

Remarks.--Elevations affected by backwater from Kootenay Lake during high lake stages and occasionally by dike failure below station during floods. Maximum yearly elevations are shown with those for Kootenai River at Porthill, elsewhere in this report.

Monthly mean elevation, in feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	61.14	60.42	-	-	-	58.91	60.40	69.75	66.19	63.76	59.64	58.65
1929	58.63	57.83	-	-	-	57.50	58.27	63.51	66.42	60.81	58.67	55.80
1930	57.23	56.70	-	-	58.35	57.26	61.19	63.00	65.65	61.87	59.02	57.97
1931	55.58	57.08	56.70	56.56	56.76	57.04	58.26	63.30	63.03	60.04	58.15	57.66
1932	57.10	57.01	56.82	-	57.59	-	61.14	67.26	69.41	62.05	59.42	58.25
1933	57.71	58.18	58.38	57.63	57.19	57.46	60.23	65.85	72.82	65.13	60.05	59.09
1934	59.38	59.92	60.40	60.00	59.12	59.77	66.58	70.06	65.66	60.99	58.84	57.84
1935	57.56	58.99	57.55	57.88	58.36	57.89	59.63	65.58	68.43	63.51	59.79	58.18
1936	57.51	57.13	56.83	56.66	56.55	57.20	61.03	66.15	63.81	59.75	58.23	57.54
1937	56.98	56.53	56.59	57.12	57.42	56.75	58.44	64.16	65.31	61.26	58.86	57.81
1938	57.62	58.65	57.55	57.68	57.08	57.80	61.93	67.71	70.36	62.27	58.75	57.99
1939	57.70	57.26	56.93	57.14	56.67	57.40	60.94	65.09	63.59	61.75	58.73	57.88
1940	57.93	57.97	-	-	56.98	57.75	60.18	64.86	63.32	59.78	58.27	58.13
1941	57.94	57.37	57.10	56.81	-	-	-	62.64	62.22	59.53	58.18	59.12
1942	59.47	58.74	60.25	60.83	58.34	57.26	60.85	65.82	67.43	64.51	60.20	58.71
1943	58.05	57.78	57.42	57.29	57.73	56.55	64.85	64.87	66.84	64.97	59.92	58.19
1944	57.80	57.34	56.98	56.83	56.65	56.58	57.87	61.82	62.60	59.39	58.28	57.78
1945	57.55	57.07	56.53	56.75	56.73	56.69	-	63.76	65.68	61.70	58.66	58.15
1946	57.77	57.66	57.30	57.17	56.91	57.75	61.72	68.99	68.75	62.80	59.50	58.97
1947	58.30	57.63	58.04	57.70	58.28	58.84	62.30	69.70	68.78	62.04	59.38	58.91
1948	61.05	-	-	57.77	57.62	57.67	61.02	69.59	72.83	62.93	60.73	58.91
1949	58.31	57.77	57.21	57.99	57.93	57.88	61.92	68.56	64.03	60.42	59.03	58.26
1950	58.00	58.41	58.20	59.20	60.25	59.74	61.00	66.48	72.92	66.02	60.43	58.76

Note.--Add 1,700 ft to obtain elevation above mean sea level.

363. Cow Creek near Bonners Ferry, Idaho

Location.--Lat 48°40', long. 116°15', in SW $\frac{1}{4}$ sec. 31, T. 62 N., R. 2 E., on left bank at foot of bridge on Goldbeck ranch, 3 miles southeast of Bonners Ferry.

Drainage area.--14.7 sq mi.

Gage.--Staff gage. Altitude of gage is 1,830 ft (by barometer).

Extremes.--1928-34: Maximum discharge observed, 60 cfs June 9, 1933 (gage height, 5.48 ft); minimum observed, 0.4 cfs Sept. 8-9 14-17, 28-30, 1932.

Remarks.--Some small diversions for irrigation above station.

Monthly mean discharge, in cubic feet per second

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.
1928					-	-	-	12.7	5.95	2.87	2.34
1929					-	2.35	12.0	7.49	1.92	1.13	-
1930					-	8.10	9.41	6.01	1.15	.81	.80
1931					-	3.76	12.6	3.43	1.10	.53	.72
1932					3.48	8.71	28.2	13.8	3.36	1.16	.50
1933					4.55	10.5	24.2	37.3	7.25	2.05	1.47
1934					8.68	29.6	27.6	6.98	1.88	.94	.86

Monthly runoff, in acre-feet

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.
1928					-	-	-	756	366	176	139
1929					-	140	738	446	119	69	-
1930					-	482	579	358	71	50	48
1931					-	224	775	204	68	33	43
1932					214	518	1,730	821	207	71	30
1933					280	625	1,490	2,220	446	126	87
1934					534	1,760	1,700	416	116	57	51

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1928	672	56	May 23, 1928	-	-	-	-
1929	692	22	May 23, 1929	-	-	-	-
1930	707	15	Apr. 25-27, 1930	-	-	-	-
1931	722	18	May 14-17, 1931	-	-	-	-
1932	737	-	-	-	-	-	-
1933	752	60	June 9, 1933	-	-	-	-
1934	767	-	-	-	-	-	-

364. Kootenai River at Bonners Ferry, Idaho

Location.--Lat 48°42'00", long. 116°18'45", in NE $\frac{1}{4}$ sec. 27, T. 62 N., R. 1 E., on highway bridge at Bonners Ferry.

Drainage area.--13,000 sq mi, approximately.

Supplemental records available.--Gage-height records collected at same sites Oct. 16, 1904, to Sept. 30, 1926, are contained in reports of U. S. Weather Bureau.

Gage.--Wire-weight or chain gages. Datum of gage is 1,743.00 ft above mean sea level (U. S. Coast & Geodetic Survey datum); gage readings have been reduced to elevations above mean sea level. May 1, 1904, to Aug. 16, 1910, staff or chain gages three-quarters of a mile downstream at datum 2.75 ft higher. Aug. 17, 1910, to Nov. 30, 1929, staff gage 800 ft across channel from present site at datum 2.74 ft higher.

After May 8, 1942, water-stage recorder on left bank, at present datum, used as supplemental gage during high stages.

Average discharge.--22 years (1928-50) 13,830 cfs.

Extremes.--1927-50: Maximum discharge, 139,000 cfs May 27, 1948 (affected by dike breakage downstream); maximum elevation, 1,778.32 ft May 28, 1948; minimum daily discharge, 1,300 cfs Feb. 8, 1936; minimum elevation, 1,741.14 ft Dec. 5, 1929, Dec. 29, 1930.

Flood of June 1894 reached a stage of 1,777.2 ft.

Remarks.--No diversion or regulation above station. Elevations and discharge affected by failure of dikes above and below the station at high stages some years. Station in backwater from Kootenay Lake except at times of extreme low lake stages. A listing of maximum yearly elevations will be found with record for station Kootenai River at Forthill (see p. 308).

Cooperation.--Gage heights Oct. 1, 1926, to Sept. 30, 1927, furnished by U. S. Weather Bureau.

Monthly mean elevation, in feet, of Kootenai River at Bonners Ferry, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1904	-	-	-	-	-	-	-	62.1	64.3	58.8	50.1	46.1
1927	47.80	45.61	45.78	44.26	43.55	42.69	47.05	58.19	67.65	59.33	50.28	51.88
1928	50.94	49.42	49.11	47.24	45.04	45.26	48.56	65.46	62.99	58.25	49.14	45.41
1929	45.30	43.67	42.81	42.83	44.11	42.45	43.78	55.01	62.59	61.95	46.81	44.28
1930	42.81	41.84	41.89	43.00	43.53	42.32	49.73	55.53	61.06	54.31	47.90	44.92
1931	43.34	42.47	41.77	41.64	41.61	42.08	44.03	55.56	56.29	50.45	45.98	44.39
1932	42.92	43.34	43.84	42.94	44.09	47.97	50.37	63.04	67.03	55.60	48.35	45.43
1933	43.80	44.55	46.69	45.99	45.81	44.33	48.11	60.57	70.98	61.53	50.70	47.16
1934	47.07	48.62	49.23	48.70	46.56	47.38	60.46	67.65	62.16	52.38	47.29	44.83
1935	43.77	46.21	44.21	45.75	46.76	44.20	47.16	59.61	65.94	58.32	49.87	45.61
1936	43.97	43.24	42.75	42.47	43.86	49.92	50.36	62.16	58.73	49.93	46.07	44.30
1937	43.17	42.23	42.23	44.22	43.15	42.32	44.64	56.99	61.38	53.45	47.34	45.13
1938	44.92	46.64	45.22	44.77	44.25	43.95	52.07	63.54	68.42	56.31	47.30	45.05
1939	44.77	44.39	43.84	43.37	42.51	42.82	49.07	59.73	57.34	53.28	47.36	46.90
1940	47.23	47.16	46.73	45.57	44.20	43.97	48.17	58.27	56.76	49.03	47.11	47.06
1941	46.95	46.30	46.65	44.57	43.42	43.72	47.32	54.02	53.98	50.02	48.88	49.62
1942	49.69	49.27	51.27	49.30	47.16	43.87	49.05	59.14	63.79	58.58	49.40	48.61
1943	48.25	46.90	47.98	45.25	44.78	43.18	57.29	58.20	63.16	59.87	49.20	48.04
1944	48.25	47.74	46.40	44.62	42.80	41.64	43.04	51.23	55.50	47.74	46.00	46.24
1945	46.66	46.28	45.73	44.71	43.31	41.96	42.63	56.07	61.13	52.86	46.45	46.70
1946	46.78	46.87	46.43	46.14	44.95	44.00	50.56	65.49	66.17	55.98	47.89	47.75
1947	47.25	47.48	48.07	48.39	48.25	45.71	51.87	66.63	63.20	53.82	47.46	47.59
1948	51.40	49.06	47.29	47.37	47.58	44.36	49.37	64.71	70.78	55.97	47.73	47.39
1949	47.11	46.21	45.33	45.00	44.23	43.01	50.02	64.47	58.10	49.32	47.95	48.57
1950	48.34	48.66	48.62	47.33	45.95	44.85	47.82	59.57	70.20	61.16	49.98	48.85

Note.--Add 1,700 ft to obtain elevation above mean sea level.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	14,200	60,000	37,700	28,700	11,000	6,840	-
1929	7,900	5,410	3,840	3,030	3,260	4,150	7,060	29,000	41,800	15,200	7,840	5,290	11,200
1930	4,300	3,220	3,370	2,840	3,750	4,150	18,000	26,100	39,600	20,200	8,990	5,890	11,700
1931	4,800	3,930	2,990	3,010	3,080	3,840	6,810	27,100	25,500	12,300	6,420	5,220	8,780
1932	4,020	3,620	3,040	2,780	4,280	7,010	17,300	47,800	58,200	20,600	9,970	6,680	15,300
1933	5,250	6,500	6,000	4,500	3,590	4,460	15,200	40,700	70,400	33,200	12,600	9,220	17,700
1934	10,470	12,210	14,910	12,450	9,195	11,890	44,900	56,450	36,090	16,400	8,420	5,581	19,940
1935	4,860	8,863	4,761	5,554	6,480	5,647	11,850	39,110	49,160	27,680	11,540	6,510	15,200
1936	4,783	3,912	3,224	2,999	2,086	4,013	19,690	41,260	28,750	11,280	6,556	4,863	11,130
1937	3,643	2,825	2,995	2,026	2,482	2,847	7,459	31,880	36,790	17,300	8,203	5,437	10,360
1938	4,983	7,428	4,781	5,047	3,780	5,443	22,130	48,950	54,060	21,370	7,928	5,808	16,010
1939	5,111	4,108	3,298	3,910	2,852	4,813	16,240	36,500	28,400	19,580	7,806	5,470	11,580
1940	5,913	5,667	4,952	3,153	3,505	5,415	13,680	35,510	26,930	11,090	6,435	6,057	10,710
1941	5,594	4,273	3,637	3,210	2,926	4,799	12,220	23,530	21,570	10,490	6,295	9,104	8,989
1942	10,140	7,875	12,650	5,100	4,168	4,213	16,470	39,870	46,890	33,090	13,010	7,752	16,840
1943	6,078	5,432	4,516	3,455	4,021	4,792	35,830	35,110	44,690	34,930	12,040	6,258	16,460
1944	5,274	4,226	3,295	2,977	2,824	2,812	5,612	19,950	23,540	9,996	6,632	5,350	7,712
1945	4,837	3,807	2,642	3,025	3,084	3,092	4,965	29,960	38,820	19,490	7,700	6,321	10,680
1946	5,351	5,583	4,237	3,851	3,274	5,609	20,400	54,630	50,870	25,070	10,320	8,602	16,540
1947	6,700	4,975	3,785	3,500	2,979	5,551	27,950	42,860	20,770	9,616	7,905	16,810	16,810
1948	16,920	11,130	6,626	5,177	4,568	5,048	18,180	64,260	69,840	32,120	13,880	7,552	20,530
1949	5,945	4,668	3,379	3,313	3,770	4,894	20,460	50,130	28,740	12,430	7,766	5,617	12,640
1950	5,131	6,298	5,587	3,700	4,470	7,280	15,440	41,860	68,250	36,550	12,620	6,801	17,870

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	845	3,690	2,240	1,760	676	407	-
1929	486	322	236	186	181	255	420	1,760	2,490	935	482	315	8,090
1930	264	192	207	175	208	255	1,070	1,600	2,360	1,240	553	350	8,470
1931	295	234	184	185	171	236	405	1,670	1,520	756	395	311	6,360
1932	247	215	187	171	246	431	1,030	2,940	3,340	1,270	613	397	11,100
1933	323	387	369	277	188	274	904	2,500	4,190	2,040	775	549	12,800
1934	643.8	726.5	916.9	766.2	510.6	718.5	2,677	3,471	2,148	1,009	517.7	352.1	14,440
1935	298.8	527.4	292.7	341.5	359.9	347.2	705.2	2,405	2,925	1,702	709.5	387.4	11,000
1936	294.1	232.8	198.2	184.4	120	246.8	1,172	2,537	1,711	693.7	403.1	289.4	8,082
1937	224	168.1	184.2	124.6	137.9	175.1	443.8	1,960	2,189	1,064	504	323.5	7,499
1938	306.4	442	294	310.3	209.9	354.7	1,317	3,010	3,217	1,314	487.4	345.6	11,590
1939	314.2	244.4	202.8	240.4	158.4	296	966.6	2,244	1,690	1,205	480	325.5	8,367
1940	363.6	337.2	304.5	193.9	201.6	333	814.3	2,183	1,602	682.1	395.7	360.4	7,771
1941	344	254.3	223.6	197.4	162.5	295.1	726.9	1,447	1,283	644.9	387.1	541.7	6,508
1942	623.3	468.6	778.1	313.6	231.5	259.1	980.3	2,451	2,790	1,035	799.8	461.3	12,190
1943	373.7	323.2	277.7	211.2	223.3	294.6	1,132	2,159	2,682	1,148	740.1	372.4	11,910
1944	324.3	251.4	202.6	183.1	162.4	172.9	333.9	1,227	1,401	614.6	407.8	318.3	5,599
1945	297.4	226.6	162.4	186	171.3	190.1	295.5	1,842	2,310	1,198	473.5	376.1	7,729
1946	329	332.2	260.5	236.8	181.8	344.9	1,214	3,359	3,027	1,541	634.4	511.8	11,970
1947	411.9	296	340.7	276.7	332.1	525.8	1,348	3,529	2,558	1,277	591.3	470.4	11,950
1948	1,040	662.1	407.4	318.3	262.5	310.3	1,082	3,951	4,144	1,421	853.7	449.4	14,900
1949	365.6	277.8	207.7	203.7	209.4	300.9	1,218	1,082	1,710	764	477.5	338.2	9,151
1950	315.5	374.7	343.6	227.5	248.2	447.6	918.7	2,574	4,061	2,247	776.1	404.7	12,940

Yearly discharge, in cubic feet per second, of Kootenai River at Bonners Ferry, Idaho

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches Acre-feet	Runoff		
		Discharge	Date					Mean	Inches	Acre-feet
1928	672	82,800	May 25, 27, 1928	-	-	-	-	-	-	-
1929	692	a62,700	May 25, 1929	2,590	11,200	-	8,090,000	10,600	-	7,710,000
1930	707	a59,200	June 2, 1930	2,090	11,700	0.900	8,470,000	11,800	12.32	8,520,000
1931	722	a49,400	May 17, 1931	2,160	8,780	.675	6,360,000	8,700	9.08	6,500,000
1932	757	a74,700	May 25, 1932	2,080	15,300	1.18	15,971,100	15,900	16.59	11,500,000
1933	752	a99,800	June 18, 1933	1,930	17,700	1.36	18,444,200	19,300	20.19	14,000,000
1934	767	a89,400	Apr. 29, 1934	4,620	19,940	1.53	20.83 14,440,000	18,330	19.13	13,270,000
1935	792	69,800	May 24, 1935	2,000	15,200	1.17	15.87 11,000,000	14,650	15.31	10,610,000
1936	812	56,900	May 17, 1936	1,300	11,130	.856	11.66 8,082,000	10,930	11.44	7,934,000
1937	832	53,300	May 28, 1937	1,400	10,360	.797	10.81 7,499,000	11,000	11.48	7,965,000
1938	862	91,200	May 27, 1938	2,800	16,010	1.23	16.71 11,590,000	15,620	16.30	11,310,000
1939	882	50,700	May 18, 1939	1,800	11,580	.889	12.07 8,367,000	11,890	12.43	8,611,000
1940	902	55,400	May 26, 1940	2,000	10,710	.824	11.20 7,771,000	10,450	10.94	7,588,000
1941	932	36,200	May 17, 1941	2,200	8,989	.691	9.39 6,508,000	10,440	10.90	7,556,000
1942	962	83,400	May 27, 1942	3,100	16,840	1.30	17.58 12,190,000	15,600	16.29	11,300,000
1943	982	65,800	Apr. 21, 1943	1,900	16,460	1.27	17.20 11,910,000	16,190	16.91	11,720,000
1944	1012	31,300	June 1, 1944	2,200	7,712	.593	8.07 5,599,000	7,586	7.94	5,507,000
1945	1042	62,000	June 2, 1945	1,500	10,680	.821	11.15 7,729,000	11,000	11.49	7,964,000
1946	1062	81,500	May 30, 1946	2,600	16,540	1.27	17.26 11,970,000	16,710	17.44	12,100,000
1947	1092	89,500	May 11, 1947	2,900	16,510	1.27	17.24 11,950,000	17,980	18.77	13,020,000
1948	1122	139,000	May 27, 1948	3,300	20,530	1.58	21.50 14,900,000	18,790	19.69	13,640,000
1949	1152	81,900	May 15, 1949	2,460	12,640	.972	13.20 9,151,000	12,890	13.47	9,334,000
1950	1182	90,100	June 22, 23, 1950	2,400	17,870	1.37	18.68 12,940,000	-	-	-

a Maximum daily.

365. Kootenai River near Bonners Ferry, Idaho

Location.--Lat 48°41'55" long. 116°20'40", in NW $\frac{1}{4}$ sec. 28, T. 62 N., R. 1 E., on left bank 1.6 miles downstream from highway bridge at Bonners Ferry.

Drainage area.--13,000 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 1,700.00 ft above mean sea level, (adjustment of 1929); gage readings have been reduced to elevations above mean sea level.

Extremes.--1928-50: Maximum elevation, 1,776.84 ft May 28, 1948; minimum, 1,740.16 ft Mar. 29, 1944.

Remarks.--Elevations affected by backwater from Kootenay Lake and occasionally by dike failure below station during floods. Yearly minimum elevations are shown with those for Kootenai River at Porthill, Idaho, elsewhere in this report.

Monthly mean elevation, in feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	-	-	-	-	-	-	-	-	82.62	-	-	-
1929	-	43.13	-	-	-	-	-	54.43	82.14	51.62	46.48	43.90
1930	42.32	41.14	41.37	40.67	41.75	42.20	49.13	55.06	60.45	53.86	47.51	44.52
1931	42.83	41.85	41.06	40.79	40.84	41.26	43.47	55.13	55.94	50.18	45.71	44.08
1932	42.50	42.95	43.05	42.13	42.11	45.12	49.88	62.48	66.52	55.35	48.03	45.02
1933	43.24	43.85	44.46	43.65	42.93	42.91	47.38	60.01	70.38	61.24	50.40	46.62
1934	46.39	48.08	48.54	48.12	45.81	46.56	59.78	67.13	61.82	52.04	46.83	44.10
1935	42.75	45.42	43.32	43.65	44.70	43.28	46.30	58.99	65.48	57.97	49.54	45.04
1936	43.15	42.28	41.87	41.63	40.78	41.61	49.42	61.66	58.38	49.62	45.63	43.68
1937	42.42	41.52	41.29	41.04	41.51	41.36	43.60	56.39	60.97	53.15	46.95	44.68
1938	44.53	46.26	44.32	43.95	42.74	43.07	51.49	62.97	67.99	56.06	46.93	44.48
1939	44.26	43.98	43.05	42.53	41.00	41.42	48.20	59.26	56.93	52.92	47.05	46.72
1940	47.08	47.02	46.53	45.06	43.68	43.00	47.37	57.73	56.43	48.69	46.86	46.86
1941	46.78	46.19	45.30	44.35	43.06	42.88	46.51	53.53	53.56	49.75	48.75	49.43
1942	49.66	49.11	50.85	49.21	46.19	43.20	48.14	58.53	63.24	58.09	48.94	48.41
1943	48.12	46.75	55.54	43.74	42.78	41.80	56.66	57.65	62.61	59.42	48.82	47.91
1944	48.17	47.68	46.10	43.75	41.6	40.8	41.43	50.56	54.03	47.33	45.66	46.04
1945	46.54	46.22	45.45	44.37	42.91	41.20	41.23	55.42	60.63	52.43	46.03	46.44
1946	46.66	46.69	46.29	45.89	44.55	43.38	49.75	64.88	65.70	55.61	47.44	47.47
1947	47.05	46.81	47.10	45.83	45.7	45.0	51.15	66.03	62.67	53.33	47.01	47.32
1948	51.10	48.71	48.08	45.03	44.97	43.03	48.40	63.88	70.16	55.69	49.30	47.18
1949	46.96	46.09	44.48	42.53	41.79	41.76	49.96	63.96	57.78	48.99	47.78	48.51
1950	48.34	48.66	48.62	47.33	45.95	44.85	47.82	59.57	70.20	61.16	49.98	48.85

Note.--Add 1,700 ft to gage height to obtain elevation above mean sea level.

366. Deep Creek at Moravia, Idaho

Location.--Lat 48°38', long. 116°24', in sec. 18, T. 61 N., R. 1 E., on downstream right abutment of concrete highway bridge, 1 mile downstream from Ruby Creek and 1 mile southwest of Moravia.

Drainage area.--133 sq mi.

Gage.--Staff gage. Altitude of gage is 1,800 ft (from topographic map).

Average discharge.--22 years (1928-50), 129 cfs.

Extremes.--1928-50: Maximum discharge observed, 1,500 cfs May 15, 1950; maximum gage height observed, 4.46 ft May 6, 1945, datum then in use; minimum discharge observed, 5 cfs Aug. 14, 22, 1940.

Remarks.--A few small diversions for irrigation above station. Occasional regulation above station at migratory waterfowl refuge near Elmira.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	*454	138	57.0	14.0	12.5	-
1929	*65	*60	*38	*32	*31	*74.1	113	269	139	30.2	9.7	*12	*73.0
1930	*15	*17	*32	*21	*80	*89.8	277	163	103	33.5	9.5	11.3	*70.6
1931	*21.3	*28	*22	*45	*60	*112	210	222	57.9	19.0	8.6	12.3	*68.2
1932	*20	*38	*36	*35	*132	209	528	582	246	36.5	12.8	11.6	*158
1933	21.8	92.3	144	98.9	59.5	114	449	565	459	85.9	17.7	18.3	177
1934	35.0	76.0	341	367	205	242	584	297	79.9	19.3	10.5	11.9	189
1935	32.6	119	88.5	115	114	161	327	562	263	63.9	17.9	15.4	157
1936	21.7	29.8	30.2	33.0	32.9	78.0	442	364	92.5	23.2	11.0	19.8	98.0
1937	17.5	17.6	38.9	18.4	23.8	55.5	348	419	219	50.8	19.2	22.5	104
1938	28.0	140	173	198	111	272	617	642	265	51.1	16.3	15.0	211
1939	27.3	27.8	40.4	69.2	34.0	124	296	279	86.0	30.3	11.7	12.9	86.7
1940	19.3	22.9	58.5	36.0	48.4	197	328	244	61.3	13.4	7.8	13.1	87.5
1941	20.9	27.5	40.6	38.7	45.0	159	187	214	103	34.3	16.5	41.0	77.4
1942	70.2	108	323	89.2	83.1	83.1	257	261	204	85.0	25.7	17.3	134
1943	19.7	56.2	53.7	40.4	41.1	129	704	435	270	81.8	22.1	15.4	156
1944	29.7	28.6	48.0	41.5	32.9	39.7	153	181	85.3	21.9	11.4	13.0	57.2
1945	16.6	24.6	28.8	47.5	55.8	93.0	176	548	196	27.9	10.4	13.7	104
1946	17.7	52.9	66.0	71.8	52.7	164	502	568	260	66.1	15.6	18.0	155
1947	31.7	51.9	106	87.5	186	235	436	412	156	37.9	17.2	21.1	148
1948	165	135	107	93.4	101	120	452	775	387	105	45.9	25.4	208
1949	29.0	42.6	38.1	33.4	53.9	124	487	557	131	31.2	14.2	15.6	129
1950	25.3	69.4	117	61.8	86.7	252	440	736	430	108	35.5	23.9	199

* Not previously published; estimated on the basis of weather records and record for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	27,900	8,210	3,500	861	744	-
1929	*4,000	*3,570	*2,340	*1,970	*1,720	*4,550	6,720	16,500	9,270	1,860	596	*714	*52,800
1930	*922	*1,010	*1,970	*1,290	*4,440	*5,520	16,500	10,000	6,130	2,060	584	672	*51,100
1931	*1,310	*1,670	*1,350	*2,770	*3,330	*6,910	12,500	13,600	3,450	1,170	529	732	*49,300
1932	*1,230	*2,260	*2,210	*2,150	*7,490	12,900	31,400	35,800	14,600	2,240	787	680	*114,000
1933	1,350	5,490	8,850	6,080	3,300	7,010	26,700	34,700	27,300	5,280	1,090	1,080	128,000
1934	2,210	4,520	20,940	22,590	11,610	14,870	34,720	18,230	4,750	1,190	647	705	137,000
1935	2,000	7,070	5,440	7,100	6,340	9,890	19,470	34,580	15,670	3,930	1,100	914	113,500
1936	1,330	1,780	1,860	2,030	1,890	4,800	26,290	22,410	5,500	1,430	678	1,180	71,180
1937	1,080	1,050	2,390	1,130	1,320	3,410	20,720	25,740	13,060	3,120	1,180	1,340	75,540
1938	1,720	8,310	10,650	12,190	6,150	16,750	36,710	39,450	15,740	3,140	1,000	893	152,700
1939	1,680	1,850	2,490	4,250	1,890	7,620	17,820	17,140	5,120	1,860	722	766	62,810
1940	1,180	1,360	3,530	2,210	2,780	12,110	19,550	14,990	3,650	823	480	778	63,500
1941	1,290	1,840	2,500	2,380	2,500	9,750	11,100	13,160	6,130	2,110	1,020	2,440	56,020
1942	4,310	6,440	19,840	5,480	4,610	5,110	15,260	16,040	12,140	5,230	1,580	1,030	97,070
1943	1,210	3,340	3,300	2,490	2,280	7,940	41,920	26,770	16,040	5,030	1,360	918	112,600
1944	1,820	1,700	2,950	2,550	1,890	2,440	9,110	11,130	5,080	1,040	702	774	41,490
1945	1,020	1,460	1,770	2,920	3,100	5,720	10,450	33,710	11,650	1,720	637	813	74,970
1946	1,090	3,150	4,060	4,420	2,930	10,080	29,840	34,940	15,490	4,070	960	1,070	112,100
1947	1,950	3,090	6,500	5,380	10,910	14,420	25,930	25,360	9,290	2,350	1,060	1,260	107,500
1948	10,150	8,020	6,590	5,740	5,820	7,410	26,890	47,520	23,030	6,450	2,700	1,510	151,900
1949	1,780	2,540	2,340	2,050	2,990	7,530	29,000	33,910	7,770	1,920	871	926	93,730
1950	1,550	4,130	7,170	3,800	4,820	15,490	26,210	45,270	25,560	6,660	2,180	1,420	144,260

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Deep Creek at Moravia, Idaho

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1928	672	612	May 8, 1928	-	-	-	-	-	-	-	-
1929	692	390	May 23, 1929	8	*73.0	*0.549	*7.44	*52,800	*64.7	*8.60	*46,800
1930	707	403	Apr. 14, 1930	8	*70.6	*.531	*7.20	*51,100	*71.1	*7.25	*51,500
1931	722	360	Apr. 8, 1931	7	*68.2	*.513	*6.93	*49,300	*70.0	*7.13	*50,700
1932	737	819	Feb. 27, 1932	10	*158	*1.19	*16.04	*114,000	*171	*17.44	*124,000
1933	752	975	Apr. 28, 1933	13	177	1.35	18.98	128,000	194	19.78	*140,200
1934	767	1,300	Dec. 22, 1933	9	189	1.42	18.31	137,000	171	17.46	123,800
1935	792	825	May 7, 1935	14	157	1.18	16.00	113,500	144	14.65	104,000
1936	812	920	Apr. 25, 1936	10	98.0	.737	10.05	71,180	97.4	9.99	70,730
1937	832	830	Apr. 15, 1937	13	104	.782	10.66	75,540	127	12.93	91,700
1938	862	1,260	Apr. 18, 1938	11	211	1.59	21.54	152,700	190	19.45	137,800
1939	882	450	Apr. 29, 1939	10	86.7	.652	8.86	62,810	87.2	8.91	63,120
1940	902	550	Mar. 27, 1940	5	87.5	.658	8.91	63,500	86.5	8.85	62,800
1941	932	558	May 17, 1941	9	77.4	.582	7.90	56,020	112	11.46	81,180
1942	962	921	Dec. 20, 1941	14	134	1.01	13.68	97,070	103	10.47	74,330
1943	982	1,100	Apr. 16, 1943	13	156	1.17	15.87	112,600	154	15.68	111,200
1944	1012	227	Apr. 12, 1944	9	57.2	.430	5.86	41,490	54.1	5.54	39,270
1945	1042	1,280	May 6, 1945	8	104	.782	10.56	74,970	109	11.12	79,020
1946	1062	1,040	May 5, 1946	9	155	1.17	15.79	112,100	159	16.26	115,300
1947	1092	779	May 8, 1947	13	148	1.11	15.17	107,500	167	17.03	120,700
1948	1122	1,110	May 24, 1948	21	209	1.57	21.41	151,900	184	18.86	133,800
1949	1152	905	May 12, 1949	10	129	.985	13.22	93,730	138	14.09	99,920
1950	1182	1,500	May 15, 1950	14	199	1.50	20.34	144,300	-	-	-

* Not previously published.

367. Snow Creek near Moravia, Idaho

Location.--Lat 48°39'50", long. 116°24'30", in SW¹ sec. 1, T. 61 N., R. 1 W., on left bank 2 miles northwest of Moravia and 5 miles southwest of Bonners Ferry.

Drainage area.--19.5 sq mi.

Gage.--Staff gage. Altitude of gage is 1,800 ft (from topographic map). Prior to Oct. 1, 1932, at datum 0.52 ft higher.

Extremes.--1928-34: Maximum discharge observed, 572 cfs June 14, 15, 1933 (gage height, 2.80 ft); minimum observed, 1 cfs Aug. 6 to Sept. 10, Sept. 16-21, 1934.

Remarks.--No diversion above station.

Monthly mean discharge, in cubic feet per second

Water year	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	-	-	237	68.3	22.2	4.8	2.6
1929	14.4	27.2	116	67.2	10.0	3.4	2.7
1930	22.5	99.1	93.6	54.2	12.1	4.2	3.2
1931	*19.1	33.2	116	28.3	6.5	2.4	3.1
1932	*45.9	105	217	154	20.4	4.9	3.4
1933	15.8	76.0	154	285	59.7	7.8	5.9
1934	37.3	193	186	55.6	8.3	1.6	1.7

* Not previously published; estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Water year	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	-	-	11,300	4,060	1,360	295	155
1929	428	1,620	7,130	4,000	615	209	161
1930	556	5,900	5,760	3,230	744	258	190
1931	*796	1,980	7,130	1,680	400	148	184
1932	*2,820	6,250	13,300	9,160	1,250	301	202
1933	972	4,520	9,470	17,000	3,670	480	351
1934	2,290	11,460	11,430	3,310	508	101	101

* Not previously published; estimated on the basis of records for nearby streams.

368. Caribou Creek near Moravia, Idaho

Location.--Lat 48°39'40", long. 116°24'10", in NE¹ sec. 12, T. 61 N., R. 1 W., on right bank 600 ft upstream from road following edge of valley and 1½ miles northwest of Moravia.

Drainage area.--14.0 sq mi.

Gage.--Staff gage. Altitude of gage is 1,805 ft (from topographic map). May 9 to Sept. 30, 1928, and Mar. 22, 1930, to Sept. 30, 1931, staff gage 1 mile upstream at different datum.

Extremes.--1928-34: Maximum discharge observed, 376 cfs June 15, 1933 (gage height, 5.58 ft); no flow Aug. 22-26, 1934.

Remarks.--Several small diversions for irrigation and railroad water supply between gage sites.

Monthly mean discharge, in cubic feet per second, of Caribou Creek near Moravia, Idaho

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.
1928					-	-	-	45.8	13.5	4.5	3.3
1929					-	31.0	77.1	44.5	4.8	1.0	1.9
1930					-	74.5	61.3	34.8	6.7	2.9	2.1
1931					15.9	36.9	81.7	22.6	5.1	1.6	2.0
1932					41.5	91.2	138	106	15.9	1.3	.4
1933					13.3	61.7	110	164	40.0	3.8	2.8
1934					29.2	128	113	58.2	4.59	.34	.66

Monthly runoff, in acre-feet

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.
1928					-	-	-	2,730	830	277	196
1929					-	1,840	4,740	2,650	295	61	113
1930					-	4,430	3,770	2,070	535	178	125
1931					980	2,200	5,020	1,340	314	98	119
1932					2,550	5,430	8,360	6,310	978	80	24
1933					818	3,670	6,760	9,760	2,460	234	167
1934					1,800	7,600	6,980	2,280	282	21	59

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1928	672	234	May 20, 1928	-	-	-	-	-
1929	692	143	May 23, 1929	-	-	-	-	-
1930	707	113	Apr. 25, 1930	-	-	-	-	-
1931	722	175	May 14, 1931	-	-	-	-	-
1932	737	-	-	-	-	-	-	-
1933	752	376	June 15, 1933	-	-	-	-	-
1934	767	-	-	-	-	-	-	-

369. Myrtle Creek near Bonners Ferry, Idaho

Location.--Lat 48°42', long. 116°25', in sec. 23, T. 62 N., R. 1 W., on right bank 80 ft upstream from power plant of Bonners Ferry Light and Water Co. and 5½ miles west of Bonners Ferry.

Drainage area.--37 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,785 ft (by barometer).

Extremes.--1928-34: Maximum discharge observed, 1,260 cfs June 5, 1933 (gage height, 4.90 ft); minimum observed, 0.4 cfs Sept. 8-22, 30, 1929.

Remarks.--Water supply for village of Bonners Ferry diverted above station.

Monthly mean discharge, in cubic feet per second

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.
1928					-	-	-	152	46.7	13.7	8.7
1929					-	40.6	234	171	24.8	7.32	1.09
1930					-	175	190	109	22.1	7.35	6.45
1931					25.6	68.6	288	77.2	15.0	4.4	5.0
1932					67.3	128	34.4	326	48.7	8.3	5.3
1933					21.6	86.7	218	567	150	25.0	22.2
1934					56.1	300	368	119	16.3	6.1	6.1

* Not previously published; estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.
1928					-	-	-	9,040	2,870	842	518
1929					-	2,420	14,400	10,200	1,520	450	64.9
1930					-	10,400	11,700	6,490	1,360	452	364
1931					1,570	4,080	17,700	4,590	922	271	298
1932					4,140	7,620	21,200	19,400	2,990	547	315
1933					1,330	5,160	13,400	33,700	9,220	1,540	320
1934					3,450	17,850	22,620	7,090	1,000	375	563

* Not previously published; estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second, of Myrtle Creek near Bonners Ferry, Idaho

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1928	672	830	(a)	-	-	-	-	-
1929	692	725	May 21, 23, 1929	-	-	-	-	-
1930	707	393	Apr. 24, 25, 1930	-	-	-	-	-
1931	722	713	May 14, 1931	-	-	-	-	-
1932	737	615	June 13, 1932	-	-	-	-	-
1933	752	1,260	June 15, 1933	-	-	-	-	-
1934	767	875	Apr. 28, 1934	-	-	-	-	-

a May 21, 24, 27, 1928.

370. Ball Creek near Bonners Ferry, Idaho

Location.--Lat 48°47'40", long. 116°25'00", in SW $\frac{1}{4}$ sec. 24, T. 63 N., R. 1 W., on left bank 0.75 mile upstream from mouth and 8.2 miles northwest of Bonners Ferry.

Drainage area.--27 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,835 ft (by barometer).

Extremes.--1928-34: Maximum discharge observed, 644 cfs June 15, 1933 (gage height, 4.60 ft); minimum observed, 2 cfs Sept. 10, 1934.

Remarks.--No diversion above station.

Monthly mean discharge, in cubic feet per second

Water year	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	-	-	-	88.0	25.5	7.2	4.8
1929	-	14.9	142	114	16.0	5.0	-
1930	-	102	136	72.3	14.0	5.2	4.1
1931	77.6	19.8	173	56.4	12.7	4.8	5.4
1932	31.0	71.0	217	218	37.2	7.1	4.6
1933	-	44.0	156	371	102	11.6	8.5
1934	29.4	213	274	95.6	15.7	5.1	4.2

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly runoff, in acre-feet

Water year	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	-	-	-	5,240	1,570	443	286
1929	-	887	8,730	6,780	984	307	-
1930	-	6,070	8,360	4,300	861	320	244
1931	464	1,180	10,600	3,360	781	295	321
1932	1,910	4,260	13,300	13,000	2,290	437	274
1933	-	2,620	9,590	22,100	6,270	713	506
1934	1,810	12,680	16,880	5,690	966	511	252

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Daily discharge, in cubic feet per second								
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1928	672	418	May21,26,1928	-	-	-	-	-
1929	692	393	May22,23,1929	-	-	-	-	-
1930	707	254	Apr.24,25,1930	-	-	-	-	-
1931	722	361	May13,14,1931	-	-	-	-	-
1932	737	358	May 21, 1932	-	-	-	-	-
1933	752	644	June 15, 1933	-	-	-	-	-
1934	767	642	Apr. 28, 1934	-	-	-	-	-

371. Kootenai River at Klockmann Ranch, near Bonners Ferry, Idaho

Location.--Lat 48°47'40", long. 116°22'50", in SE $\frac{1}{4}$ sec. 19, T. 63 N., R. 1 E., on right bank at Klockmann Ranch, 800 ft south of viaduct on Kootenai Valley branch of Great Northern Railway, and 8 miles north of Bonners Ferry.

Drainage area.--13,300 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 1,700.00 ft above mean sea level, adjustment of 1929 (supplementary adjustment of 1947 is 0.04 ft higher). Prior to Sept. 12, 1928, several staff gages within 300 ft at different datums.

Extremes.--1928-50: Maximum elevation, 1,773.82 ft May 28, 1948; minimum, 1,738.76 ft Apr. 1, 1944.

Remarks.--Elevations affected by backwater from Kootenay Lake and occasionally by dike failure below station during floods. Maximum yearly elevations are shown with those for Kootenai River at Porthill, elsewhere in this report.

KOOTENAI RIVER BASIN

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Monthly mean elevation, in feet, of Klockman River at Klockman Ranch near Bonners Ferry, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929	-	-	-	-	-	-	-	52.83	60.66	50.89	45.99	-
1930	-	-	-	-	-	-	-	53.78	58.98	52.92	46.96	44.05
1931	42.34	41.37	40.59	40.25	40.40	40.73	42.61	53.75	54.76	49.50	45.26	43.65
1932	42.11	42.63	42.71	41.69	41.24	44.06	48.58	60.70	64.71	54.55	47.39	44.51
1933	42.67	43.08	43.53	42.43	41.34	41.58	46.13	58.17	68.08	60.14	49.66	45.81
1934	45.38	47.07	47.42	47.07	44.84	45.39	57.74	65.19	60.57	51.18	46.18	43.55
1935	42.16	44.52	42.78	42.77	43.66	42.61	45.20	57.23	63.86	56.82	48.81	44.42
1936	42.57	41.72	41.40	41.19	40.25	40.89	48.08	60.03	57.30	48.98	45.12	43.22
1937	42.03	41.21	40.88	40.71	41.02	40.84	42.61	54.71	59.56	52.24	46.27	44.16
1938	44.08	45.63	43.73	43.24	41.93	42.21	49.87	61.06	66.34	55.18	46.33	43.92
1939	43.80	43.62	42.66	41.95	40.28	40.27	46.55	57.56	55.39	51.70	46.41	46.38
1940	46.81	46.64	46.18	44.78	43.25	42.15	45.70	55.56	54.96	47.84	46.42	46.47
1941	46.45	45.91	45.03	44.06	42.82	42.22	45.03	52.00	52.25	49.13	48.43	48.94
1942	49.08	48.68	50.05	47.80	45.84	42.72	46.53	56.57	61.46	56.61	47.96	47.97
1943	47.85	46.48	45.17	43.34	41.99	40.74	54.54	55.79	60.84	57.92	47.92	47.56
1944	48.01	47.49	45.90	43.41	41.35	39.64	39.98	48.72	52.54	46.45	45.08	45.70
1945	46.28	46.05	45.29	44.06	42.47	40.38	39.97	53.56	58.98	51.22	45.37	46.04
1946	46.37	46.39	46.01	45.62	44.21	42.67	47.92	62.73	63.98	54.33	46.59	46.83
1947	46.64	46.44	46.66	45.92	45.12	43.97	49.33	63.94	61.02	52.08	46.15	46.73
1948	49.94	47.91	46.66	45.95	44.43	42.26	46.85	61.58	68.30	54.45	48.18	46.62
1949	46.60	45.82	44.21	42.00	40.79	40.54	48.20	61.90	56.43	48.06	47.28	48.24
1950	48.11	48.37	48.32	47.06	45.50	43.89	46.20	57.50	67.92	59.83	49.16	48.89

Note.--Add 1,700 ft to obtain elevation above mean sea level.

372. Trout Creek near Copeland, Idaho

Location.--Lat 48°50', long. 116°25', in NE¼ sec. 10, T. 63 N., R. 1 W., on left bank 2½ miles upstream from mouth and 5½ miles southwest of Copeland.

Drainage area.--20 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,965 ft (by barometer).

Extremes.--1928-34: Maximum discharge observed, 533 cfs June 16, 1933 (gage height, 2.90 ft); minimum observed, 2 cfs Sept. 19-30, 1928, Aug. 23 to Sept. 9, Sept. 17-21, 1930, Aug. 17-24, 31, Sept. 4-5, 24-25, 1931, Oct. 17, 1931, Aug. 24 to Sept. 10, Sept. 18-23, 27-28, 1934.

Remarks.--No diversion above station.

Monthly mean discharge, in cubic feet per second

Water year	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	-	-	-	58.6	19.5	4.5	2.6
1929	-	-	118	70.0	13.2	5.0	-
1930	-	74.3	82.6	44.2	8.3	2.9	2.6
1931	-	18.0	123	34.9	9.4	2.8	3.0
1932	20.6	55.9	184	147	21.1	4.8	3.3
1933	-	31.0	105	258	54.1	9.7	6.9
1934	23.6	138	166	66.6	15.0	3.4	2.4

Monthly runoff, in acre-feet

Water year	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	-	-	-	3,490	1,200	277	155
1929	-	-	7,260	4,170	812	50	-
1930	-	4,420	5,080	2,630	510	178	155
1931	-	1,070	7,560	2,080	578	172	179
1932	1,270	3,330	11,300	8,750	1,300	295	196
1933	-	1,840	6,460	15,400	3,330	596	411
1934	1,450	8,240	10,220	3,960	920	212	143

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1928	672	208	May 29, 1928	-	-	-	-
1929	692	270	May 23, 1929	-	-	-	-
1930	707	157	Apr. 24, 1930	-	-	-	-
1931	722	216	May 14, 1931	-	-	-	-
1932	737	280	May 21, 1932	-	-	-	-
1933	752	533	June 16, 1933	-	-	-	-
1934	767	371	Apr. 28, 1934	-	-	-	-

373. Mission Creek at Copeland, Idaho

Location.--Lat 48°53'40", long. 116°22'50", in SE $\frac{1}{4}$ sec. 18, T. 64 N., R. 1 E., on right bank 400 ft upstream from trestle on Kootenai Valley Branch of Great Northern Railway and 0.8 mile south of Copeland.

Drainage area.--31.0 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,773 ft (from topographic map).

Extremes.--1928-34: Maximum discharge observed, 370 cfs May 22, 1932 (gage height, 2.85 ft); minimum observed, 1 cfs Aug. 26, 1934.

Remarks.--No diversion above station.

Monthly mean discharge, in cubic feet per second

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.	
1928					-	-	-	46.1	26.5	9.5	7.1	
1929					-	29.1	110	75.6	13.5	4.24	3.69	
1930					-	80.9	61.7	39.6	12.1	4.9	4.3	
1931					11.6	44.2	102	20.8	7.9	3.3	3.9	
1932					12.6	72.5	241	91.1	14.0	4.6	3.6	
1933					8.4	70.1	174	128	20.6	6.3	5.0	
1934					32.8	158	97.9	23.9	7.6	3.4	3.4	

Monthly runoff, in acre-feet

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.	
1928					-	-	-	2,740	1,630	584	422	
1929					-	1,730	6,760	4,500	830	261	220	
1930					-	4,810	3,790	2,370	744	301	256	
1931					716	2,630	6,270	1,240	486	203	232	
1932					775	4,310	14,800	5,420	861	283	214	
1933					518	4,170	10,700	7,620	1,270	387	298	
1934					2,020	9,400	6,020	1,420	466	206	202	

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1928	672	256	May 12, 1928	-	-	-	-	-	-
1929	692	192	May 14, 1929	-	-	-	-	-	-
1930	707	130	Apr. 25, 27, 1930	-	-	-	-	-	-
1931	722	178	May 2-4, 1931	-	-	-	-	-	-
1932	737	-	-	-	-	-	-	-	-
1933	752	258	Apr. 28, 1933	-	-	-	-	-	-
1934	767	-	-	-	-	-	-	-	-

374. Brush Creek near Copeland, Idaho

Location.--Lat 48°52'50", long. 116°22'30", in SE $\frac{1}{4}$ sec. 19, T. 64 N., R. 1 E., on left bank at wooden bridge on valley road paralleling Kootenai Valley Branch of Great Northern Railway, 1.8 miles south of Copeland.

Drainage area.--7.2 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,762 ft (from topographic map).

Extremes.--1928-34: Maximum discharge observed, 68 cfs Apr. 26, 1933 (gage height, 5.20 ft); no flow at times.

Remarks.--Small amount of water diverted for irrigation from Brush Lake about 2 miles above station; some regulation at outlet of Brush Lake.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	2.01	0.822	0.080	-	-
1929	-	-	-	-	-	-	5.19	6.16	2.61	.75	-	-	-
1930	-	-	-	-	-	-	8.1	1.2	2.9	.33	.10	0.10	-
1931	-	-	-	-	-	-	-	2.75	.19	.01	0	0	-
1932	-	-	-	-	-	-	20.1	8.5	2.2	.02	.03	0	-
1933	0.07	0.21	0.34	0.87	0.68	7.08	38.2	15.5	3.02	.20	.20	.15	5.53
1934	-	-	-	-	-	7.50	13.4	3.60	.081	.029	.016	.006	-

376. Kootenai River near Copeland, Idaho 1/
(International gaging station)

Location.--Lat 48°54'45", long. 116°25'00", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 12, T. 64 N., R. 1 W., on left bank at Andrews Ranch, three-quarters of a mile downstream from Mission Creek and $\frac{1}{2}$ miles northwest of Copeland.

Drainage area.--13,400 sq mi, approximately.

Supplemental records available.--Gage-height records collected at same site for the period Apr. 1, 1925, to Sept. 30, 1927, are contained in reports of Dominion Water Power and Reclamation Service of Canada.

Gage.--Water-stage recorder. Datum of gage is 1,700.00 ft above mean sea level, (adjustment of 1929); gage heights have been reduced to elevations above mean sea level.
Oct. 1, 1927, to Nov. 19, 1929, staff gage or water-stage recorder at mouth of Mission Creek, three-quarters of a mile upstream at datum 0.2 ft higher.

Average discharge.--21 years (1929-50), 14,390 cfs.

Extremes.--1929-50: Maximum daily discharge, 124,000 cfs May 30, 1948; maximum elevation, 1,770.10 ft May 31, 1948; minimum daily discharge, 1,350 cfs Feb. 8, 1936; minimum elevation, 1,738.52 ft Apr. 2, 3, 1944.

Remarks.--Stage-discharge relation affected by backwater from Kootenay Lake. Elevations affected occasionally by dike failure during floods. Records of maximum yearly elevation are shown with those for Kootenai River at Porthill, elsewhere in this report.

Monthly mean elevation, in feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	48.27	47.07	45.09	43.39	42.44	42.91	45.74	59.66	59.68	55.22	47.50	43.94
1929	43.31	42.17	41.12	40.50	40.08	41.73	41.73	50.89	58.31	50.08	45.55	41.71
1930	41.68	40.64	40.31	39.93	40.23	40.62	46.22	52.14	56.86	51.84	46.48	43.74
1931	42.10	41.18	40.47	40.47	40.23	40.49	42.07	51.89	53.31	48.86	44.95	43.38
1932	41.95	42.52	42.59	41.55	40.47	43.31	47.11	58.16	62.16	53.57	46.81	44.09
1933	42.36	42.64	43.01	41.94	40.95	41.15	44.81	55.63	65.14	58.73	49.01	45.23
1934	44.60	46.20	46.24	46.12	44.11	44.35	54.85	62.43	58.91	50.28	45.71	43.21
1935	41.86	43.78	42.53	42.23	42.97	42.21	44.15	54.76	61.54	55.58	48.14	44.03
1936	42.30	41.51	41.25	41.07	40.16	40.62	46.50	57.73	55.91	48.42	44.82	43.00
1937	41.91	41.13	40.72	40.64	40.89	40.64	41.87	52.40	57.60	51.28	45.79	43.90
1938	43.88	45.19	43.47	42.88	41.65	41.72	48.11	58.49	64.08	54.21	45.88	43.60
1939	43.58	43.50	42.54	41.73	40.05	39.76	44.88	55.32	53.66	50.43	46.01	46.23
1940	46.53	46.48	46.04	44.69	43.10	41.69	44.12	53.41	53.39	47.17	46.19	46.30
1941	46.31	45.82	44.94	43.99	42.77	41.91	43.74	50.22	50.76	48.63	48.28	48.59
1942	48.68	48.43	49.34	47.64	45.65	42.50	44.86	54.10	59.06	54.66	47.03	47.69
1943	47.72	46.33	45.08	43.20	41.68	40.22	51.89	53.48	58.36	55.91	47.11	47.38
1944	47.63	47.44	45.88	43.32	41.20	39.48	39.22	47.18	51.14	45.80	44.78	45.57
1945	46.16	45.95	45.25	43.96	42.31	40.16	39.34	51.14	56.74	49.89	44.92	45.78
1946	46.23	46.21	45.90	45.54	44.10	42.22	45.84	59.72	61.46	52.78	45.87	46.35
1947	46.37	46.24	46.39	45.70	44.61	43.10	47.05	60.90	58.63	50.59	45.41	46.28
1948	48.72	47.11	46.35	45.73	44.10	41.81	44.99	58.12	65.35	52.77	46.97	46.15
1949	46.33	45.63	44.05	41.69	40.18	39.65	45.92	58.93	54.69	47.07	46.85	48.08
1950	47.36	48.14	48.12	46.87	45.17	42.95	44.19	54.51	64.64	57.86	48.31	48.23

Note.--Add 1,700.00 ft to gage height to obtain elevation above mean sea level.

Monthly and yearly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929	-	-	-	-	-	-	-	28,700	43,700	16,000	8,100	5,180
1930	4,370	3,290	3,420	2,900	3,790	4,200	18,500	26,800	40,300	20,600	9,120	5,990
1931	4,870	3,990	3,030	3,100	3,220	4,000	7,040	28,100	26,200	12,600	6,500	5,310
1932	4,060	3,650	3,040	2,810	4,440	7,540	18,800	49,100	57,100	21,300	10,100	6,770
1933	5,290	6,690	6,250	4,680	3,490	4,610	15,800	45,300	70,800	34,100	12,700	8,100
1934	10,140	12,740	15,470	13,580	9,372	12,230	48,110	59,190	38,310	16,390	8,556	5,690
1935	4,952	9,092	4,874	5,713	6,854	5,881	12,180	40,420	49,760	27,750	11,680	6,558
1936	4,836	3,964	3,295	3,064	2,160	4,163	20,880	42,560	29,290	11,480	6,611	4,907
1937	3,720	2,889	3,084	2,069	2,524	2,957	7,865	32,850	38,320	17,910	8,370	5,488
1938	5,141	7,632	5,115	5,497	4,009	6,121	23,070	48,640	56,840	22,080	8,107	5,895
1939	5,245	4,160	3,443	4,080	2,969	5,154	16,750	37,480	29,370	20,260	7,901	5,522
1940	5,948	5,787	5,080	3,287	3,660	5,933	15,010	36,390	27,570	11,140	6,576	6,109
1941	5,634	4,365	3,765	3,332	3,072	5,078	12,720	24,280	22,220	10,790	6,407	9,232
1942	10,350	8,107	13,610	5,351	4,435	4,473	17,210	40,360	47,980	34,110	13,310	7,812
1943	6,193	5,682	4,697	3,574	4,151	5,032	37,170	36,330	46,850	36,740	12,450	6,351
1944	5,480	4,519	3,482	3,140	2,943	2,939	5,962	20,640	24,710	10,050	6,726	5,299
1945	5,014	3,951	2,803	3,171	3,250	3,373	5,368	31,470	39,890	20,270	7,824	6,265
1946	5,456	5,720	4,381	4,028	3,434	5,845	21,050	55,550	53,080	25,860	10,460	8,638
1947	6,788	5,086	5,779	4,695	6,368	9,156	23,330	58,870	44,270	21,180	9,840	7,983
1948	17,470	11,770	6,894	5,379	4,793	5,328	18,750	59,840	75,760	25,260	14,120	7,642
1949	6,036	4,873	3,476	3,452	3,895	5,146	20,740	51,350	30,270	12,750	7,949	5,671
1950	5,214	6,544	5,888	3,888	4,688	7,797	16,230	43,730	70,740	38,890	12,860	6,938

1/ Published as Kootenai River at Copeland, 1927-29.

Monthly and yearly runoff, in acre-feet, of Kootenai River near Copeland, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	1,760	2,600	984	498	308	-
1930	269	196	210	178	210	258	1,100	1,650	2,400	1,270	561	356	8,660
1931	299	237	186	191	179	246	419	1,730	1,560	775	400	316	6,540
1932	250	217	187	173	255	464	1,120	3,020	3,400	310	621	403	11,400
1933	325	398	384	288	194	283	940	2,660	4,210	100	781	542	13,100
1934	623.6	757.8	950.9	835.2	548.3	751.8	2,744	3,640	2,279	1,008	513.8	338.6	14,990
1935	304.5	541	299.7	351.3	380.6	361.6	724.8	2,485	2,981	1,706	718.1	390.2	11,220
1936	297.4	235.9	202.6	188.4	124.3	256	1,243	2,617	1,743	705.8	406.5	292	8,312
1937	228.7	171.9	189.6	127.2	140.2	181.8	468	2,020	2,280	1,101	514.7	326.6	7,748.7
1938	316.1	454.1	314.5	358	222.7	376.4	1,373	2,991	3,582	358	498.5	350.8	11,980
1939	322.5	247.5	211.7	250.8	164.9	316.3	986.5	2,305	1,747	1,248	485.8	328.6	8,623
1940	365.7	344.4	312.4	202.1	210.5	364.8	893	2,237	1,641	685.1	404.3	363.5	8,024
1941	346.4	259.7	231.5	204.9	170.6	312.2	756.7	1,493	1,322	663.4	394	549.3	6,704
1942	636.3	482.4	437	329	246.3	275	1,024	2,482	2,852	1,097	818.5	464.8	12,550
1943	380.8	338.1	288.8	219.8	230.6	309.4	2,212	2,234	2,782	259	765.3	377.9	12,400
1944	336.9	268.9	214.1	193.1	169.3	180.7	354.8	1,269	1,470	617.9	413.6	315.3	5,804
1945	308.3	235.1	172.3	195	180.5	207.4	319.4	1,935	2,373	1,246	643.1	372.8	8,026
1946	335.5	340.4	269.4	247.6	190.7	359.4	1,253	3,416	3,158	1,590	643.2	514	12,320
1947	417.4	302.6	355.4	288.7	353.7	563	1,388	3,620	2,634	1,302	605	475	12,300
1948	1,074	700.2	423.9	330.8	275.7	327.6	1,116	3,679	4,508	1,553	868	454.7	15,310
1949	371.1	289.9	213.7	212.2	216.3	316.4	1,234	3,157	1,801	783.9	488.8	337.4	9,422
1950	320.6	389.4	362	239.1	260.4	479.4	965.8	2,689	4,209	2,391	790.7	412.8	13,509.2

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1929	692	a58,400	June 5, 1929	-	-	-	-	-	-	-	-	
1930	707	a60,200	June 3, 1930	2,210	12,000	0.896	12.12	8,660,000	12,000	12.19	8,700,000	
1931	722	a50,000	May 17, 1931	2,200	9,020	.673	9.15	6,540,000	9,920	9.05	6,470,000	
1932	737	a74,500	May 23, 1932	2,140	15,700	1.17	15.95	11,400,000	16,400	16.60	11,900,000	
1933	752	a91,500	June 19, 1933	1,990	18,100	1.35	18.34	13,100,000	19,800	20.04	14,300,000	
1934	767	*87,700	Apr. 29, 1934	4,800	20,710	1.55	20.97	14,990,000	19,070	19.32	13,800,000	
1935	792	*68,400	May 24, 1935	2,160	15,500	1.16	15.72	11,220,000	14,940	15.14	10,810,000	
1936	812	*58,700	May 17, 1936	1,350	11,450	.854	11.64	8,312,000	11,250	11.44	8,166,000	
1937	822	*52,600	May 29, 1937	1,410	10,700	.799	10.84	7,749,700	11,390	11.53	8,244,000	
1938	862	87,400	May 29, 1938	3,000	16,540	1.23	16.75	11,980,000	16,120	16.33	11,670,000	
1939	892	49,200	May 18, 1939	1,670	11,910	.889	12.07	8,623,000	12,240	12.40	8,864,000	
1940	902	*53,900	May 27, 1940	2,070	11,050	.825	11.24	8,024,000	10,800	10.97	7,839,000	
1941	932	*36,900	May 18, 1941	2,200	9,260	.691	9.38	6,704,000	10,800	10.95	7,822,000	
1942	962	*80,300	May 28, 1942	3,330	17,330	1.29	17.53	12,550,000	16,020	16.20	11,800,000	
1943	982	*66,900	Apr. 21, 1943†	2,000	17,130	1.28	17.34	12,400,000	16,870	17.09	12,220,000	
1944	1012	*32,500	June 2, 1944	2,290	7,995	.597	8.12	5,804,000	7,851	7.98	5,699,000	
1945	1042	*60,500	June 3, 1945	1,670	11,090	.828	11.22	8,026,000	11,400	11.55	8,256,000	
1946	1062	*81,500	May 31, 1946	2,790	17,010	1.27	17.25	12,320,000	17,190	17.42	12,450,000	
1947	1092	*89,200	May 11, 1947	3,040	17,000	1.27	17.21	12,300,000	18,550	18.78	13,430,000	
1948	1122	a124,000	May 30, 1948	3,510	21,090	1.57	21.42	15,310,000	19,270	19.58	13,990,000	
1949	1152	*84,500	May 15, 1949	2,600	13,020	.927	13.19	9,422,000	13,290	13.46	9,619,000	
1950	1182	90,800	June 24, 1950	2,600	18,660	1.39	18.90	13,509,200	-	-	-	

* Revised

† Corrected

a Maximum observed

377. Parker Creek near Copeland, Idaho

Location.--Lat 48°55', Long. 116°30', in SW $\frac{1}{4}$ sec. 8, T. 64 N., R. 1 W., on downstream side of right abutment of U. S. Forest Service bridge, 4 $\frac{1}{4}$ miles west of Copeland.

Drainage area.--16.5 sq mi.

Gage.--Staff gage. Altitude of gage is 1,860 ft (by barometer).

Extremes.--1928-34: Maximum discharge, 400 cfs June 15, 1933 (estimated); minimum observed, 1 cfs Sept. 4-6, 1930.

Remarks.--No diversion above station.

Monthly mean discharge, in cubic feet per second

Water year	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	-	-	-	54.7	20.2	5.6	-
1929	-	16.1	78.9	55.6	9.26	2.2	2.0
1930	-	77.3	58.7	54.8	11.5	4.0	3.4
1931	8.9	20.1	94.0	27.1	7.5	3.3	2.9
1932	15.4	51.5	114	93.7	16.7	4.7	3.0
1933	-	32.3	101	180	49.8	7.4	4.5
1934	14.8	99.9	131	61.7	13.4	3.5	3.3

Monthly runoff, in acre-feet, of Parker Creek near Copeland, Idaho

Water year					Mar.	Apr.	May	June	July	Aug.	Sept.	
1928					-	-	-	3,250	1,240	111	-	
1929					-	958	4,850	3,310	569	135	119	
1930					-	4,600	3,610	3,260	707	246	202	
1931					292	1,200	5,790	1,610	461	203	173	
1932					550	3,060	7,010	5,580	1,030	289	179	
1933					-	1,920	6,210	10,700	3,060	455	268	
1934					908	5,940	8,050	3,670	825	214	198	

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1928	672	162	May 24, 1928	-	-	-	-	-	-
1929	692	150	May 19-24, 1929	-	-	-	-	-	-
1930	707	133	Apr. 24, 1930	-	-	-	-	-	-
1931	722	165	May 14, 1931	-	-	-	-	-	-
1932	737	170	May 22, 1932	-	-	-	-	-	-
1933	752	400	June 15, 1933	-	-	-	-	-	-
1934	767	219	May 25, 1934	-	-	-	-	-	-

378. Long Canyon Creek near Porthill, Idaho

Location.--Lat 48°56'50", long. 116°32'15", in NW¹ sec. 36, T. 65 N., R. 2 W., on left bank about 200 ft downstream from U. S. Forest Service bridge at mouth of canyon and 4 miles southwest of Porthill.

Drainage area.--29 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,830 ft (by barometer). May 18, 1929, to Aug. 26, 1929, staff gage and Mar. 20, 1930, to May 27, 1948, water-stage recorders at several sites and datums within 260 ft upstream.

Average discharge.--20 years (1930-50), 59.9 cfs.

Extremes.--1928-50: Maximum discharge, 1,300 cfs May 27, 1948 on the basis of slope-area study; maximum gage height, 8.55 ft (datum then in use) June 14, 15, 1933 (drift jam); minimum discharge, 3 cfs Nov. 1-3, 28, Dec. 4-10, 1936, Jan. 6-8, 1937, Dec. 13, 1940.

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	340	134	45.6	11.8	-	-
1929	-	-	-	-	-	-	28.6	195	149	31.5	9.65	6.10	-
1930	-	-	-	-	-	-	151	166	102	24.7	8.71	6.80	-
1931	7.6	*6.6	*5.0	*8.0	*12.0	12.4	32.2	222	91.7	23.6	9.5	8.3	*36.7
1932	9.3	*12.5	*8.0	*6.0	*40.0	*39.5	100	284	233	44.5	11.6	7.1	*66.3
1933	10.7	24.9	*35.7	*20.0	*11.0	*124	54.2	218	459	109	21.8	16.0	*82.7
1934	34.8	53.1	57.0	*47.0	*27.0	34.2	246	330	120	27.5	9.8	8.0	*78.2
1935	10.6	65.6	25.6	28.5	31.7	23.3	37.7	237	228	54.0	13.7	7.0	63.6
1936	7.1	6.0	5.1	4.9	4.0	5.8	84.7	245	66.3	15.4	5.6	5.7	38.1
1937	4.87	4.27	6.10	4.29	4.00	5.32	22.4	182	262	45.4	14.2	9.90	47.1
1938	15.9	35.7	24.4	20.6	14.2	19.2	111	327	276	54.6	11.0	6.9	76.6
1939	11.3	9.8	10.0	11.8	18.1	19.8	107	282	98.7	28.1	8.6	7.3	748.8
1940	8.5	9.8	21.9	14.0	11.4	19.0	76.6	228	97.9	14.9	6.3	6.2	43.0
1941	8.2	7.1	8.9	7.3	9.1	19.6	77.9	183	85.5	31.2	12.5	39.0	40.9
1942	66.0	52.8	99.1	23.5	16.6	13.0	66.1	202	175	67.1	19.1	10.3	67.9
1943	8.0	10.1	8.7	6.9	6.6	12.0	121	191	269	101	20.0	9.8	63.7
1944	12.7	9.2	10.6	7.5	6.8	7.6	23.8	125	66.4	19.2	8.5	8.5	25.6
1945	10.1	11.4	8.00	8.06	9.07	9.16	17.2	206	212	30.8	6.74	7.37	44.8
1946	7.0	11.9	8.9	7.6	7.0	10.8	72.4	291	277	90.6	18.1	15.6	68.3
1947	21.7	19.0	19.7	14.2	19.5	27.2	101	326	240	65.6	17.9	22.8	74.8
1948	125	74.8	27.1	15.7	13.0	10.9	45.5	266	440	72.3	20.2	7.80	93.1
1949	14.4	8.7	6.6	4.4	5.1	9.4	61.3	349	159	29.5	11.2	10.2	56.1
1950	15.8	49.0	39.6	11.9	10.0	12.4	25.7	193	433	154	24.4	14.5	82.0

† Corrected.

* Not previously published; discharges computed on basis of records for Boundary and Smith Creek, and weather records.

Monthly and yearly runoff, in acre-feet, of Long Canyon Creek near Porthill, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	7,970	2,800	728	-	-
1929	-	-	-	-	-	-	1,700	12,000	8,870	1,940	593	363	-
1930	-	-	-	-	-	-	8,980	10,200	6,070	1,520	536	405	-
1931	467	*395	*307	*492	*643	762	1,920	13,800	5,460	1,450	523	494	*26,560
1932	572	*781	*492	*369	*2,300	*2,430	5,950	17,500	13,900	2,740	713	422	*48,170
1933	658	1,480	*2,200	*1,230	*811	*764	3,230	13,400	27,300	6,700	1,340	952	*59,860
1934	2,143	3,160	5,500	*2,690	*1,500	2,100	14,670	20,290	7,130	1,690	605	774	*60,150
1935	653	3,900	1,570	1,750	1,760	1,430	2,240	14,560	13,560	3,320	841	415	46,000
1936	436	355	311	300	230	355	5,040	15,060	3,950	944	347	341	27,670
1937	300	254	375	264	222	327	1,330	11,170	15,570	2,790	875	589	35,070
1938	980	2,120	1,500	1,270	791	1,180	6,630	20,090	16,450	3,360	676	413	54,460
1939	694	581	617	724	*448	1,220	6,380	16,110	5,880	1,730	528	432	*35,340
1940	524	583	1,350	861	657	1,170	4,560	14,020	5,820	916	389	371	31,220
1941	502	420	545	446	506	1,210	4,640	11,230	5,090	1,920	770	2,320	29,600
1942	4,060	3,140	6,090	1,440	924	799	3,940	12,410	10,430	4,130	1,710	615	49,150
1943	494	599	538	424	365	736	7,180	11,750	16,020	6,220	1,230	583	46,140
1944	780	547	653	464	389	468	1,420	7,680	3,950	1,180	524	504	18,560
1945	621	676	492	496	504	563	1,020	12,690	12,610	1,890	415	438	32,420
1946	428	710	545	468	391	662	4,310	17,870	16,480	5,570	1,110	928	49,470
1947	1,330	1,130	1,210	871	1,080	1,670	6,010	20,040	14,270	4,030	1,100	1,350	54,090
1948	7,720	4,450	1,670	966	750	672	2,710	15,330	26,150	4,440	1,240	464	67,560
1949	887	520	409	270	266	579	3,650	21,480	9,450	1,810	688	605	40,630
1950	970	2,920	2,430	734	555	762	1,530	11,860	25,750	9,470	1,500	865	59,350

† Corrected.

* Not previously published; see footnotes to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30										Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		Inches	Acre-feet
1928	672	a448	May 18, 1928	-	-	-	-	-	-	-	-	-	-	-
1929	692	a580	May 23, 1929	-	-	-	-	-	-	-	-	-	-	-
1930	707	347	Apr. 24, 1930	-	-	-	-	-	-	-	-	-	-	-
1931	722	598	May 14, 1931	5.0	*36.7	*1.27	*17.19	*26,560	*37.6	*17.60	*27,240			
1932	737	538	May 20, 1932	6	*66.3	*2.29	*31.06	*48,170	*69.7	*32.69	*50,660			
1933	752	950	June 15, 1933	6	*82.7	*2.85	*38.70	*59,860	*88.9	*41.59	*64,330			
1934	767	818	Apr. 28, 1934	7	*78.2	*2.70	*38.90	*60,150	*79.4	*37.17	*57,470			
1935	792	637	May 22, 1935	5	63.6	2.19	29.75	46,000	56.6	26.50	40,980			
1936	812	616	May 14, 1936	4	38.1	1.31	17.89	27,670	37.9	17.77	27,500			
1937	832	644	June 2, 1937	3	47.1	1.62	22.04	34,070	52.1	24.42	37,740			
1938	862	938	May 25, 1938	6	76.6	2.64	35.86	55,460	72.9	34.12	52,750			
1939	882	455	May 15, 1939	6	*48.8	*1.68	*22.94	*35,340	*49.6	*23.20	*35,910			
1940	902	375	May 11, 1940	5	43.0	1.48	20.17	31,220	41.6	19.53	30,230			
1941	932	580	May 17, 1941	3	40.9	1.41	19.16	29,600	57.2	26.80	41,420			
1942	962	568	May 25, 1942	8	67.9	2.34	31.77	49,150	51.8	24.24	37,490			
1943	982	640	June 17, 1943	5	63.7	2.20	29.85	46,140	64.2	30.06	46,490			
1944	1012	216	May 15, 1944	5	25.6	.883	11.99	18,560	25.3	11.88	18,370			
1945	1042	456	May 30, 1945	6	44.8	1.54	20.95	32,420	44.6	20.88	32,310			
1946	1062	435	May 25, 1946	5	68.3	2.36	31.88	49,470	71.1	33.26	51,460			
1947	1092	569	May 8, 1947	10	74.8	2.58	34.98	54,090	88.8	41.56	64,260			
1948	1122	1,300	May 27, 1948	5	93.1	3.21	43.67	67,560	76.5	35.89	55,540			
1949	1152	-	-	4	56.1	1.93	26.24	40,630	62.3	29.16	45,140			
1950	1182	726	June 20, 1950	8	82.0	2.83	38.37	59,350	-	-	-			

† Corrected.

* Not previously published.

a Maximum observed.

379. Smith Creek near Porthill, Idaho

Location.--Lat 48°57'40", long. 116°33'20", in NE¼ sec. 26, T. 65 N., R. 2 W., on right bank at U. S. Forest Service bridge, 1 mile south of Smith Creek ranger station and 4 miles southwest of Porthill.

Drainage area.--70 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,770 ft (from topographic map). May 12 to Sept. 8, 1928, staff gage 40 ft downstream at datum 2.67 ft lower.

Average discharge.--20 years (1930-50), 178 cfs.

Extremes.--1928-50: Maximum discharge, 3,150 cfs May 17, 1941, from rating curve extended above 1,600 cfs; maximum gage height, 7.37 ft May 27, 1948; minimum discharge, 4 cfs Dec. 4-10, 1936; minimum gage height, 0.78 ft Sept. 4, 1931.

Remarks.--No diversion above station.

KOOTENAI RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Smith Creek near Porthill, Idaho													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	336	118	21.9	-	-
1929	-	-	-	-	-	-	104	606	406	47.0	10.5	6.82	-
1930	-	-	-	-	-	-	489	458	201	40.9	10.4	8.36	-
1931	16.9	18.5	14.7	25.0	35.6	52.6	168	732	225	49.4	10.6	12.5	114
1932	16.3	35.5	24.4	18.2	13.9	134	288	881	706	108	19.8	10.9	198
1933	35.9	124	*125	*59.0	*34.0	*34.1	166	644	1,110	289	32.0	34.3	*224
1934	118	163	*181	*134	*87	108	746	902	279	43.7	11.2	9.87	*232
1935	22.2	220	74.6	76.2	80.5	61.7	118	727	682	160	25.2	11.5	188
1936	17.9	14.6	11.6	12.2	8.2	18.0	333	804	184	29.7	8.5	10.3	121
1937	8.35	7.93	10.7	8.61	8.00	13.5	62.4	623	625	86.5	28.0	20.8	126
1938	55.2	144	83.3	72.7	41.4	65.1	369	906	810	118	19.4	10.4	225
1939	43.1	37.0	35.3	43.6	25.1	63.8	350	744	312	87.4	14.5	12.8	148
1940	23.2	39.4	121	46.2	34.2	70.7	286	658	209	24.7	9.9	12.9	128
1941	33.8	25.3	40.7	26.8	26.5	103	392	616	252	75.1	17.3	147	147
1942	213	174	331	64.8	44.1	38.2	236	581	499	156	41.3	17.4	200
1943	17.6	30.6	28.8	18.5	21.2	39.1	428	664	760	244	37.1	15.3	192
1944	30.0	28.5	39.4	24.6	20.8	23.5	130	494	199	36.6	12.4	19.0	88.5
1945	29.3	58.1	38.8	35.8	38.8	39.5	68.0	796	657	97.0	14.6	22.6	159
1946	26.0	76.3	43.8	36.0	32.8	46.7	272	1,026	802	183	27.8	29.5	218
1947	59.0	48.1	59.5	40.6	71.5	86.2	331	950	517	93.3	27.0	54.3	195
1948	358	187	59.2	39.9	35.4	36.0	156	841	933	130	47.3	24.7	237
1949	53.8	32.5	26.2	22.7	24.5	35.2	292	1,101	400	58.7	19.5	25.8	175
1950	51.0	184	127	41.9	43.6	61.0	120	633	1,188	374	58.8	27.7	243

* Not previously published; estimated on the basis of records for Boundary Creek near Porthill.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	20,000	7,260	1,350	-	-
1929	-	-	-	-	-	-	6,190	37,300	24,200	2,890	646	406	-
1930	-	-	-	-	-	-	29,100	28,200	12,000	2,510	640	497	-
1931	1,040	1,100	904	1,540	1,980	3,230	10,000	45,000	13,400	3,040	652	744	82,600
1932	1,000	2,110	1,500	1,120	8,000	8,240	17,100	54,200	42,000	6,640	1,220	649	144,000
1933	2,210	7,360	*7,700	*3,630	*1,890	*2,090	9,880	39,600	66,000	17,800	1,970	2,040	162,200
1934	7,260	9,680	*11,120	*8,260	*4,830	6,640	44,370	55,450	16,630	2,690	688	587	168,200
1935	1,360	13,090	4,590	4,680	4,470	3,790	7,010	44,730	40,610	9,830	1,550	686	136,400
1936	1,100	867	714	752	470	1,100	19,800	49,410	10,920	1,820	526	615	88,090
1937	514	472	657	530	444	633	3,710	38,280	37,220	5,320	1,720	1,240	90,940
1938	3,390	8,580	5,120	4,470	2,300	4,000	21,930	55,680	48,200	7,260	1,190	617	162,700
1939	2,850	2,200	2,170	2,680	1,390	3,920	20,830	45,740	18,560	5,360	889	764	107,200
1940	1,420	2,340	7,420	2,840	1,970	4,350	17,040	40,460	12,440	1,520	611	766	93,180
1941	2,080	1,510	2,500	1,650	1,470	6,360	23,310	37,900	15,020	4,620	1,070	8,730	106,200
1942	13,070	10,380	20,320	3,990	2,450	2,350	14,020	35,720	29,670	9,610	2,540	1,040	145,200
1943	1,080	1,820	1,770	1,140	1,180	2,400	25,460	40,830	45,240	15,020	2,280	912	139,100
1944	1,850	1,700	2,420	1,510	1,200	1,400	7,760	30,360	11,860	2,250	762	1,130	64,240
1945	1,800	3,460	2,390	2,200	2,150	2,430	4,040	48,960	39,120	5,970	897	1,340	114,800
1946	1,600	4,540	2,700	2,210	1,820	2,870	16,180	63,080	47,750	11,260	1,710	1,760	157,500
1947	3,630	2,860	3,660	2,500	3,970	5,300	19,710	58,420	30,790	5,740	1,660	3,230	141,500
1948	22,000	11,150	3,640	2,460	2,040	2,220	9,270	51,710	55,520	8,010	2,910	1,470	172,400
1949	3,310	1,930	1,610	1,400	1,360	2,170	17,400	67,680	23,830	3,610	1,200	1,540	127,000
1950	3,140	10,980	7,800	2,570	2,420	3,750	7,170	38,890	70,720	22,980	3,620	1,650	175,700

* Not previously published; estimated on the basis of records for Boundary Creek near Porthill.

Yearly discharge, in cubic feet per second										
Year	W.S.P. no.	Water year ending Sept. 30					Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff
		Discharge	Date				Inches	Acre-feet		
1928	672	1,340	May 18, 1928	-	-	-	-	-	-	-
1929	692	1,480	May 22, 1929	-	-	-	-	-	-	-
1930	707	1,210	Apr. 24, 1930	-	-	-	-	-	-	-
1931	722	1,560	May 14, 1931	6	114	1.63	22.16	82,600	117	22.59
1932	737	1,490	May 20, 1932	8	198	2.83	38.56	144,000	*216	*41.95
1933	752	3,060	June 14, 1933	8	*224	*3.20	*43.50	*162,200	*239	*46.40
1934	767	1,960	Apr. 28, 1934	6	*232	*3.31	*45.13	*168,200	*220	*42.70
1935	792	1,520	May 22, 1935	8	188	2.69	36.57	136,400	166	32.19
1936	812	1,470	May 14, 1936	6	121	1.73	23.68	88,090	120	23.41
1937	832	1,550	June 19, 1937	4	126	1.80	24.36	90,940	147	28.49
1938	862	2,100	May 25, 1938	8	225	3.21	43.60	162,700	211	40.90
1939	882	1,400	May 15, 1939	9	148	2.11	28.68	107,200	154	29.60
1940	902	1,330	May 11, 1940	6	128	1.83	24.97	93,180	121	23.60
1941	932	3,150	May 17, 1941	10	147	2.10	28.42	106,200	199	38.51
1942	962	2,750	Dec. 2, 1942	12	200	2.66	38.89	145,200	146	28.42
1943	982	1,870	June 17, 1943	12	192	2.74	37.26	139,100	194	37.60
1944	1012	830	May 9, 1944	5	88.5	1.26	17.19	64,240	90.8	17.65
1945	1042	*1,500	May 31, 1945	7	159	2.27	30.74	114,800	160	31.06
1946	1062	1,890	June 6, 1946	11	218	3.11	42.19	157,500	219	42.54
1947	1092	1,610	May 8, 1947	18	195	2.79	37.90	141,500	232	45.03
1948	1122	2,480	May 27, 1948	16	237	3.59	46.17	172,400	196	38.16
1949	1152	2,400	May 17, 1949	12	175	2.50	34.02	127,000	196	38.05
1950	1182	2,600	Nov. 27, 1949	13	243	3.47	47.07	175,700	-	-

* Not previously published.

380. Boundary Creek near Porthill, Idaho
(International gaging station)

Location.--Lat 48°59'50", long. 116°34'05", in SW $\frac{1}{4}$ sec. 11, T. 65 N., R. 2 W., on left bank near mouth of canyon, 0.2 mile south of international boundary, and 3 miles west of Porthill.

Drainage area.--97 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,770 ft (from topographic map). May 17 to Sept. 8, 1928, staff gage 140 ft upstream at different datum.

Average discharge.--20 years (1930-50), 176 cfs.

Extremes.--1928-50: Maximum discharge, 2,530 cfs May 28, 1948 (gage height, 5.34 ft), from rating extended above 1,500 cfs; minimum, 5 cfs sometime between Nov. 10 and Dec. 3, 1936 (gage height, 0.27 ft).

Remarks.--No diversion above station.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	507	139	34.8	-	-
1929	-	-	-	-	-	-	-	542	398	58.4	19.6	15.4	-
1930	16.4	-	-	-	-	-	381	450	202	48.0	18.1	15.3	-
1931	20.2	20.0	16.4	22.8	20.8	34.3	147	644	200	61.3	18.7	18.9	103
1932	21.1	34.5	27.6	19.8	140	97.0	328	1,020	754	96.6	27.6	17.3	215
1933	33.2	78.4	95.6	56.1	37.3	39.0	198	783	1,200	240	36.1	38.2	237
1934	91.1	128	154	128	89.6	120	793	851	219	39.5	18.5	17.9	221
1935	26.2	118	51.7	72.8	83.4	63.8	137	769	700	152	36.2	21.8	186
1936	28.5	24.3	20.4	20.9	18.2	23.7	339	823	193	41.6	16.3	18.6	131
1937	14.2	14.1	19.0	14.7	13.0	15.1	62.3	604	601	98.8	31.5	22.8	126
1938	40.8	80.0	55.5	51.0	36.0	64.1	350	991	794	113	26.3	17.8	219
1939	36.4	33.0	35.2	38.6	25.9	59.1	349	769	332	94.2	23.4	20.9	152
1940	26.3	27.7	76.1	36.5	33.1	71.2	318	651	200	34.4	18.0	19.5	126
1941	38.0	30.3	38.5	28.6	28.7	98.9	363	584	215	72.8	28.1	104	136
1942	155	148	275	69.3	50.7	43.1	261	622	470	160	61.8	35.6	197
1943	27.2	31.6	30.1	21.4	24.7	34.9	419	676	803	229	45.0	23.4	197
1944	35.9	31.6	37.1	26.4	23.2	22.2	109	431	189	44.2	21.0	22.5	83.0
1945	22.7	40.6	29.5	24.0	26.7	26.7	50.0	752	611	85.5	23.6	29.5	144
1946	28.5	55.0	36.3	31.0	28.9	45.3	257	1,104	824	188	35.7	32.7	223
1947	36.5	31.0	37.8	32.3	52.4	78.5	342	973	505	92.7	37.0	45.4	189
1948	337	177	72.6	49.3	43.1	39.8	183	938	884	141	65.5	34.5	247
1949	45.8	54.7	29.7	24.4	26.3	36.8	270	1,050	348	62.8	29.9	27.7	167
1950	41.4	106	92.7	40.0	43.1	60.9	126	666	1,180	312	64.1	33.2	229

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	30,200	8,550	2,140	-	-
1929	-	-	-	-	-	-	-	33,300	23,700	3,470	1,210	916	-
1930	1,010	-	-	-	-	-	22,700	27,700	12,000	2,830	1,110	910	-
1931	1,240	1,190	1,010	1,400	1,180	2,110	8,750	39,600	11,900	3,770	1,150	1,120	74,400
1932	1,300	2,050	1,700	1,220	8,050	5,960	19,500	62,700	44,900	5,940	1,700	1,030	155,000
1933	2,040	4,670	5,890	3,450	2,070	2,400	11,800	48,100	71,400	14,800	2,220	2,270	171,000
1934	5,600	7,610	9,480	7,870	4,980	7,400	47,200	52,300	13,000	2,430	1,140	1,060	160,100
1935	1,610	7,030	3,180	4,480	4,630	3,930	8,140	47,300	41,630	9,370	2,230	1,300	134,800
1936	1,750	1,450	1,250	1,290	1,050	1,460	20,140	50,590	11,490	2,560	1,000	1,110	95,140
1937	871	839	1,170	904	722	930	3,710	37,150	35,750	6,080	1,930	1,360	91,320
1938	2,510	4,780	3,410	3,130	2,000	3,940	20,860	60,940	47,240	6,870	1,610	1,060	158,400
1939	2,240	1,970	2,160	2,380	1,440	3,640	20,770	47,290	19,790	5,790	1,440	1,240	110,200
1940	1,620	1,650	4,680	2,240	1,900	4,380	18,910	40,000	11,920	2,110	1,100	1,160	91,670
1941	2,340	1,800	2,360	1,760	1,590	6,080	21,630	35,920	12,770	4,470	1,730	6,190	98,640
1942	9,510	8,810	16,920	4,260	2,810	2,650	15,540	38,230	27,960	9,830	3,800	2,000	142,300
1943	1,870	1,880	1,850	1,310	1,370	2,150	24,910	41,570	47,780	14,060	2,830	1,390	142,800
1944	2,210	1,880	2,280	1,620	1,330	1,370	6,470	26,480	11,250	2,720	1,290	1,340	60,240
1945	1,400	2,420	1,810	1,480	1,480	1,640	2,980	46,210	36,360	5,260	1,450	1,760	104,200
1946	1,760	3,270	2,230	1,900	1,600	2,780	15,310	67,900	49,030	11,590	2,200	1,950	161,500
1947	2,250	1,840	2,320	1,980	2,910	4,830	20,330	59,850	30,040	5,700	2,280	2,700	137,000
1948	20,740	10,510	4,460	3,030	2,510	2,450	10,870	57,690	52,600	8,680	4,030	2,050	179,600
1949	2,810	2,060	1,820	1,500	1,460	2,260	16,040	64,590	20,710	3,860	1,840	1,650	120,600
1950	2,550	6,300	5,700	2,460	2,400	3,750	7,500	40,960	69,050	19,180	3,940	1,980	165,800

Yearly discharge, in cubic feet per second, of Boundary Creek near Porthill, Idaho

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1928	672	-	-	-	-	-	-	-	-	-	-
1929	692	1,300	May 23, 1929	-	-	-	-	-	-	-	-
1930	707	950	Apr. 24, 1930	-	-	-	-	-	-	-	-
1931	722	1,320	May 13, 1931	13	103	1.06	14.39	74,400	105	14.71	76,000
1932	737	1,680	May 20, 1932	14	215	2.22	30.15	156,000	226	31.60	164,000
1933	752	2,400	June 15, 1933	14	237	2.44	33.09	171,000	251	35.04	181,000
1934	767	1,760	Apr. 28, 1934	14	221	2.28	30.95	160,000	206	28.85	149,200
1935	792	1,600	May 22, 1935	17	186	1.92	26.07	134,800	176	24.65	127,500
1936	812	1,490	May 14, 1936	13	131	1.35	18.37	95,140	129	18.07	93,570
1937	832	1,320	June 2, 1937	9	126	1.30	17.69	91,320	137	19.20	99,220
1938	862	2,270	May 25, 1938	14	219	2.26	30.62	158,400	213	29.78	154,100
1939	882	1,400	May 15, 1939	17	152	1.57	21.30	110,200	154	21.60	111,700
1940	902	1,200	May 11, 1940	11	126	1.30	17.72	91,670	124	17.45	90,220
1941	932	2,300	May 17, 1941	12	136	1.40	19.07	98,640	176	24.62	127,400
1942	962	1,610	May 23, 1942	24	197	2.03	27.49	142,300	155	21.72	112,500
1943	982	2,140	June 17, 1943	17	197	2.03	27.80	142,800	199	27.79	143,700
1944	1012	1,746	May 15, 1944	14	85.0	1.85	11.95	60,240	82.0	11.51	59,500
1945	1042	1,640	May 31, 1945	17	144	1.48	20.17	104,200	146	20.48	105,900
1946	1062	1,970	May 26, 1946	17	223	2.30	31.23	161,500	222	31.07	160,700
1947	1092	1,700	May 7, 1947	18	189	1.95	26.48	137,000	230	32.14	166,500
1948	1122	2,530	May 28, 1948	27	247	2.55	34.72	179,600	207	29.11	150,600
1949	1152	2,120	May 13, 1949	19	167	1.72	23.51	120,600	177	24.83	128,500
1950	1182	2,030	June 22, 1950	22	229	2.36	32.04	165,800	-	-	-

† Corrected

381. Kootenai River at Porthill, Idaho
(International gaging station)

Location.--Lat 49°00'00", long. 116°30'10", in SW 1/4 sec. 8, T. 65 N., R. 1 W., on right bank 300 ft south of international boundary at Porthill.

Drainage area.--13,700 sq mi, approximately.

Supplemental records available.--May 19 to July 25, 1904, Oct. 1, 1927, to May 16, 1928, gage heights only. Gage-height records collected at same site for the period October 1924 to September 1927 are contained in reports of Dominion Water Power and Reclamation Service, Canada.

Records of chemical analysis and water temperatures for period January 1949 to September 1950 are published in reports of the Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 1,700.00 ft above mean sea level referred to bench mark "10 M 1928", elevation 1,767.68 ft (datum of 1929, supplementary adjustment of 1947, is 0.03 ft higher), and 1,699.80 ft above mean sea level (datum of Geodetic Survey of Canada, adjustment of 1928); gage readings have been reduced to elevations above mean sea level. May 19 to July 25, 1904, Oct. 1, 1927, to May 16, 1928, staff gages at several sites within 200 ft at different datums.

Average discharge.--22 years (1928-50), 14,680 cfs.

Extremes.--1904, 1927-50: Maximum daily discharge, 125,000 cfs June 1, 1948; maximum elevation, 1,766.16 ft May 31, 1948; minimum daily discharge, 1,380 cfs Feb. 8, 1936; minimum elevation, 1,738.21 ft Apr. 3, 1944.

Maximum elevation known, 1,772.7 ft in June 1894.

Remarks.--Elevations affected by backwater from Kootenay Lake. Discharge represents entire flow passing international boundary, including that of Boundary Creek.

Cooperation.--This station is one of the international gaging stations maintained by United States under agreement with Canada.

Monthly mean elevation, in feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1928	47.36	46.34	44.54	42.93	42.13	42.43	44.88	56.59	58.03	53.91	47.02	43.68
1929	42.99	42.01	40.98	40.31	39.81	40.09	41.30	49.03	56.58	49.45	45.20	42.93
1930	41.45	40.41	40.06	39.69	39.89	40.31	45.06	50.74	54.97	50.97	46.10	43.44
1931	41.84	40.95	40.26	39.80	39.95	40.22	41.63	50.34	52.11	48.33	44.66	43.12
1932	41.71	42.32	42.39	41.32	40.44	42.70	45.95	55.69	59.65	52.75	46.36	43.75
1933	42.06	42.26	42.63	41.60	40.67	40.81	43.79	53.34	61.92	57.40	48.47	44.75
1934	43.99	45.50	45.27	45.42	43.58	43.63	52.29	59.70	57.39	49.59	45.35	42.93
1935	41.59	43.24	42.23	41.83	42.48	41.85	43.38	52.56	59.28	54.14	47.60	43.70
1936	42.02	41.26	41.02	40.84	39.95	40.33	45.15	55.64	54.65	47.94	44.52	42.74
1937	41.69	40.91	40.48	40.44	40.67	40.38	41.36	50.45	55.79	50.49	45.39	43.62
1938	43.60	44.81	43.18	42.53	41.36	41.30	46.63	56.03	61.62	53.29	45.50	43.27
1939	43.28	43.25	42.30	41.44	39.77	39.35	43.69	53.25	52.10	49.38	45.61	45.95
1940	46.23	46.18	45.78	44.48	42.84	41.31	43.02	51.19	52.01	46.63	45.89	46.00

Note.--Add 1,700.00 ft to obtain elevation above mean sea level.

Monthly mean elevation, in feet, of Kootenai River at Porthill, Idaho.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1941	46.04	45.61	44.73	43.78	42.55	41.60	42.89	48.76	49.58	48.16	48.02	48.20
1942	48.24	48.11	48.71	47.38	45.38	42.22	43.63	51.82	56.73	52.99	46.35	47.36
1943	47.45	46.06	44.82	42.95	41.34	39.77	49.54	51.39	56.05	54.17	46.50	47.11
1944	47.59	47.23	45.65	43.09	40.94	39.21	38.75	45.46	49.38	45.26	44.42	45.29
1945	45.94	45.79	45.09	43.76	42.08	39.93	38.94	49.13	54.77	48.90	44.58	45.54
1946	46.00	45.99	45.68	45.31	43.87	41.84	44.33	56.87	59.10	51.53	45.35	45.99
1947	46.08	46.01	46.10	45.45	44.22	42.47	45.37	57.90	56.48	49.47	44.87	45.90
1948	47.75	46.53	46.06	45.48	43.80	41.46	43.72	55.01	63.12	51.56	46.16	45.79
1949	46.07	45.39	43.86	41.47	39.85	39.16	44.42	56.10	53.16	46.45	46.52	47.86
1950	47.75	47.85	47.86	46.66	44.90	42.39	42.87	51.82	61.08	56.12	47.73	47.96

Note.--Add 1,700.00 ft to obtain elevation above mean sea level.

Maximum yearly elevation, in feet, at stations on Kootenai River

Water year	Boom Camp		At Bonners Ferry		Near Bonners Ferry		Klockmann Ranch		Copeland		Porthill	
	Elev.	Date	Elev.	Date	Elev.	Date	Elev.	Date	Elev.	Date	Elev.	Date
1904	-	-	a67.0	May 25	-	-	-	-	-	-	-	-
1928	*a74.85	May 29	a72.78	May 28	72.22	May 28	-	-	a66.70	May 29	63.32	May 30
1929	a69.74	June 4	a66.36	June 4	65.78	June 4	63.57	June 10	a61.08	June 16	58.62	June 16
1930	a68.78	June 2	a64.96	June 2	64.15	June 2	62.21	June 10	59.32	June 10	56.77	June 13
1931	a67.00	May 17	a62.36	May 18	61.92	May 17	60.03	May 18	57.15	May 18	54.48	May 18
1932	a72.48	June 16	a70.52	June 17	69.93	June 17	67.66	June 17	64.53	June 17	61.37	June 18
1933	*a76.85	June 19	a74.99	June 19	74.17	June 20	71.24	June 20	67.98	June 20	65.92	June 20
1934	a74.68	Apr. 28	a73.04	Apr. 29	72.29	Apr. 29	69.40	Apr. 29	65.32	Apr. 30	61.97	June 1
1935	71.38	May 25	a68.67	May 25	68.02	May 25	65.70	June 16	63.10	June 16	60.56	June 17
1936	69.49	May 17	a66.81	June 2	66.27	June 2	64.46	June 2	61.87	June 3	59.41	June 3
1937	68.16	May 29	a64.69	May 29	64.07	May 29	62.13	May 29	59.38	June 5	57.05	June 20
1938	76.28	May 30	a74.44	May 30	73.74	May 30	70.95	May 30	67.88	May 31	64.08	May 31
1939	67.54	May 18	a63.56	May 18	62.98	May 18	61.03	May 19	58.30	May 19	55.66	May 19
1940	68.57	May 27	a65.08	May 27	64.49	May 27	62.33	May 27	59.37	May 27	56.49	May 27
1941	64.87	May 17	a58.70	May 18	58.22	May 18	56.43	May 18	54.00	May 18	51.79	May 18
1942	74.37	May 28	72.00	May 28	71.28	May 28	68.46	May 28	64.72	May 28	60.58	May 29
1943	70.73	May 29	67.99	May 29	67.30	May 29	64.75	May 29	61.40	June 20	58.39	June 20
1944	64.06	June 1	57.02	June 3	56.50	June 3	54.70	June 3	52.60	June 15	50.78	June 15
1945	70.08	June 3	67.04	June 3	66.37	June 3	64.01	June 3	60.79	June 4	57.91	June 4
1946	75.29	May 31	73.41	May 31	72.75	May 31	70.03	May 31	66.49	May 31	62.62	May 31
1947	76.22	May 11	74.31	May 11	73.52	May 12	70.58	May 12	66.47	May 12	62.08	May 13
1948	79.87	May 28	78.32	May 28	76.84	May 28	73.82	May 28	70.10	May 31	66.16	May 13
1949	75.71	May 15	73.84	May 16	73.23	May 15	70.35	May 16	66.38	May 17	61.98	May 17
1950	78.21	June 23	76.98	June 24	76.30	(b)	73.40	June 24	69.95	June 24	65.44	June 24

* Revised.

a Maximum observed.

b June 23, 24.

Note.--Add 1,700.00 feet to obtain elevation above mean sea level.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	15,600	60,000	40,400	29,000	10,800	6,580	-	-
1929	7,490	4,900	3,560	2,830	3,010	4,200	6,790	29,200	44,600	16,200	7,940	5,150	11,300
1930	4,430	3,330	3,450	2,950	3,820	4,260	19,500	27,900	40,900	20,800	9,220	6,060	12,200
1931	4,940	4,040	3,090	3,190	3,310	4,120	7,380	29,600	26,900	12,800	6,560	5,380	9,310
1932	4,110	3,740	3,110	2,860	4,790	7,850	19,800	51,400	58,900	21,500	10,200	6,810	16,200
1933	5,370	6,930	6,500	4,810	3,580	4,700	16,200	45,100	37,700	34,700	12,900	9,210	18,700
1934	10,400	13,100	15,880	13,890	10,070	12,500	48,000	61,400	38,990	16,520	8,405	5,729	21,270
1935	5,016	9,511	5,033	5,904	7,062	6,040	12,490	42,260	61,510	28,150	11,760	6,603	15,970
1936	4,892	4,014	3,335	3,104	2,192	4,216	21,710	44,550	29,750	11,570	6,643	4,945	11,760
1937	3,750	2,917	3,123	2,099	2,554	2,998	8,038	34,380	39,890	18,150	8,450	5,545	11,030
1938	5,260	7,914	5,294	5,859	4,110	6,289	23,970	51,020	58,830	22,390	9,189	5,932	17,100
1939	5,841	4,245	3,533	4,182	3,032	5,309	17,600	39,360	30,150	20,490	7,955	5,667	12,280
1940	6,013	5,869	5,312	3,391	3,746	6,111	15,730	38,010	28,110	11,230	6,613	6,149	11,370
1941	5,718	4,432	3,859	3,398	3,142	5,319	13,600	25,750	22,810	10,980	6,469	9,539	9,605
1942	10,810	8,508	14,360	5,623	4,558	4,575	17,810	41,850	49,200	34,520	13,440	7,877	17,830
1943	6,250	5,781	4,772	3,625	4,208	5,131	38,210	37,960	48,780	37,350	12,550	6,402	17,610
1944	5,064	4,594	3,577	3,203	2,997	2,998	6,248	21,750	25,190	10,150	6,770	5,352	8,205
1945	5,580	4,068	2,884	3,243	3,331	3,457	5,518	33,330	41,460	20,500	7,875	6,328	11,460
1946	5,522	5,874	4,477	4,110	3,507	5,961	21,700	58,110	55,080	26,350	10,550	8,724	17,550
1947	6,909	5,192	5,907	4,792	6,529	9,372	24,150	61,260	45,600	21,440	9,929	8,112	17,490
1948	18,310	12,280	7,070	5,524	4,928	5,479	18,990	58,740	80,270	26,990	14,320	7,702	21,720
1949	6,161	4,972	3,581	3,543	3,969	5,246	21,220	53,750	31,500	12,960	7,989	5,731	13,430
1950	5,334	6,882	6,188	4,019	4,827	8,009	16,470	44,970	73,330	40,340	13,040	7,020	19,250

KOOTENAI RIVER BASIN

Monthly and yearly runoff, in thousands of acre-feet, of Kootenai River at Porthill, Idaho													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	928	3,690	2,400	1,780	664	390	-
1929	461	292	219	174	167	258	404	1,800	2,650	996	488	306	8,220
1930	272	198	212	181	212	262	1,160	1,720	2,430	1,280	567	361	8,860
1931	304	240	190	196	184	253	439	1,820	1,600	787	403	320	6,740
1932	253	223	191	176	276	481	1,170	3,160	3,500	1,320	627	405	11,800
1933	330	412	400	296	199	289	964	2,770	4,390	1,300	793	548	13,500
1934	639.2	779.3	976.6	853.9	559.5	768.8	856	3,775	2,320	1,016	516.8	340.9	15,400
1935	308.4	565.9	309.5	363	392.2	371.4	743.3	2,599	3,065	1,731	723.4	392.9	11,580
1936	300.8	238.9	205.1	190.9	126.1	259.2	292	2,739	1,770	711.3	408.4	294.2	8,536
1937	230.6	173.6	192	129	141.8	184.2	478.3	2,113	2,374	1,118	519.6	330	7,982
1938	323.4	470.9	325.5	348	228.3	386.7	427	3,137	3,501	1,376	502.3	353	12,380
1939	328.4	252.6	217.2	257.2	168.4	326.4	1,047	2,420	1,794	1,260	489.1	331.3	8,892
1940	369.7	349.2	326.6	208.5	215.5	375.7	936	2,337	1,672	690.5	406.6	365.9	8,253
1941	351.6	263.7	237.3	209	174.5	809.5	809.5	1,583	1,357	675	397.8	567.6	6,953
1942	664.4	506.1	983	339.6	253.1	281.3	1,080	2,573	2,927	1,222	826.4	468.7	12,900
1943	384.3	342.8	293.4	222.9	233.7	315.6	274	2,334	2,903	296	771.8	381	12,750
1944	342.1	273.3	220	197	172.4	184.3	371.7	1,338	1,499	624.4	416.3	318.5	5,957
1945	312.3	242.1	177.3	199.5	185	212.5	328.4	2,049	2,467	1,260	484.2	376.5	8,294
1946	339.6	349.5	275.3	252.7	194.8	366.5	1,291	3,573	3,277	1,620	648.7	519.1	12,710
1947	424.8	308.9	363.2	294.7	362.6	576.2	1,437	3,767	2,713	1,318	610.5	482.7	12,660
1948	1,126	730.4	434.7	339.6	283.5	336.9	1,130	3,612	4,776	1,660	880.5	458.3	15,770
1949	378.8	295.9	220.2	217.9	220.4	322.6	1,262	3,305	1,874	797	491.2	341	9,726
1950	328	409.5	380.5	247.1	268.1	492.5	980.1	2,765	4,354	2,480	802.1	417.7	13,930

Yearly discharge, in cubic feet per second														
Year	W.S.P. no.	Water year ending Sept. 30										Calendar year		
		Maximum daily		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff				
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet			
1929	692	59,500	June 5, 1929	2,400	11,300	0.825	11.24	8,220,000	10,900	10.84	7,920,000			
1930	707	61,200	June 3, 1930	2,290	12,200	.891	12.11	8,860,000	12,300	12.19	8,910,000			
1931	722	52,000	May 17, 1931	2,240	9,310	.680	9.23	6,740,000	9,210	9.13	6,670,000			
1932	737	77,200	May 23, 1932	2,210	16,200	1.18	16.13	11,800,000	16,900	16.78	12,300,000			
1933	752	93,200	June 19, 1933	2,060	18,700	1.36	18.50	13,500,000	20,400	20.23	14,800,000			
1934	767	89,300	Apr. 29, 1934	4,840	21,270	1.55	21.09	15,400,000	19,600	19.41	14,190,000			
1935	792	69,400	May 24, 1935	2,330	15,970	1.17	15.82	11,560,000	15,370	15.23	11,130,000			
1936	812	59,800	May 17, 1936	1,380	11,760	.858	11.67	8,536,000	11,550	11.47	8,387,000			
1937	832	54,300	May 29, 1937	1,430	11,030	.805	10.91	7,982,000	11,750	11.61	8,506,000			
1938	862	91,100	May 29, 1938	3,100	17,100	1.25	16.92	12,380,000	16,650	16.50	12,060,000			
1939	882	51,100	May 18, 1939	1,720	12,280	.896	12.18	8,892,000	12,620	12.52	9,139,000			
1940	902	54,600	May 26, 27, 1940	2,140	11,370	.830	11.30	8,253,000	11,100	11.03	8,060,000			
1941	932	38,800	May 18, 1941	2,240	9,605	.701	9.52	6,953,000	11,260	11.16	8,154,000			
1942	962	81,900	May 28, 1942	3,440	17,830	1.30	17.67	12,900,000	16,400	16.26	11,870,000			
1943	982	68,200	Apr. 21, 1943	2,040	17,610	1.29	17.46	12,750,000	17,360	17.20	12,570,000			
1944	1012	33,300	June 2, 1944	2,350	8,205	.599	8.15	5,957,000	8,063	8.01	5,853,000			
1945	1042	62,300	June 2, 1945	1,740	11,460	.836	11.34	8,294,000	11,780	11.66	8,526,000			
1946	1062	83,300	May 31, 1946	2,870	17,550	1.28	17.41	12,710,000	17,740	17.59	12,840,000			
1947	1092	91,100	May 11, 1947	3,120	17,490	1.28	17.33	12,660,000	19,140	18.96	13,850,000			
1948	1122	125,000	June 1, 1948	3,630	21,720	1.59	21.58	15,770,000	19,800	19.67	14,370,000			
1949	1152	86,800	May 16, 1949	2,710	13,430	.980	13.31	9,726,000	13,740	13.62	9,949,100			
1950	1182	91,600	June 23, 1950	2,720	19,250	1.41	19.06	13,930,000	-	-	-			

COLUMBIA RIVER MAIN STEM

382. Columbia River at Birchbank, British Columbia 1/
(International gaging station)

Location.--Lat 49°10', long. 117°43', on right bank at Birchbank, British Columbia, 7 miles upstream from Trail, 11 miles downstream from Kootenai River, and 17 miles upstream from international boundary.

Drainage area.--34,000 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 1,329.90 ft above mean sea level, (levels by Geodetic Survey of Canada 1947 international joint adjustment). Prior to Oct. 1, 1937, chain or wire-weight gage 7 miles downstream at datum 1,313.63 ft above mean sea level.

Average discharge.--37 years (1913-50), 69,250 cfs.

Extremes.--1913-50: Maximum discharge, 370,000 cfs June 11, 1948 (gage height, 50.62 ft); minimum, 8,940 cfs Feb. 3, 1937 (gage height, 6.27 ft, site and datum then in use).

Remarks.--Flow partly regulated by Kootenay Lake, controlled by order of International Joint Commission (between legal limits of 1,739.32 ft and 1,747.32 ft, capacity is 909,000 acre-ft). Many small diversions for irrigation of about 25,000 acres above station.

Cooperation.--This station is one of the international gaging stations maintained by Canada under agreement with the United States. Prior to 1930 records furnished by Dominion Water and Power Bureau of Canada.

1/ Published as Columbia River at Trail, British Columbia prior to Oct. 1, 1937.

COLUMBIA RIVER MAIN STEM

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Monthly and yearly discharge, in cubic feet per second, of Columbia River at Birchbank, B. C.													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	-	-	-	-	-	-	-	86,400	62,000	181,000	125,000	83,500	-
1914	46,900	32,200	22,600	20,700	16,800	17,800	43,900	125,000	100,200	100,112,000	65,700	74,900	-
1915	49,300	45,900	30,500	18,900	16,400	17,300	45,500	110,000	123,000	140,000	132,000	76,600	67,600
1916	38,200	35,000	25,400	16,300	13,700	23,000	45,000	99,400	192,000	262,000	136,000	86,700	81,300
1917	42,300	29,100	19,600	14,100	12,400	10,600	17,300	79,200	198,000	205,000	115,000	68,600	67,900
1918	53,500	29,600	27,100	27,900	20,800	18,400	41,500	113,000	200,000	180,000	113,000	75,900	75,900
1919	53,600	34,500	25,800	19,900	21,100	16,200	34,400	107,000	195,000	179,000	119,000	72,500	73,200
1920	34,700	21,800	15,700	15,200	13,300	11,700	15,400	74,100	146,000	240,000	144,000	71,300	66,900
1921	70,900	40,700	28,700	22,400	21,400	22,700	36,600	117,000	200,245,000	190,000	127,000	61,200	82,300
1922	42,500	46,900	29,200	20,800	16,700	14,600	20,700	79,400	221,000	168,000	113,000	82,200	71,300
1923	46,700	31,200	18,800	19,400	15,800	13,400	29,000	109,000	202,000	188,000	115,000	80,300	73,900
1924	38,900	23,200	17,700	13,900	16,900	17,700	19,300	115,000	158,000	134,000	103,000	74,400	81,000
1925	40,600	37,000	28,100	25,300	25,200	25,000	63,900	164,000	215,000	181,000	114,000	60,900	81,700
1926	34,100	20,600	17,400	14,000	12,600	13,400	37,400	102,000	103,000	201,000	83,000	65,400	52,300
1927	47,000	44,200	29,300	19,700	15,300	15,400	23,000	87,100	217,000	199,000	127,000	101,000	77,400
1928	76,700	60,600	37,600	26,700	22,200	22,500	40,700	152,000	223,000	187,000	112,000	60,700	85,400
1929	37,800	26,500	19,000	14,500	11,000	11,800	16,700	85,300	190,000	228,000	94,400	58,900	56,200
1930	31,100	20,200	15,100	13,900	12,700	14,500	38,600	103,000	164,000	157,000	107,000	63,400	62,000
1931	32,000	20,200	14,900	12,200	12,000	12,800	20,400	99,300	167,000	135,000	89,000	66,800	57,000
1932	35,100	25,900	19,900	18,800	14,500	24,200	45,000	143,000	234,000	180,000	109,000	64,700	76,300
1933	35,090	30,090	28,950	21,370	16,030	15,540	25,450	103,800	239,900	238,000	132,800	74,980	80,550
1934	47,750	52,490	39,510	37,050	28,500	26,470	78,050	202,400	266,100	139,300	97,980	61,920	86,730
1935	34,300	37,000	28,900	20,700	23,800	20,200	25,200	89,700	212,000	199,000	119,000	65,900	73,200
1936	35,500	22,200	17,000	14,800	11,900	13,000	33,300	149,000	200,207,000	32,000	88,800	54,100	65,000
1937	31,200	18,400	13,500	10,300	9,620	11,400	16,700	68,400	163,000	144,000	85,300	55,100	52,500
1938	31,300	43,700	27,400	21,600	17,300	17,600	36,900	115,000	202,32,000	175,000	79,200	58,900	71,500
1939	39,800	24,600	19,600	18,200	15,900	14,600	35,300	137,000	158,000	148,000	89,300	54,600	63,300
1940	37,800	37,600	31,200	22,100	19,700	22,900	43,200	114,000	177,000	131,000	82,300	64,800	65,400
1941	48,200	34,200	21,300	18,100	17,300	21,600	45,500	98,900	136,000	108,000	79,200	65,500	58,000
1942	56,400	40,700	40,300	22,600	22,100	21,600	30,900	92,800	185,000	170,000	99,200	48,300	69,500
1943	35,700	25,100	20,400	17,800	16,700	16,100	55,100	91,200	159,000	184,000	100,000	46,200	64,300
1944	33,000	24,200	20,000	17,900	15,400	14,200	19,900	69,200	140,000	91,300	77,400	52,500	48,000
1945	39,900	29,900	21,000	17,800	17,600	17,500	16,200	75,500	177,000	135,000	76,100	45,500	56,100
1946	28,200	23,500	18,100	16,700	16,700	22,100	38,300	156,000	250,000	178,000	95,700	56,700	75,300
1947	31,500	20,900	18,100	18,100	21,300	26,100	44,100	156,000	218,000	161,000	85,700	50,800	71,200
1948	63,300	41,900	24,800	21,300	19,400	20,200	29,500	123,000	186,000	155,000	98,900	62,300	81,400
1949	40,500	29,100	22,300	17,900	15,900	17,000	35,400	148,000	167,000	99,800	75,600	48,500	60,000
1950	30,300	25,700	27,700	19,300	20,000	27,300	31,000	83,700	230,000	245,000	106,000	62,000	75,900

Monthly and yearly runoff, in thousands of acre-feet														
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year	
1913	-	-	-	-	-	-	-	5,310	15,800	11,100	7,690	4,970	-	
1914	2,880	1,920	1,390	1,270	933	1,090	2,610	7,690	11,300	12,300	6,890	3,910	54,200	
1915	3,030	2,730	1,880	1,220	911	1,060	2,710	6,760	7,320	8,610	8,120	4,560	48,900	
1916	2,350	2,080	1,560	1,000	788	1,410	2,680	6,110	11,400	16,100	8,360	5,160	59,000	
1917	2,600	1,730	1,210	867	689	652	1,030	4,870	11,890	12,600	7,070	4,080	49,200	
1918	3,290	1,760	1,670	1,720	1,160	1,130	2,470	6,950	11,900	11,400	6,950	5,420	54,900	
1919	3,300	2,050	1,590	1,220	1,170	996	2,050	6,580	11,600	11,000	7,320	4,310	53,200	
1920	2,130	1,300	965	935	765	719	916	4,560	8,690	14,800	8,850	4,240	48,900	
1921	4,360	2,420	1,760	1,380	1,190	1,400	2,180	7,190	14,600	11,700	7,810	3,640	59,600	
1922	2,610	2,790	1,800	1,280	928	898	1,230	4,880	13,100	10,300	6,950	4,980	51,700	
1923	2,870	1,860	1,160	1,190	878	824	1,730	6,700	13,100	11,600	7,070	4,780	53,800	
1924	2,390	1,380	1,090	855	972	1,090	1,150	7,070	9,400	8,240	6,330	4,430	44,400	
1925	2,500	2,200	1,730	1,560	1,400	1,540	3,800	10,100	12,800	11,100	7,010	3,620	59,400	
1926	2,100	1,230	1,070	861	700	824	2,230	6,270	6,130	7,440	5,100	3,890	37,800	
1927	2,690	2,630	1,900	1,210	850	947	1,370	5,360	12,900	12,200	7,810	6,010	56,000	
1928	4,720	3,610	2,310	1,640	1,280	1,380	2,420	9,350	13,300	11,500	6,890	3,610	62,000	
1929	2,320	1,580	1,170	892	611	726	994	4,020	11,300	7,870	5,800	3,500	40,800	
1930	1,910	1,200	928	855	705	892	2,300	6,330	9,760	9,650	6,580	3,770	44,900	
1931	1,970	1,200	916	750	666	787	1,210	6,110	9,940	8,300	5,470	3,960	41,300	
1932	2,160	1,540	1,220	1,160	834	1,490	2,680	8,790	13,900	11,100	6,700	3,850	55,400	
1933	2,157	1,791	1,780	1,314	890.2	955.6	1,515	6,384	14,270	11,630	8,166	4,462	58,310	
1934	2,936	3,124	2,429	2,278	1,563	1,628	4,644	12,440	13,450	8,563	6,024	3,684	62,780	
1935	2,110	2,220	1,770	1,270	1,310	1,240	1,500	5,520	12,600	12,300	7,290	3,920	53,000	
1936	2,180	1,320	1,040	911	684	801	1,980	9,170	12,300	8,110	5,460	3,220	47,200	
1937	1,920	1,100	832	634	534	702	992	4,210	9,710	8,860	5,250	3,280	38,000	
1938	1,920	2,600	1,680	1,330	959	1,080	2,200	7,070	13,800	10,800	4,870	3,500	51,800	
1939	2,450	1,460	1,200	1,120	882	900	2,100	8,440	9,390	9,120	5,490	3,250	45,800	
1940	2,320	2,250	1,920	1,360	1,130	1,410	2,570	7,010	10,600	8,060	5,060	3,860	47,600	
1941	2,962	2,033	1,308	1,113	962	1,329	2,705	6,079	8,071	6,645	4,868	3,898	41,970	
1942	3,467	2,421	2,479	1,404	1,225	1,329	1,841	5,708	11,010	10,480	6,103	2,873	50,320	
1943	2,198	1,495	1,257	1,097	924.9	992.1	3,281	5,607	9,433	11,330	6,162	2,748	46,520	
1944	2,026	1,439	1,232	1,101	883.2	870.7	1,187	4,255	8,358	5,612	4,761	3,125	34,850	
1945	2,453	1,779	1,294	1,097	974.7	1,076	1,085	4,641	10,530	8,327	4,681	2,707	40,640	
1946	1,735	1,398	1,115	1,027	927.9	1,359	2,279	9,600	14,900	10,940	5,886	3,374	54,540	
1947	1,936	1,243	1,203	1,110	1,185	1,607	2,822	9,578	12,840	9,923	5,272	3,020	51,540	
1948	3,894	2,496	1,485	1,311	1,115	1,243	1,755	7,553	18,950	9,523	6,079	3,710	59,110	
1949	2,468	1,732	1,371	1,103	881.5	1,043	2,108	9,112	9,927	6,136	4,647	2,885	43,430	
1950	1,863	1,531	1,659	1,184	1,111	1,677	1,847	5,148	13,680	15,050	6,488	3,690	54,930	

Yearly discharge, in cubic feet per second, of Columbia River at Birchbank, B. C.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Runoff Acres-feet	Mean	Runoff	
		Discharge	Date							Inches	Acres-feet
1913	442	a312,000	June14,15,1913	-	-	-	-	-	-	-	-
1914	442	a222,000	July 16, 1914	15,500	74,900	2.20	29.82	54,200,000	78,800	30.62	55,800,000
1915	442	a149,000	July11,12,1915	15,500	67,600	1.99	26.98	48,900,000	65,300	26.08	47,300,000
1916	442	a306,000	June 30, 1916	12,000	81,300	2.39	32.54	59,000,000	80,700	32.28	58,500,000
1917	462	a224,000	July 8, 1917	9,600	67,900	2.00	27.10	49,200,000	69,600	27.75	50,400,000
1918	482	a274,000	June 26, 1918	16,200	75,900	2.23	30.29	54,900,000	76,200	30.42	55,100,000
1919	512	a229,000	June29,30,1919	13,000	73,200	2.15	29.37	53,200,000	69,900	27.96	50,600,000
1920	512	a263,000	July 19, 1920	11,000	66,900	1.97	26.91	48,900,000	73,000	29.21	53,000,000
1921	532	a270,000	June 13, 1921	19,700	82,300	2.42	32.89	59,600,000	80,500	32.14	58,300,000
1922	552	a244,000	June17,18,1922	14,200	71,300	2.10	28.54	51,700,000	69,500	27.81	50,300,000
1923	572	a253,000	June 16, 1923	13,000	73,900	2.17	29.61	53,800,000	72,800	29.06	52,700,000
1924	592	a199,000	May 26, 1924	13,000	61,000	1.80	24.50	44,400,000	63,300	25.36	46,000,000
1925	612	a245,000	May 27, 1925	23,300	81,700	2.40	32.71	59,400,000	79,200	31.59	57,300,000
1926	632	a138,000	July 12, 1926	12,400	52,300	1.54	20.90	37,800,000	56,300	22.47	40,800,000
1927	652	a258,000	June 19, 1927	13,200	77,400	2.28	30.90	56,000,000	81,900	32.73	59,300,000
1928	672	a306,000	May 30, 1928	18,100	85,400	2.51	34.16	62,000,000	77,700	31.11	56,400,000
1929	692	a224,000	June16,17,1929	10,000	56,200	1.65	22.49	40,800,000	54,900	21.91	39,800,000
1930	707	a189,000	June 14, 1930	11,600	62,000	1.82	24.75	44,900,000	62,100	24.78	44,900,000
1931	722	a189,000	June 13, 1931	11,600	57,000	1.68	22.80	41,300,000	58,200	23.25	42,100,000
1932	737	a270,000	June 25, 1932	13,400	76,300	2.24	30.49	55,400,000	77,500	31.00	56,200,000
1933	767	a288,000	June23,24,1933	14,800	80,550	2.37	32.19	58,310,000	84,360	33.70	61,070,000
1934	767	a274,000	June 2, 1934	23,300	86,730	2.55	34.63	62,780,000	83,400	33.32	60,370,000
1935	792	a258,000	June 20, 1935	17,800	73,200	2.15	29.18	53,000,000	71,090	28.38	51,490,000
1936	812	a271,000	June 4, 1936	10,200	65,000	1.91	26.03	47,200,000	64,000	25.64	46,500,000
1937	832	a183,000	June24,25,1937	8,940	52,500	1.54	20.95	38,000,000	55,700	22.26	40,400,000
1938	862	a260,000	June 27, 1938	15,700	71,500	2.10	28.59	51,800,000	70,000	27.88	50,700,000
1939	882	a196,000	May 1, 1939	12,900	63,300	1.86	25.28	45,800,000	65,200	26.04	47,200,000
1940	902	a197,000	May 29, 1940	18,700	65,400	1.92	26.18	47,600,000	65,200	26.10	47,360,000
1941	932	a153,000	June 19, 1941	16,700	58,000	1.70	23.21	41,970,000	60,800	24.33	44,040,000
1942	952	a208,000	June 11, 1942	19,900	69,500	2.04	27.76	50,320,000	64,800	25.87	46,900,000
1943	982	a206,000	July 12, 1943	14,800	64,300	1.89	25.65	48,520,000	63,900	25.51	46,270,000
1944	1012	a159,000	June 14, 1944	13,000	48,000	1.41	19.22	34,850,000	49,100	19.68	35,680,000
1945	1042	a198,000	June 10, 1945	16,300	56,100	1.65	22.42	40,640,000	54,400	21.71	39,370,000
1946	1062	a267,000	June 6, 1946	14,000	75,300	2.21	30.05	54,540,000	75,520	30.13	54,670,000
1947	1092	a256,000	June 14, 1947	14,700	71,200	2.09	28.45	51,540,000	76,000	30.36	55,030,000
1948	1122	a370,000	June 11, 1948	16,800	81,400	2.39	32.59	59,110,000	78,300	31.35	56,830,000
1949	1152	a210,000	May 24, 1949	14,000	60,000	1.76	23.96	43,430,000	59,300	23.68	42,900,000
1950	1182	a325,000	June 24, 1950	17,000	75,900	2.23	30.32	54,930,000	-	-	-

a Maximum daily.

PEND OREILLE RIVER BASIN

383. Racetrack Creek near Anaconda, Mont.

Location (revised).--Lat 46°16'40", long. 112°55'00", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 13, T. 6 N., R. 11 W., on left bank opposite Racetrack Creek station of the U. S. Forest Service, $\frac{9}{16}$ miles upstream from mouth, and 10 miles north of Anaconda.

Drainage area.--39.5 sq mi (revised).

Supplemental records.--April 1914 to September 1917, gage heights only.

Gage.--Chain gage. Altitude of gage is 5,410 ft (from topographic map). July 11, 1911, to Nov. 9, 1912, staff or chain gages at sites 3 miles upstream at different datums.

Extremes.--1911-12: Maximum discharge observed, 515 cfs June 10-14, 1912 (gage height, 6.8 ft, at site and datum then in use); minimum observed, 16 cfs at times in February and March, 1912.

Remarks.--No diversion above station.

Monthly and yearly discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	-	*101	45.9	33.4	-
1912	29.6	-	-	-	18.2	-	-	*91.0	371	180	-	90.3	-
1913	131	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for West Fork Bitterroot River near Darby.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	-	-	*6,210	2,820	1,990	-
1912	1,820	-	-	-	1,050	-	-	*5,600	22,100	11,100	5,920	5,370	-
1913	8,060	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; see footnote to preceding table.

384. Georgetown Lake near Southern Cross, Mont.

Location.--Lat 46°12'50", long. 113°16'40", in SW $\frac{1}{4}$ sec. 6 T. 5 N., R. 13 W., at dam on Flint Creek, 2 miles west of Southern Cross, and 8 miles south of Philipsburg.

Drainage area.--50.1 sq mi (revised).

Gage.--Staff gage. Datum of gage is at mean sea level (levels by The Montana Power Company).

Extremes.--1939-50: Maximum contents observed, 29,520 acre-ft Dec. 2, 3, 1943 (elevation, 6,428.99 ft); minimum observed, 16,930 acre-ft Mar. 16-18, 20-23, 1945 (elevation, 6,424.50 ft).

Remarks.--Storage began about 1905 to store water for pumpage into Warm Springs Creek for use of reduction works of Anaconda Copper Mining Co. at Anaconda, or for release through Flint Creek for power development. Reservoir has usable capacity of 31,000 acre-ft at elevation 6,429.5 feet.

Cooperation.--Records furnished by The Montana Power Co.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	20,310	20,170	20,530	20,920	21,250	21,440	22,410	23,000	22,670	21,250	19,260	18,710
1941	18,210	18,600	18,790	18,820	17,950	17,040	18,030	19,290	20,720	21,440	21,300	21,440
1942	21,560	21,580	21,830	21,660	21,440	20,970	22,020	25,610	28,040	28,780	28,660	28,570
1943	28,660	29,380	29,200	29,260	28,750	25,000	22,300	24,080	27,950	28,040	28,690	28,160
1944	27,950	27,830	27,410	26,670	26,110	25,550	25,390	25,860	28,070	28,240	28,130	27,390
1945	26,640	25,890	22,020	18,410	17,200	17,440	18,570	20,360	22,750	22,860	21,800	21,610
1946	22,110	22,750	23,110	23,550	23,220	22,780	23,160	23,940	24,580	24,130	23,000	22,720
1947	22,940	22,970	23,000	22,690	22,190	21,740	22,270	25,300	28,270	28,480	27,920	28,360
1948	28,900	28,930	28,990	29,080	28,660	25,690	20,970	26,470	28,100	28,130	28,330	28,360
1949	28,510	28,660	28,630	28,450	28,210	26,440	22,140	22,830	25,550	25,500	24,890	24,550
1950	24,380	24,020	21,660	18,790	18,520	18,430	19,040	20,470	24,160	25,580	26,050	25,910

a Interpolated on the basis of gage readings within 2 days of last day of month.

385. Flint Creek near Southern Cross, Mont.

Location.--Lat 46°14'00", long. 113°17'40", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 36, T. 6 N., R. 14 W., on left wing of weir half a mile downstream from powerplant, 2 miles downstream from Georgetown Lake, 3 miles northwest of Southern Cross, and 6 miles south of Philipsburg.

Drainage area.--52.6 sq mi (revised).

Gage.--Staff gage and Cippoletti weir. Altitude of gage is 5,630 ft (from topographic map).

Average discharge.--10 years (1940-50), 35.1 cfs.

Extremes.--1940-50: Maximum discharge observed, 174 cfs June 13, 1942 (gage height, 1.86 ft); probably no flow Aug. 20, 1943, when generator was shut down.

Remarks.--Flow regulated by Georgetown Lake (see above).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	23.5	15.0	15.0	15.0	15.0	4.31	1.82	10.1	30.0	28.5	30.0	30.0	18.2
1942	30.0	28.8	28.2	30.4	31.3	31.0	34.5	43.7	103	61.1	34.8	27.8	40.4
1943	26.3	27.9	34.6	31.5	31.0	80.4	106	35.1	53.8	70.6	28.7	30.0	46.4
1944	32.1	35.6	35.9	34.2	32.6	31.3	34.7	36.4	53.9	40.8	33.5	36.4	36.4
1945	38.6	39.0	39.5	34.7	32.1	23.1	15.0	26.9	29.4	28.0	28.0	23.2	29.8
1946	14.0	14.0	14.0	14.0	28.8	31.0	30.4	30.0	30.6	29.6	29.4	30.0	24.6
1947	30.9	31.0	31.0	30.6	29.9	26.7	31.0	51.3	40.3	36.9	29.6	29.0	31.6
1948	29.0	40.6	29.8	28.5	31.2	73.7	121	51.2	142	77.1	41.2	25.9	57.4
1949	26.7	31.5	31.7	28.7	31.4	47.4	95.2	60.6	31.3	31.3	31.1	28.2	39.6
1950	27.0	27.8	28.0	28.0	26.7	25.8	16.4	18.4	29.3	29.5	30.0	30.0	26.4

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	1,440	893	922	922	833	265	97	621	1,790	1,760	1,840	1,790	13,170
1942	1,840	1,720	1,730	1,870	1,740	1,910	2,050	2,690	6,140	3,760	2,140	1,650	29,240
1943	1,620	1,660	2,130	1,940	1,720	4,940	6,510	2,160	3,200	4,340	1,770	1,790	33,580
1944	1,970	2,120	2,210	2,100	1,880	1,930	2,060	2,240	3,210	2,510	2,060	2,170	26,460
1945	2,370	2,320	2,430	2,130	1,790	1,420	893	1,660	1,750	1,720	1,720	1,380	21,580
1946	861	833	861	861	1,600	1,910	1,810	1,840	1,820	1,800	1,790		17,810
1947	1,900	1,840	1,910	1,880	1,600	1,770	1,840	1,920	2,400	2,270	1,820	1,730	22,880
1948	1,780	2,410	1,830	1,750	1,800	4,530	7,180	3,150	8,420	4,740	2,530	1,540	41,660
1949	1,640	1,880	1,950	1,770	1,740	2,910	5,660	3,730	1,860	1,920	1,910	1,680	28,650
1950	1,660	1,650	1,720	1,720	1,480	1,590	976	1,130	1,740	1,820	1,840	1,730	19,120

Yearly discharge, in cubic feet per second, of Flint Creek near Southern Cross, Mont.								
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1941	932	32	Oct. 1-15, 1940	1.4	18.2	13,170	21.0	15,210
1942	962	174	June 13, 1942	18	40.4	29,240	40.5	29,360
1943	982	146	Mar. 15, 1943	19	46.4	33,580	47.6	34,470
1944	1012	137	June 9, 1944	30	36.4	26,460	37.6	27,280
1945	1042	40	(a)	14	29.8	21,580	23.5	17,020
1946	1062	32	Feb. 25, 1946	14	24.6	17,810	28.9	20,900
1947	1092	53	June 19-23, 1947	28	31.6	22,880	32.1	23,250
1948	1122	146	(b)	25	57.4	41,660	56.6	41,110
1949	1152	124	May 6-11, 1949	18	39.6	28,650	39.0	28,210
1950	1182	30	(c)	15	26.4	19,120	-	-

a Dec. 1-7, 9-17, 1944.

b June 4 to July 6, 1948.

c June 1-18, July 8-30, 1950.

386. Trout Creek above main canal, near Philipsburg, Mont.

Location.--Lat 46°10'30", long. 113°24'20", in NW¹ sec. 19, T. 5 N., R. 14 W., on left bank just upstream from main supply canal from East Fork Rock Creek and 12 miles southwest of Philipsburg.

Drainage area.--4.16 sq mi (revised).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,800 ft (from topographic map).

Extremes.--1945-49: Maximum daily discharge, 45 cfs Apr. 16, 1948; minimum recorded, 0.3 cfs July 30, 1946 (gage height, 1.02 ft).

Remarks.--One small diversion for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	3.16	3.49	3.85	4.61	4.54	3.86	4.04	4.10	3.92	4.43	-
1947	4.39	4.42	4.61	3.61	2.47	5.55	7.11	5.95	5.51	5.05	4.84	4.93	4.88
1948	4.97	5.00	5.08	4.64	4.48	4.85	14.0	10.6	12.4	7.47	6.00	5.50	7.08
1949	5.65	5.71	5.10	3.64	4.41	5.61	6.98	5.84	6.36	5.16	4.21	4.22	5.24

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	194	214	214	283	270	238	241	252	241	263	-
1947	270	263	283	222	137	341	423	366	328	310	298	294	3,540
1948	306	297	312	285	258	299	835	654	739	460	369	327	5,140
1949	348	340	314	224	245	345	415	359	379	318	259	251	3,800

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1946	1062	*28	Mar. 27, 1946	-	-	-	4.19	3,030
1947	1092	26	Apr. 14, 1947	2.2	4.88	3,540	5.02	3,630
1948	1122	-	-	3	7.08	5,140	7.20	5,230
1949	1152	19	June 1, 1949	2.6	5.24	3,800	-	-

* Revised

387. Trout Creek near Southern Cross, Mont.

Location.--Lat 46°16'40", long. 113°20'50" (revised), in W¹/₂ NW¹ sec. 15, T. 6 N., R. 14 W., on right bank a quarter of a mile upstream from mouth, 4¹/₂ miles southwest of Philipsburg, and 6¹/₂ miles northwest of Southern Cross.

Drainage area.--34.8 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 5,270 ft (from topographic map).

Average discharge.--5 years (1945-50), 35.8 cfs.

Extremes.--1945-50: Maximum discharge, 331 cfs Apr. 16, 1948 (gage height, 5.67 ft), from rating curve extended above 80 cfs by logarithmic plotting; minimum, 7.1 cfs Mar. 14, 1949 (gage height, 2.54 ft).

Remarks.--Diversions above station for irrigation of about 4,000 acres of which 1,500 acres are below station. During irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below Rock Creek Dam, through a canal into Trout Creek.

Monthly and yearly mean discharge, in cubic feet per second, of Trout Creek near Southern Cross, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	#23	#23	#20.4	16.5	14.5	21.6	17.5	17.7	33.1	41.1	70.9	41.6	#28.5
1947	37.3	27.0	22.1	17.8	17.3	23.9	23.5	26.2	48.1	69.1	74.1	59.7	37.3
1948	36.0	27.6	22.5	19.5	17.7	19.4	58.3	42.2	68.8	74.1	46.1	42.6	39.6
1949	32.7	24.4	18.7	19.3	16.8	15.8	42.7	28.5	52.4	64.0	74.8	55.4	37.2
1950	34.2	26.3	20.4	20.1	22.1	22.0	24.8	26.1	29.1	58.6	65.0	86.0	36.3

* Not previously published; partly estimated on the basis of records for Trout Creek near Philipsburg.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	#1,410	#1,370	#1,260	1,020	805	1,330	1,040	1,090	1,970	2,520	4,360	2,480	#20,660
1947	2,290	1,600	1,360	1,100	962	1,470	1,400	1,610	2,860	4,250	4,560	3,550	27,010
1948	2,210	1,640	1,380	1,200	1,020	1,190	3,470	2,590	4,100	4,560	2,830	2,530	28,720
1949	2,010	1,450	1,150	1,180	930	974	2,540	1,750	3,120	3,940	4,600	3,290	26,930
1950	2,100	1,560	1,250	1,230	1,230	1,350	1,480	1,600	1,730	3,600	4,000	5,120	26,250

* Not previously published; partly estimated on the basis of records for Trout Creek near Philipsburg.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1946	1062	107	Mar. 26, 1946	8.5	#28.5	#20,660	30.2	21,860	
1947	1092	103	Sept. 16, 1947	13	37.3	27,010	37.3	26,990	
1948	1122	331	Apr. 16, 1948	13	39.6	28,720	38.7	28,100	
1949	1152	189	Apr. 11, 1949	12	37.2	26,930	37.6	27,230	
1950	1182	159	Apr. 1, 1950	16	36.3	26,250	-	-	

* Not previously published.

388. Trout Creek near Philipsburg, Mont.

Location.--Lat 46°16'55", long. 113°20'25", in NW 1/4 sec. 15, T. 6 N., R. 14 W., on right bank 300 ft upstream from mouth and 4 1/2 miles southwest of Philipsburg.

Drainage area.--34.9 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 5,250 ft (from topographic map).

Extremes.--1939-43, 1945-46: Maximum discharge, 600 cfs (partly estimated) Mar. 28, 1943 (gage height, 4.0 ft, from floodmark), result of break in irrigation canal; minimum observed, 3.6 cfs May 26-29, June 2, 1940.

Remarks.--Diversion above station for irrigation of about 4,000 acres of which 1,500 acres are below station. During irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below Rock Creek Dam, through a canal into Trout Creek.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	-	31.3	35.4	38.9	31.0	-
1940	-	-	-	-	-	-	-	9.62	17.7	31.0	21.9	23.0	-
1941	34.5	-	-	-	-	-	-	-	-	24.9	33.2	26.1	-
1942	28.7	-	-	-	-	-	-	-	61.7	39.2	60.5	41.3	-
1943	36.4	28.9	21.1	19.2	16.6	20.1	40.0	32.9	32.9	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	-	40.1	-
1946	24.4	24.3	20.0	17.5	13.6	22.5	17.3	19.3	26.8	34.7	59.4	37.8	26.6

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	-	1,860	2,180	2,390	1,840	-
1940	-	-	-	-	-	-	-	592	1,050	1,910	1,340	1,370	-
1941	2,120	-	-	-	-	-	-	-	-	1,530	2,040	1,560	-
1942	1,770	-	-	-	-	-	-	-	3,670	2,410	3,720	2,460	-
1943	2,240	1,720	1,300	1,180	922	1,240	2,380	2,030	1,960	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	-	2,380	-
1946	1,500	1,450	1,230	1,070	754	1,380	1,030	1,190	1,590	2,130	3,650	2,250	19,220

Yearly discharge, in cubic feet per second, of Trout Creek near Philipsburg, Mont.								
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1939	882	a67	Aug. 7, 1939	-	-	-	-	-
1940	902	42	July 31, 1940	-	-	-	-	-
1941	932	-	-	-	-	-	-	-
1942	962	*156	May 26, 1942	-	-	-	-	-
1943	982	a600	Mar. 28, 1943	-	-	-	-	-
1945	1062	-	-	-	-	-	-	-
1946	1062	a73	Aug. 14, 15, 1946	8.2	26.6	19,200	-	-

* Revised.

a Maximum observed.

389. Marshall Creek near Philipsburg, Mont. 1/

Location.--Lat 46°22'10", long. 113°20'00", in NE¼NE¼ sec. 15, T. 7 N., R. 14 W., at upstream side of county bridge three-quarters of a mile upstream from mouth and 2½ miles northwest of Philipsburg.

Drainage area.--22.8 sq mi.

Gage.--Staff gage. Altitude of gage is 5,090 ft (from topographic map).

Extremes.--1942-43: Maximum discharge observed, 43 cfs June 9, 10, 1942; maximum gage height observed, 2.00 ft June 10, 1942; minimum discharge observed, 0.9 cfs Aug. 13, 14, 1942.

Remarks.--Small diversions for irrigation above station. At times during irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below East Fork Rock Creek Dam, through a canal into Trout Creek, thence into Marshall Creek.

Monthly mean discharge, in cubic feet per second												
Water year									June	July	Aug.	Sept.
1942									22.2	3.25	1.70	3.98
1943									8.75	-	-	-

Monthly runoff, in acre-feet												
Water year									June	July	Aug.	Sept.
1942									1,320	200	105	237
1943									520	-	-	-

390. Marshall Creek at mouth, near Philipsburg, Mont. 2/

Location.--Lat 46°22'25", long. 113°19'25", in SW¼ sec. 11, T. 7 N., R. 14 W., on left bank a quarter of a mile upstream from mouth and 2½ miles north of Philipsburg.

Drainage area.--23.2 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 5,070 ft (from topographic map).

Extremes.--1939-41: Maximum discharge observed, 46 cfs June 4, 5, 1941 (gage height, 1.90 ft); no flow at times.

Remarks.--Small diversions above station for irrigation. At times during irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below East Fork Rock Creek Dam through a canal into Trout Creek, thence into Marshall Creek.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	4.99	4.56	4.70	8.77	8.64	-
1940	1.84	-	-	-	-	-	-	1.80	5.06	9.48	10.3	13.5	-
1941	.86	-	-	-	-	-	-	-	17.0	6.13	2.00	.51	-
1942	1.13	-	-	-	-	-	-	-	-	-	-	-	-

1/ Records collected at station of same name May 1939 to October 1942 at site half a mile downstream are not equivalent and are published in this report as Marshall Creek at mouth, near Philipsburg.

2/ Previously published as Marshall Creek near Philipsburg, Mont.

Monthly and yearly runoff, in acre-feet, of Marshall Creek at mouth, near Philipsburg, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	307	272	289	539	514	-
1940	113	-	-	-	-	-	-	110	301	583	634	803	-
1941	53	-	-	-	-	-	-	-	1,010	377	123	30	-
1942	69	-	-	-	-	-	-	-	-	-	-	-	-

391. Flint Creek near Philipsburg, Mont.

Location.--Lat 46°23'45", long. 113°18'30", in NE $\frac{1}{4}$ sec. 2, T. 7 N., R. 14 W., on right bank $\frac{1}{2}$ miles downstream from Marshall Creek and 4 miles north of Philipsburg.

Drainage area.--192 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 4,990 ft (from topographic map).

Extremes.--1939-40: Maximum discharge observed, 157 cfs June 5, 1939 (gage height, 3.43 ft); minimum observed, 21 cfs May 21, 1940.

Remarks.--Diversions for irrigation of about 8,000 acres above station. During irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below Rock Creek Dam, through a canal into Trout Creek, thence into Flint Creek. Some regulation by Georgetown Lake (see p. 313).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	81.2	88.5	57.4	60.3	60.7	-
1940	56.9	53.2	47.6	37.9	55.4	58.4	67.7	55.4	53.9	66.2	37.2	59.2	54.0
1941	61.7	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	4,990	5,260	3,530	3,710	3,610	-
1940	3,500	3,170	2,930	2,330	3,190	3,590	4,030	3,400	3,210	4,070	2,290	3,520	39,230
1941	3,790	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1939	882	157	June 5, 1939	-	-	-	-	-
1940	902	119	Feb. 28, 1940	22	54.0	39,230	-	-
1941	932	-	-	-	-	-	-	-

392. Flint Creek above Maxville Siding, at Maxville, Mont.^{1/}

Location.--Lat 46°27'30", long. 113°14'30", in SW $\frac{1}{4}$ sec. 9, T. 8 N., R. 13 W., on right bank three-quarters of a mile southwest of Maxville and $\frac{1}{2}$ miles upstream from Boulder Creek.

Drainage area.--207 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 4,820 ft (from topographic map).

Extremes.--1939-41: Maximum discharge observed, 290 cfs June 1, 1941 (gage height, 3.11 ft); minimum observed, 21 cfs Jan. 3, 1941 (gage height, 1.16 ft).

Remarks.--Diversions for irrigation of about 8,200 acres above station. During irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below Rock Creek Dam, through a canal into Trout Creek, thence into Flint Creek. Some regulation by Georgetown Lake (see p. 313).

^{1/} Previously published as Flint Creek at Maxville.

Monthly and yearly mean discharge, in cubic feet per second, of Flint Creek above Maxville Siding, at Maxville, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	83.2	72.0	58.5	62.2	61.7	-
1940	56.4	50.6	47.3	37.3	52.5	59.5	62.7	51.7	54.0	62.7	36.6	55.4	52.2
1941	62.5	49.8	44.2	36.8	35.7	37.6	38.8	49.5	95.3	67.4	68.9	85.7	56.1

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	5,110	5,480	3,600	3,820	3,670	-
1940	3,470	3,010	2,910	2,290	3,020	3,660	3,730	3,180	3,210	3,860	2,250	3,300	37,890
1941	3,840	2,970	2,720	2,260	1,980	2,310	2,310	3,040	5,670	4,140	4,240	5,100	40,580

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1939	882	-	-	-	-	-	-	-	-
1940	902	-	-	23	52.2	37,890	52.4	38,030	-
1941	932	-	-	21	56.1	40,580	-	-	-

393. Flint Creek at Maxville, Mont. 1/

Location.--Lat 46°28'00", long. 113°14'30", in NW 1/4 sec. 9, T. 8 N., R. 13 W., on right bank 0.4 mile west of Maxville and 1 mile upstream from Boulder Creek.

Drainage area.--208 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 4,828.44 ft above mean sea level, datum of 1929.

Average discharge.--9 years (1941-50), 104 cfs.

Extremes.--1941-50: Maximum discharge, 1,680 cfs Mar. 28, 1943 (gage height, 6.79 ft), from rating curve extended above 600 cfs; minimum, 27 cfs Mar. 4, 1945, Jan. 26, 1946; minimum gage height, 1.31 ft Mar. 4, 1945.

Remarks.--Diversion for irrigation of about 8,200 acres above station. During irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below Rock Creek Dam, through a canal into Trout Creek, thence into Flint Creek. Some regulation by Georgetown Lake (see p. 313).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	-	-	-	-	-	-	-	-	-	-	-	92.1	-
1942	95.7	77.4	69.5	59.4	64.6	73.4	180	216	370	109	91.3	71.0	123
1943	73.7	90.5	82.2	60.6	65.8	186	283	152	228	145	86.5	64.9	127
1944	82.9	84.3	65.1	58.7	55.2	70.5	78.6	94.4	203	88.9	80.5	67.5	85.8
1945	70.1	78.5	68.2	68.9	69.9	65.2	57.3	73.3	117	64.2	61.7	59.2	71.1
1946	56.7	53.3	48.1	43.2	54.7	84.9	85.5	80.2	96.2	71.8	82.3	70.1	68.9
1947	89.6	77.4	71.6	61.3	69.7	86.3	101	136	175	97.0	93.6	88.3	95.6
1948	98.2	98.0	79.3	67.4	69.2	96.5	310	283	455	204	110	65.2	161
1949	83.9	91.6	69.9	58.7	59.7	92.4	249	188	180	92.7	97.4	91.6	113
1950	78.4	71.8	58.8	61.8	91.7	75.3	83.4	107	176	105	106	117	94.3

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	-	-	-	-	-	-	-	-	-	-	-	5,480	-
1942	5,880	4,610	4,280	3,650	3,590	4,510	10,730	13,280	21,990	6,690	5,610	4,230	89,050
1943	4,530	5,380	5,060	3,720	3,650	11,450	16,830	9,370	13,540	8,900	5,320	3,860	91,610
1944	5,100	5,020	4,000	3,610	3,170	4,340	4,680	5,800	12,110	5,470	4,950	4,020	62,270
1945	4,310	4,670	4,190	4,240	3,880	4,010	3,410	4,500	6,980	3,950	3,790	3,520	51,450
1946	3,490	3,170	2,960	2,660	3,040	5,220	5,090	4,930	5,720	4,410	5,060	4,170	49,920
1947	5,510	4,600	4,400	3,770	3,870	5,310	6,010	8,340	10,420	5,970	5,750	5,250	69,200
1948	6,040	5,830	4,880	4,140	3,980	5,930	18,440	17,390	27,070	12,540	6,750	3,880	116,900
1949	5,160	5,450	4,500	3,610	3,320	5,680	14,790	11,580	10,720	5,700	5,990	5,450	81,750
1950	4,820	4,270	3,620	3,800	5,090	4,630	4,960	6,570	10,500	6,480	6,520	6,990	68,250

1/ Records collected at station of the same name April 1939 to September 1941 at site half a mile upstream are not equivalent and are published in this report as Flint Creek above Maxville Siding, at Maxville.

Yearly discharge, in cubic feet per second, of Flint Creek at Maxville, Mont.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1941	932	-	-	-	-	-	-	-
1942	962	820	May 27, 1942	-	123	89,050	123	89,250
1943	982	1,680	Mar. 28, 1943	38	127	91,610	125	90,760
1944	1012	364	Mar. 9, 1944	44	85.8	62,270	84.5	61,320
1945	1042	186	June 22, 1945	38	71.1	51,450	66.2	47,900
1946	1062	245	June 24, 1946	33	68.9	49,920	75.7	54,810
1947	1092	318	June 10, 1947	43	95.6	69,200	98.7	71,440
1948	1122	1,280	Apr. 17, 1948	35	161	116,900	158	115,000
1949	1152	710	Apr. 8, 1949	40	113	81,750	110	79,550
1950	1182	415	June 18, 1950	40	94.3	68,250	-	-

394. Boulder Creek at Maxville, Mont.

Location.--Lat 46°28'30", long. 113°14'00", in SE $\frac{1}{4}$ sec. 4, T. 8 N., R. 13 W., on right bank an eighth of a mile upstream from mouth and three-quarters of a mile north of Maxville.

Drainage area.--71.3 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 4,750 ft (from topographic map). Prior to July 8, 1941, wire-weight gage 75 ft upstream at different datum. July 8-20, 1941, staff gage 175 ft upstream at different datum. July 21 to Aug. 11, 1941, staff gage at present site and datum.

Average discharge.--11 years (1939-50), 47.6 cfs.

Extremes.--1939-50: Maximum discharge, 763 cfs June 3, 1948 (gage height, 4.24 ft); minimum, 4.6 cfs Dec. 26, 1942.

Remarks.--Bypass diversion for irrigation of about 350 acres below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	101	85.5	31.6	11.6	14.8	-
1940	12.0	#12	#11	#10	#11	#17	#37	119	74.8	18.6	10.6	10.7	#28.7
1941	17.4	#15	#13	#11	#10	#14	#28	#91	103	36.5	15.3	31.6	#32.2
1942	32.0	25.5	25.5	20.6	19.0	16.7	51.3	153	228	72.0	21.4	15.5	56.8
1943	11.9	21.9	18.7	14.2	17.8	14.2	56.3	114	287	126	32.6	17.2	60.9
1944	21.4	24.3	17.0	20.0	16.0	23.4	19.6	106	216	73.9	30.0	24.0	49.4
1945	20.3	19.9	15.0	18.1	19.9	17.7	18.8	84.6	172	51.7	16.6	14.9	39.1
1946	18.0	19.6	19.2	19.7	18.4	17.4	39.5	108	85.6	39.9	11.7	16.8	34.5
1947	36.2	28.6	23.7	22.8	22.5	19.3	27.6	182	190	50.9	18.7	20.4	53.7
1948	35.8	32.3	26.0	21.9	17.7	17.6	33.9	227	299	91.5	58.2	18.8	71.7
1949	23.0	27.1	26.2	20.1	21.1	19.0	56.9	169	166	40.0	11.9	21.5	48.5
1950	20.5	17.6	19.0	17.1	16.9	19.4	21.0	65.4	238	91.5	40.5	15.5	48.5

* Not previously published; estimated on the basis of records for Bear Creek near Victor and East Fork Bitterroot River at Conner.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	6,200	5,090	1,940	711	879	-
1940	740	#714	#676	#615	#633	#1,050	#2,200	7,310	4,450	1,140	653	635	#20,820
1941	1,070	#893	#799	#676	#555	#861	#1,670	#5,600	6,140	2,240	943	1,860	#23,330
1942	1,970	1,520	1,570	1,270	1,060	1,030	3,050	9,430	13,590	4,430	1,310	923	41,150
1943	730	1,300	1,150	875	988	873	3,350	7,040	17,070	7,720	2,000	1,030	44,130
1944	1,320	1,450	1,050	1,230	1,030	1,440	1,170	6,500	12,840	4,550	1,840	1,430	35,850
1945	1,250	1,180	920	1,110	1,100	1,090	1,120	5,200	10,250	3,180	1,020	889	28,310
1946	1,100	1,170	1,180	1,210	1,020	1,070	2,350	6,620	5,100	2,450	719	1,000	24,990
1947	2,220	1,700	1,460	1,400	1,250	1,180	1,640	11,200	11,300	3,130	1,150	1,220	58,880
1948	2,200	1,920	1,600	1,340	1,020	1,080	2,010	13,970	17,820	5,630	2,350	1,120	52,060
1949	1,410	1,610	1,610	1,240	1,170	1,170	2,190	10,370	9,890	2,460	731	1,260	35,130
1950	1,260	1,050	1,170	1,050	938	1,190	1,250	4,020	14,150	5,630	2,490	923	35,120

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1939	882	-	-	-	-	-	-	-
1940	902	-	-	-	5.0	#28.7	#20,820	#29.5
1941	932	-	-	-	-	#32.2	#23,330	#35.4
1942	962	650	May 26, 1942	9.4	56.8	41,150	54.3	39,270
1943	982	550	June 20, 1943	-	60.9	44,130	61.8	44,770
1944	1012	356	June 9, 1944	12	49.4	35,850	46.7	35,380
1945	1042	267	May 31, 1945	9.3	39.1	28,310	39.3	28,410

* Not previously published.

Yearly discharge, in cubic feet per second, of Boulder Creek at Maxville, Mont.--Continued

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1946	1082	253	May 28, 1946	5.2	34.5	24,990	37.2	26,920
1947	1092	440	May 9, 1947	11	53.7	38,880	54.2	39,220
1948	1122	763	June 3, 1948	12	71.7	52,060	70.2	50,970
1949	1152	334	May 16, 1949	6.4	48.5	35,130	46.9	33,980
1950	1182	495	June 18, 1950	5.2	48.5	35,120	-	-

395. Flint Creek near Maxville, Mont.

Location.--Lat 46°32'30", long. 113°14'00", in N $\frac{1}{2}$ NE $\frac{1}{4}$ sec. 21, T. 9 N., R. 13 W., on right bank 50 ft downstream from point of diversion of Allandale Canal and 4 miles north of Maxville.

Drainage area.--325 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 4,420 ft (from topographic map).

Extremes.--1946-49: Maximum discharge observed, 1,700 cfs June 4, 1948 (gage height, 6.39 ft) from rating curve extended above 140 cfs by logarithmic plotting; minimum observed, 24 cfs July 16, 1949 (gage height, 1.09 ft).

Remarks.--Diversion above station for irrigation of about 19,500 acres of which 9,500 acres are below station. During irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below East Fork Rock Creek Dam, through a canal into Trout Creek, thence into Flint Creek. Some regulation by Georgetown Lake (see p. 313).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	126	135	124	75.3	48.6	73.2	-
1947	-	-	-	-	-	-	-	-	374	95.5	62.6	96.1	-
1948	-	-	-	-	-	-	-	-	844	306	135	51.1	-
1949	130	131	-	-	-	-	-	-	307	58.9	53.5	-	-

* Not previously published; partly estimated on the basis of records for station at Maxville and Boulder Creek at Maxville.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	7,500	8,310	7,370	4,630	2,990	4,360	-
1947	-	-	-	-	-	-	-	-	22,250	5,870	3,850	5,720	-
1948	-	-	-	-	-	-	-	-	50,230	18,800	8,300	3,040	-
1949	7,970	7,790	-	-	-	-	-	-	18,290	3,620	3,290	-	-

* Not previously published; see footnote to preceding table.

396. Flint Creek near Hall, Mont.

Location.--Lat 46°31'45", long. 113°13'35", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 15, T. 9 N., R. 13 W., on left bank 400 ft upstream from bridge on U. S. Highway 10A, $\frac{1}{2}$ miles upstream from Douglas Creek, and 4 miles south of Hall.

Drainage area.--325 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 4,370 ft (from topographic map).

Extremes.--May to September 1939: Maximum discharge observed, 269 cfs June 20, 1939 (gage height, 1.82 ft); minimum observed, 3.5 cfs Sept. 18-20 (gage height, 0.20 ft).

Remarks.--Diversion above station for irrigation of about 19,500 acres of which 9,500 are below station. During irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below East Fork Rock Creek Dam, through a canal into Trout Creek, thence into Flint Creek. Some regulation by Georgetown Lake (see p. 313).

Monthly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1939								97.5	117	16.6	18.6	27.8

Monthly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1939								6,000	6,980	1,020	1,150	1,660

397. Flint Creek near Drummond, Mont.

Location.--Lat 46°37'45", long. 113°09'00", in NW¼ NE¼ sec. 18, T. 10 N., R. 12 W., on downstream side of county highway bridge 1½ miles upstream from mouth and 2½ miles south of Drummond.

Drainage area.--490 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 4,030 ft (from topographic map).

Extremes.--1948-49: Maximum discharge observed, 1,800 cfs June 3, 1948 (gage height, 11.15 ft), from rating curve extended above 900 cfs; maximum gage height observed, 12.59 ft Feb. 24, 1949 (ice jam); minimum discharge observed, 10 cfs Aug. 12, 1949 (gage height, 7.46 ft).

Remarks.--Diversions above station for irrigation of about 25,000 acres of which 1,000 acres are below station. During irrigation season flow is supplemented by water from East Fork Rock Creek which is diverted in sec. 5, T. 4 N., R. 14 W., 500 ft below East Fork Rock Creek Dam, through a canal into Trout Creek, thence into Flint Creek. Some regulation by Georgetown Lake (see p. 813).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	955	303	141	48.6	-
1949	158	168	121	92.7	105	150	372	280	292	43.1	28.4	130	161

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	56,840	18,610	8,640	2,890	-
1949	9,700	10,010	7,460	5,700	5,810	9,210	22,120	17,190	17,360	2,650	1,740	7,760	116,700

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1948	1122	1,800	June 3, 1948	-	-	-	-	-	-
1949	1152	786	June 2, 1949	10	161	116,700	-	-	-

398. Middle Fork Rock Creek near Philipsburg, Mont.

Location.--Lat 46°11', long. 113°30', in NE¼ sec. 17, T. 5 N., R. 15 W., on left downstream abutment of timber bridge half a mile upstream from East Fork, 2½ miles upstream from West Fork, and 15 miles southwest of Philipsburg.

Drainage area.--123 sq mi.

Gage.--Staff gage. Altitude of gage is 5,450 ft (from topographic map). Prior to May 11, 1942, wire-weight gage 1,000 ft upstream at different datum.

Average discharge.--13 years (1937-50), 120 cfs.

Extremes.--1937-50: Maximum discharge, 1,360 cfs May 29, 1948 (gage height, 3.80 ft), by slope-area study; minimum observed, 4.5 cfs Dec. 9, 10, 23, 24, 1944 (gage height, 0.02 ft).

Remarks.--A few small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	37.9	36.3	34.8	*24	*30	*26	57.7	339	450	216	64.5	40.8	*113
1939	42.1	42.7	30	25	20	42.3	108	376	220	106	42.3	37.8	91.5
1940	34.9	28.8	28.4	24.9	24.9	29.8	59.4	250	159	48.7	25.8	31.2	62.3
1941	42.0	31.5	31.4	25.5	20.9	27.7	49.4	232	266	110	59.7	59.9	79.9
1942	58.4	51.3	63.2	27.9	32.2	38.0	144	375	506	204	88.1	46.1	135
1943	49.2	40.2	31.2	25.6	32.5	34.3	190	339	696	311	102	57.2	158
1944	50.8	45.2	28.1	28.7	29.8	29.9	37.5	201	423	193	86.9	55.0	101
1945	44.9	32.9	26.5	29.6	26.4	28.1	31.8	184	382	147	55.6	37.4	85.6
1946	36.5	31.7	23.6	25.6	31.2	34.8	85.5	277	288	136	68.2	98.5	94.9
1947	201	104	64.1	46.6	53.8	56.4	107	650	471	180	74.9	65.3	174
1948	67.1	56.8	41.4	35.5	28.1	31.6	80.8	591	706	237	101	53.5	169
1949	50.5	44.4	33.8	27.6	30.4	33.1	105	552	519	145	65.0	46.0	138
1950	37.0	36.9	33.5	28.1	33.2	36.2	56.6	264	839	353	102	56.5	156

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet, of Middle Fork Rock Creek near Philipsburg, Mont.													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	2,330	2,160	2,140	*1,480	*1,670	*1,600	3,430	20,840	26,780	13,270	3,970	2,430	*82,100
1939	2,590	2,540	1,840	1,540	1,110	2,600	6,440	23,150	13,070	6,530	2,600	2,250	66,260
1940	2,140	1,710	1,750	1,530	1,430	1,830	3,540	15,370	9,460	2,990	1,590	1,860	45,200
1941	2,580	1,870	1,930	1,570	1,160	1,700	2,940	14,250	15,830	6,770	3,670	3,570	57,840
1942	3,590	3,050	3,890	1,720	1,790	2,340	8,590	23,080	30,090	12,520	4,190	2,750	97,600
1943	2,470	2,390	1,920	1,570	1,800	2,110	11,310	20,860	41,420	19,130	6,290	3,400	114,700
1944	3,120	2,690	1,730	1,760	1,700	1,840	2,230	12,370	25,150	11,850	5,340	3,270	73,050
1945	2,760	1,960	1,630	1,830	1,460	1,730	1,890	11,300	22,760	9,040	3,420	2,220	62,000
1946	2,250	1,880	1,450	1,580	1,740	2,140	5,090	17,010	17,120	8,370	4,190	5,860	68,680
1947	12,390	6,190	3,940	2,870	2,990	3,470	6,390	39,970	28,040	11,070	4,610	3,890	125,800
1948	4,130	3,380	2,550	2,180	1,610	1,940	4,810	36,360	42,030	14,590	6,180	3,180	122,900
1949	3,100	2,640	2,080	1,700	1,690	2,040	6,240	33,970	30,850	8,930	3,990	2,740	99,970
1950	2,270	2,200	2,060	1,730	1,840	2,230	3,370	16,260	49,930	21,730	6,290	3,360	113,300
* Not previously published; partly estimated on the basis of records for nearby streams.													

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1938	862	980	May 29, 1938	-	*113	0.919	12.51	*82,100	*114	12.55	*82,440	
1939	862	566	May 4, 1939	-	91.5	.744	10.10	66,260	89.6	9.90	64,890	
1940	902	395	May 26, 1940	-	62.3	.507	6.89	45,200	63.4	7.00	45,980	
1941	932	440	June 5, 1941	14	79.9	.650	8.82	57,840	85.6	9.46	61,990	
1942	962	1,160	May 26, 1942	21	135	1.10	14.98	97,600	130	14.30	95,850	
1943	982	1,140	June 19, 1943	9.8	158	1.29	17.48	114,700	159	17.60	115,400	
1944	1012	550	June 13, 1944	16	101	.821	11.15	73,050	99	10.97	71,860	
1945	1042	550	June 29, 1945	9.2	85.6	.696	9.46	62,000	84.6	9.34	61,230	
1946	1062	452	June 8, 1946	9.8	94.9	.772	10.47	68,680	118	13.04	85,620	
1947	1092	1,230	May 9, 1947	16	174	1.41	19.15	125,800	157	17.27	113,400	
1948	1122	1,360	May 29, 1948	9.2	169	1.37	18.74	122,900	166	18.39	120,700	
1949	1152	1,000	June 1, 1949	20	138	1.12	15.25	99,970	136	15.05	98,680	
1950	1182	1,340	June 18, 1950	10	156	1.27	17.25	113,300	-	-	-	

* Not previously published.

399. East Fork Rock Creek Reservoir near Philipsburg, Mont.

Location.--Lat 46°08'00", long. 113°23'00", in NE 1/4 sec. 6, T. 4 N., R. 14 W., at dam on East Fork Rock Creek 14 miles southwest of Philipsburg.

Drainage area.--30.3 sq mi (revised).

Gage.--Elevations determined by hand levels from reference points. Datum is at mean sea level (levels by Montana State Water Conservation Board).

Extremes.--1938-50: Maximum contents, in excess of 16,000 acre-ft when reservoir was full and spilling at times in several years; minimum, 2,520 acre-ft Sept. 25, 1940 (elevation, 6,009.5 ft).

Remarks.--Storage began in 1936 for irrigation in Flint Creek Valley; usable capacity of 16,000 acre-ft at spillway crest, elevation 6,055.5 ft.

Cooperation.--Records furnished by Montana State Water Conservation Board.

Contents, in acre-feet, on last day of month												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	9,800	10,500	10,900	11,200	11,700	12,200	13,000	12,100	11,200	10,700	9,800	2,750
1941	4,250	4,530	4,510	5,530	6,100	6,530	7,260	8,470	13,460	13,610	12,270	12,610
1942	12,560	13,510	13,500	15,240	14,390	13,280	13,510	15,930	15,930	15,410	12,360	10,230
1943	8,000	8,500	10,000	10,000	9,000	11,000	9,000	10,000	16,920	16,920	14,070	11,780
1944	10,030	10,370	10,510	10,990	11,420	13,410	13,470	12,800	15,930	14,740	13,670	11,340
1945	12,630	13,390	13,470	11,810	11,450	14,070	13,560	12,980	16,920	16,000	11,040	8,000
1946	8,500	9,000	9,000	9,000	9,000	9,640	10,650	9,320	10,600	10,260	8,600	-
1947	-	-	-	-	-	-	-	-	16,000	14,350	10,850	7,140
1948	9,140	-	-	-	-	-	12,440	16,000	16,000	16,000	12,560	9,860
1949	-	-	-	-	-	-	-	15,580	16,000	12,150	10,590	5,250
1950	-	-	-	-	-	-	-	12,910	16,000	14,300	11,810	10,480

a Interpolated on the basis of weekly or less-frequent gage readings.

400. East Fork Rock Creek near Philipsburg, Mont.

Location (revised).--Lat 46°08'00", long. 113°23'00", in NE $\frac{1}{4}$ sec. 6, T. 4 N., R. 14 W., on right bank 200 ft upstream from Flint Creek Canal, 1,000 ft downstream from Rock Creek Dam, 3 miles upstream from Meadow Creek, and 14 miles southwest of Philipsburg.

Drainage area.--30.3 sq mi.

Gage.--Staff gage. Altitude of gage is 5,930 ft (from topographic map). Prior to Oct. 10, 1936, staff gage 600 ft upstream at different datum. Oct. 10, 1936, to Aug. 20, 1937, staff gage 400 ft downstream at different datum.

Average discharge.--5 years (1937-42), 35.1 cfs.

Extremes.--1935-43: Maximum discharge observed, 358 cfs June 10, 1942 (gage height, 2.94 ft); minimum observed, 2.0 cfs Sept. 30, 1940.

Remarks.--Flow completely regulated after Oct. 15, 1936 by East Fork Rock Creek Reservoir (see preceding page).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1935	-	-	-	-	-	-	-	-	*143	59.5	24.7	18.9	-
1936	15.2	16.6	16.5	14.0	7.50	4.64	6.63	71.4	78.9	30.7	20.5	16.7	25.0
1937	14.1	11.9	11.0	8.48	5.91	6.43	9.32	17.8	47.4	25.2	22.8	18.5	16.6
1938	15.9	5.70	2.58	2.24	2.36	2.60	3.13	8.02	51.6	72.1	52.1	51.3	22.6
1939	24.3	7.70	7.39	6.90	6.59	14.0	23.5	57.0	94.6	111	83.9	30.2	39.3
1940	8.01	6.40	5.93	5.40	5.00	5.05	5.85	51.1	123	84.3	70.7	38.2	34.1
1941	2.93	3.30	3.30	3.30	3.69	4.18	6.19	33.0	51.5	54.2	54.2	28.7	20.8
1942	25.3	9.53	5.91	7.55	31.2	32.8	24.2	53.1	192	154	98.9	68.4	58.6
1943	-	-	5.17	5.48	5.99	22.3	59.5	52.9	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1935	-	-	-	-	-	-	-	-	*8,480	3,660	1,520	1,120	-
1936	936	990	1,020	859	431	285	394	4,390	4,690	1,890	1,260	992	18,140
1937	869	710	678	522	328	355	555	1,100	2,820	1,550	1,400	1,100	12,030
1938	980	339	159	139	151	180	186	493	3,070	4,430	3,200	3,050	16,340
1939	1,500	458	454	424	477	862	1,400	3,500	5,630	6,820	5,160	1,800	28,480
1940	493	381	364	332	288	311	348	3,140	7,290	5,180	4,350	2,270	24,750
1941	180	196	203	203	205	257	369	2,030	3,060	3,330	3,330	1,710	15,070
1942	1,550	567	363	465	1,730	2,020	1,440	3,270	11,450	9,440	6,080	4,070	42,440
1943	-	-	318	337	333	1,370	3,540	3,250	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby stations.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1935	1246,792	-	-	-	-	-	-
1936	812	188	June 1, 1936	3.4	25.0	18,140	24.0
1937	832	132	June 22, 1937	5.0	16.6	12,030	15.5
1938	862	-	-	2.1	22.6	16,340	23.9
1939	882	138	(a)	6.4	39.3	28,480	37.7
1940	902	148	(b)	2.0	34.1	24,750	33.2
1941	932	-	-	2.2	20.8	15,070	23.5
1942	962	358	June 10, 1942	-	58.6	42,440	-
1943	982	-	-	-	-	-	-

a June 1, July 10-16, 1939.

b June 22, 23-25, 1940.

401. Rock Creek near Quigley, Mont. 1/

Location.--Lat 46°34'50", long. 113°40'50", in SW $\frac{1}{4}$ sec. 36, T. 10 N., R. 17 W., on downstream side of Forest Service bridge, a quarter of a mile upstream from Ranch Creek, and 2 $\frac{1}{2}$ miles south of Quigley.

Drainage area.--749 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 3,920 ft (from topographic map).

Extremes.--1922-27: Maximum daily discharge, 8,000 cfs (estimated) June 10, 1927; minimum observed, 115 cfs Dec. 17, 1924.

Remarks.--Many diversions for irrigation above station.

1/ Records collected at station of same name September 1910 to November 1912 at site half a mile downstream are not equivalent and are published elsewhere in this report as Rock Creek below Ranch Creek, near Quigley.

Monthly and yearly mean discharge, in cubic feet per second, of Rock Creek near Quigley, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	-	-	-	-	-	-	-	1,630	3,280	567	309	226	-
1923	192	214	177	180	170	230	365	1,280	1,690	692	326	199	478
1924	234	211	190	170	215	250	313	1,570	741	338	204	146	383
1925	-	-	172	186	179	204	655	2,230	1,660	499	243	193	-
1926	205	189	172	162	160	175	537	1,070	780	260	185	194	341
1927	226	209	-	-	-	236	434	1,950	4,520	879	429	318	-

* Not previously published; estimated on the basis of records for West Fork Bitterroot River near Darby and Ranch Creek near Quigley.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	-	-	-	-	-	-	-	100	195	34.9	19	13.4	-
1923	11.8	12.7	10.9	11.1	9.44	14.1	21.7	78.7	101	42.5	20	11.8	346
1924	14.4	12.6	11.7	10.5	12.4	15.4	18.6	96.5	44.1	20.8	12.5	8.69	278
1925	-	-	10.6	11.4	9.94	12.5	39	137	98.9	30.7	14.9	11.5	-
1926	12.6	11.2	10.6	9.96	8.89	10.8	32	65.8	46.4	16	11.4	11.5	247
1927	13.9	12.4	-	-	-	14.5	25.8	119	269	54	26.4	18.9	-

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1922	552	*6,840	June 5, 1922	-	-	-	-	-	-
1923	572	2,760	May 26, 1923	-	478	346,000	482	349,000	-
1924	592	2,700	May 17, 1924	-	385	278,000	-	-	-
1925	612	3,540	May 21, 1925	-	-	-	553	400,000	-
1926	632	1,520	(a)	137	341	247,000	-	-	-
1927	-	-	-	-	-	-	-	-	-

* Revised.

a Apr. 30, May 1, 1926.

402. Ranch Creek near Quigley, Mont.

Location.--Lat 46°35'00", long. 113°40'10", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 36, T. 10 N., R. 17 W., on downstream right abutment of county bridge a quarter of a mile upstream from mouth, 2 $\frac{1}{2}$ miles south of townsite of Quigley, and 15 miles south of Clinton.

Drainage area.--42.7 sq mi.

Gage.--Staff gage. Altitude of gage is 3,930 ft (from topographic map).

Extremes.--1922-27: Maximum discharge, 238 cfs May 19, 20, 1922 (gage height, 1.50 ft); minimum observed, 11 cfs Feb. 1, 1924 (discharge measurement).

Remarks.--A few diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	-	-	-	-	-	-	-	*140	155	55.4	32.0	25.2	-
1923	20.3	18.6	18.0	18.0	16.0	16.3	32.8	82.4	80.0	56.1	35.7	30.0	35.4
1924	30.4	26.5	16.0	12.0	43.1	32.0	31.2	115	52.0	37.8	26.5	19.8	36.9
1925	-	-	22.2	18.5	18.6	20.3	61.8	112	80.5	45.4	33.2	27.9	-
1926	24.6	24.3	22.2	*20	*20	*20	36.4	48.0	36.2	21.7	17.7	17.6	*25.8
1927	18.0	18.3	-	-	-	21.2	34.4	84.1	138	49.9	30.9	26.4	-

* Not previously published; partly estimated on the basis of records for Rock Creek near Quigley.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	-	-	-	-	-	-	-	*8,610	9,220	3,410	1,970	1,500	-
1923	1,250	1,110	1,110	1,110	889	1,000	1,950	5,070	4,760	3,450	2,200	1,790	25,700
1924	1,870	1,580	984	738	2,480	1,970	1,860	7,070	3,090	2,320	1,630	1,180	26,800
1925	-	-	1,360	1,140	1,030	1,250	3,680	6,890	4,790	2,790	2,040	1,660	-
1926	1,510	1,450	1,360	*1,230	*1,110	*1,230	2,170	2,950	2,150	1,330	1,090	1,050	*18,600
1927	1,110	1,090	-	-	-	1,300	2,050	5,170	8,210	3,070	1,900	1,570	-

* Not previously published; partly estimated on the basis of records for Rock Creek near Quigley.

Yearly discharge, in cubic feet per second, of Ranch Creek near Quigley, Mont.

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1922	552	238	May 19, 20, 1922	-	-	-	-
1923	572	145	May 24-28, 1923	-	35.4	25,700	36.7
1924	592	164	May 17, 1924	-	36.9	26,800	-
1925	612	145	May 21, 22, 1925	15	-	-	\$40.9
1926	632	67	Apr. 30, 1926	-	\$25.8	\$18,600	-
1927	652	217	June 9, 1927	-	-	-	-

* Not previously published.

403. Rock Creek below Ranch Creek, near Quigley, Mont. 1/

Location.--Lat 46°35'20", long. 113°40'20", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 25, T. 10 N., R. 17 W., on right bank a quarter of a mile downstream from Ranch Creek and 2 miles south of Quigley.

Drainage area.--794 sq mi.

Gage.--Staff gage. Altitude of gage is 3,900 ft (from topographic map).

Extremes.--1910-12: Maximum discharge observed, 4,560 cfs June 8, 1911 (gage height, 4.6 ft); minimum observed, 171 cfs Feb. 21, 1911 (discharge measurement), but probably was less during periods of no gage-height record.

Remarks.--Many diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	255	312	210	180	170	250	460	1,520	2,830	856	380	272	640
1912	322	-	-	-	-	\$223	\$480	\$2,500	\$3,680	1,160	517	366	-

† Corrected.

* Not previously published; estimated on the basis of records for West Fork Bitterroot River near Darby and Ranch Creek near Quigley.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	16.3	18.6	12.9	11.1	9.4	15.4	27.4	93.5	168	52.6	23.4	16.2	465
1912	19.8	-	-	-	-	\$13.7	\$28.6	\$154	\$219	71.3	31.8	23	-

† Corrected.

* Not previously published; see footnote to preceding table.

404. Blackfoot River near Helmsville, Mont.

Location.--Lat 46°56'10", long. 112°56'30", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 25, T. 14 N., R. 11 W., on right bank 50 ft downstream from county highway bridge, 2 miles downstream from Arrastre Creek, and 5 miles northeast of Helmsville.

Drainage area.--481 sq mi.

Gage.--Water-stage recorder. Datum of gage is 4,301.29 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

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

Extremes.--1940-50: Maximum discharge, 3,180 cfs June 6, 1948 (gage height, 7.55 ft); minimum daily, 50 cfs Jan. 3, 1950.

Remarks.--Diversions above station for irrigation of about 2,000 acres of which 500 acres are below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	111	104	98.7	88.6	89.7	97.0	92.0	83.6	267	135	108	115	116
1942	112	105	97.5	97.7	91.4	97.1	161	571	765	283	165	120	222
1943	111	125	123	108	107	95.5	604	989	2,173	904	307	191	466
1944	169	161	136	115	111	116	125	305	643	370	207	154	218
1945	144	137	119	119	119	127	136	527	1,110	404	206	169	276
1946	153	151	138	128	122	134	240	813	791	328	182	158	279
1947	183	174	170	137	168	212	512	1,730	1,254	498	250	190	458
1948	193	181	153	137	123	117	232	1,440	1,776	632	321	201	459
1949	178	166	148	126	131	113	268	1,176	841	303	175	144	315
1950	142	131	84.1	63.2	85.0	109	157	788	1,826	788	338	214	394

1/ Previously published as Rock Creek near Quigley, Mont.

PEND OREILLE RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Blackfoot River near Helmville, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	6,830	6,160	6,070	5,450	4,980	5,960	5,470	5,140	15,900	8,280	6,640	6,850	83,730
1942	6,900	6,250	5,990	6,010	5,080	5,970	9,600	35,080	45,500	17,390	10,140	7,160	161,100
1943	6,840	7,450	7,530	6,660	5,960	5,870	35,930	60,820	29,300	55,610	18,850	11,350	352,200
1944	10,380	9,570	8,330	7,070	6,400	7,110	7,430	18,720	38,270	22,750	12,740	9,180	158,000
1945	8,860	8,160	7,330	7,320	6,590	7,810	8,110	32,420	66,070	24,830	12,640	10,040	200,200
1946	9,390	8,990	8,490	7,890	6,800	8,230	14,280	50,000	47,090	20,180	11,190	9,410	201,900
1947	11,230	10,340	10,470	8,450	9,350	13,040	30,480	106,400	74,620	30,630	15,340	11,290	331,600
1948	11,850	10,750	9,410	8,400	7,060	7,200	13,820	88,530	105,700	38,840	19,720	11,950	333,200
1949	10,980	9,850	9,080	7,730	7,290	6,920	15,960	72,280	50,020	18,650	10,730	8,540	228,000
1950	8,710	7,790	5,170	3,890	4,720	6,720	9,320	48,480	108,600	48,460	20,780	12,720	285,400

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1941	932	427	June 7, 1941	75	116	0.241	3.26	83,730	116	3.25	83,810
1942	962	1,340	May 27, 1942	80	222	0.462	6.27	161,100	226	6.39	163,800
1943	982	3,080	June 15, 1943	80	486	1.01	13.76	352,200	495	14.00	358,600
1944	1012	1,100	June 19, 1944	105	218	0.453	6.18	158,000	212	6.02	154,000
1945	1042	1,400	June 11, 1945	92	276	0.574	7.80	200,200	280	7.91	202,700
1946	1062	1,670	May 29, 1946	117	279	0.580	7.88	201,900	286	8.08	207,100
1947	1092	2,800	May 10, 1947	130	458	0.952	12.93	331,600	458	12.93	331,600
1948	1122	3,180	June 6, 1948	100	459	0.954	13.00	333,200	456	12.92	331,100
1949	1152	1,750	May 17, 1949	90	315	0.652	8.88	228,000	304	8.55	219,800
1950	1182	2,440	June 17, 1950	50	394	0.819	11.12	285,400	-	-	-

405. Nevada Creek above reservoir, near Finn, Mont.

Location (revised).--Lat 46°47', long. 112°46', in NE¹ sec. 19, T. 12 N., R. 9 W., on right bank 1 mile upstream from Buffalo Creek and 4 miles west of Finn.

Drainage area.--128 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 4,710 ft (from topographic map). Prior to Apr. 30, 1942, wire-weight gage an eighth of a mile upstream at different datum.

Average discharge.--11 years (1939-50), 33.0 cfs.

Extremes.--1939-50: Maximum discharge, 1,440 cfs Apr. 16, 1948 (gage height, 6.04 ft), from rating curve extended above 350 cfs; maximum gage height, 6.09 ft Mar. 18, 1947 (ice jam); minimum discharge, probably less than 2 cfs at times in January and February 1944.

Remarks.--Divisions for irrigation of about 2,500 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	59.5	29.6	9.47	5.36	4.04	-
1940	5.52	8.3	8.78	11.0	10.4	72.7	49.5	71.1	19.7	9.46	5.20	3.68	23.0
1941	6.04	6.47	5.19	5.06	7.29	34.8	10.0	16.8	28.2	9.86	6.64	6.08	12.1
1942	9.87	11.8	16.4	5.9	6.5	16.9	69.4	72.7	72.6	17.2	10.2	4.87	26.1
1943	7.45	12.3	10.2	9.9	9.7	28.7	152	113	176	37.2	14.0	10.8	48.4
1944	11.6	13.6	5.0	3.9	4.2	16.5	50.6	48.3	64.0	22.2	12.5	9.5	21.8
1945	11.8	12.0	8.84	11.4	12.1	30.5	29.2	99.9	11.0	21.5	12.8	7.91	30.7
1946	12.2	15.4	7.3	5.1	7.4	105	76.6	79.0	39.0	13.6	7.10	6.43	31.3
1947	15.9	15.3	7	5	5	25.4	64.0	157	102	21.3	14.5	13.4	37.3
1948	18.8	21.8	20.5	7.9	6	8.2	119	252	150	57.4	31.2	18.6	59.3
1949	16.7	16.8	11.1	6.5	8.0	18.5	153	101	46.6	11.8	9.17	5.40	33.7
1950	8.71	12.1	7.48	9.10	10.2	59.9	109	68.4	123	32.3	22.1	9.74	29.3

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1939	-	-	-	-	-	-	-	3,660	1,760	582	329	240	-
1940	340	494	540	678	598	4,470	2,950	4,370	1,170	582	320	219	16,730
1941	372	385	319	311	405	2,140	596	1,030	1,680	606	408	481	8,730
1942	545	704	1,010	307	361	1,040	4,130	4,470	4,320	1,060	630	296	18,870
1943	458	734	627	607	540	1,760	9,070	6,980	10,470	2,280	863	644	35,030
1944	714	809	307	240	240	1,010	3,010	2,970	3,810	1,370	769	565	15,810
1945	728	714	543	698	672	1,870	1,740	6,140	6,580	1,320	787	471	22,230
1946	750	916	450	313	411	6,430	4,560	4,860	2,320	838	437	383	22,670
1947	977	910	430	307	278	1,560	3,810	9,640	6,090	1,310	891	800	27,000
1948	1,160	1,300	1,260	488	345	508	7,060	15,480	8,910	3,530	1,920	1,100	43,060
1949	1,030	1,000	682	397	446	1,140	9,110	6,240	2,770	726	564	321	24,430
1950	536	722	460	559	565	3,680	6,480	4,200	7,300	1,990	1,360	579	28,430

Yearly discharge, in cubic feet per second, of Nevada Creek above reservoir, near Finn, Mont.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1939	882	-	-	-	-	-	-	-
1940	902	-	-	2.5	23.0	16,730	22.6	16,430
1941	932	-	-	2.5	12.1	8,730	13.7	9,920
1942	962	320	June 7, 1942	-	26.1	18,870	25.5	18,430
1943	982	1,170	Apr. 12, 1943	-	48.4	35,030	48.4	35,040
1944	1012	290	Apr. 1, 1944	-	21.8	15,810	22.0	15,970
1945	1042	262	June 10, 1945	4.5	30.7	22,230	30.9	22,360
1946	1062	922	Mar. 27, 1946	3	31.3	22,670	31.6	22,870
1947	1092	373	June 9, 1947	-	37.3	27,000	39.2	28,410
1948	1122	1,440	Apr. 16, 1948	-	59.5	43,060	57.9	42,050
1949	1152	800	Apr. 7, 1949	2.6	35.7	24,430	32.4	23,430
1950	1182	1,360	Apr. 1, 1950	3	39.3	28,430	-	-

406. Nevada Creek near Finn, Mont.

Location.--Lat 46°48', long. 112°48', in NE $\frac{1}{4}$ sec. 13, T. 12 N., R. 10 W., 6 miles west of Finn.

Drainage area.--144 sq mi.

Gage.--Staff gage. Datum of gage is 4,572.00 ft above mean sea level, adjustment of 1912.

Extremes.--1934-39: Maximum discharge, 630 cfs (revised) April 11, 1936 (gage height, 4.26 ft, from floodmark), from rating curve extended above 200 cfs; minimum observed, 4.6 cfs Sept. 18-20, 1937.

Remarks.--Divisions for irrigation of about 2,500 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1934	-	-	-	-	-	-	-	-	36.6	13.4	10.5	10.5	-
1935	12.7	12.5	*10	*9.1	*8	*19.5	41.7	38.6	34.0	18.1	7.96	5.89	*18.2
1936	8.8	8.5	9.0	9.5	10.0	14.2	*97.3	82.0	40.7	15.0	10.2	10.4	*26.2
1937	9.95	10.6	9.0	9.5	10	11.0	39.1	43.5	28.9	13.1	7.48	6.33	16.5
1938	6.34	7.07	6	6	6	11.6	96.3	151	107	69.5	17.7	9.89	41.4
1939	14.8	18.7	15.9	15	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; partly estimated on the basis of weather records and records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1934	-	-	-	-	-	-	-	-	2,180	826	646	627	-
1935	780	744	*615	*559	*444	*1,200	2,480	2,380	2,030	1,110	490	350	*13,180
1936	540	506	553	584	575	873	*5,790	5,040	2,420	922	629	620	*19,050
1937	612	629	553	584	555	678	2,330	2,680	1,720	805	460	377	11,980
1938	390	421	369	369	333	714	5,730	9,310	6,390	4,270	1,090	588	29,970
1939	910	1,110	978	922	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1934	787	-	-	-	-	-	-
1935	792	*266	Apr. 12, 1935	-	*18.2	*13,180	*17.5
1936	1246,812	*630	Apr. 11, 1936	5.6	26.6	*19,050	*26.5
1937	832	-	-	4.6	16.5	11,980	15.7
1938	862	*470	June 25, 1938	-	41.4	29,970	43.9
1939	882	-	-	-	-	-	-

* Revised.

* Not previously published.

PEND OREILLE RIVER BASIN

407. Nevada Creek Reservoir near Finn, Mont.

Location.--Lat 46°48', long. 112°49', in NE $\frac{1}{4}$ sec. 14, T. 12 N., R. 10 W., at dam on Nevada Creek 7 miles west of Finn.

Drainage area.--145 sq mi.

Gage.--Elevations determined by hand levels from spillway. Datum is at mean sea level (levels by Montana State Water Conservation Board).

Extremes.--1939-50: Maximum contents, in excess of 12,600 acre-ft when reservoir was full and spilling at times in several years; minimum, 1,680 acre-ft Sept. 30, 1941.

Remarks.--Storage began in 1939 for irrigation. Reservoir has usable capacity of 12,600 acre-ft at spillway crest, elevation 4,616.0 ft.

Cooperation.--Records furnished by Montana State Water Conservation Board.

Contents, in acre-feet, on last day of month											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.
1940	a2,100	2,300	2,600	a2,850	a3,820	a7,300	9,050	a9,120	b8,200	b6,650	4,000
1941	b2,860	b3,010	a3,130	a3,710	a4,150	a5,860	b6,490	b4,840	b3,200	a3,000	2,300
1942	2,340	3,250	3,580	3,630	5,000	10,580	12,100	12,640	12,200	10,730	10,730
1943	9,000	8,500	7,100	7,300	7,120	7,900	12,650	12,650	12,650	12,640	11,370
1944	8,050	7,290	7,290	7,290	7,750	b8,790	b9,720	b10,940	12,450	b11,350	b10,860
1945	b9,440	7,900	b7,080	7,590	7,590	b9,470	a12,640	12,640	12,640	b12,010	b10,300
1946	-	a8,820	a7,880	a8,820	a6,420	a9,810	a11,160	a10,990	a10,480	a9,480	a8,820
1947	b7,150	9,480	b9,140	b9,180	b9,670	b12,320	b12,250	b12,260	a12,260	-	6,990
1948	-	a8,650	-	-	-	-	-	b12,640	b12,640	b12,640	b12,260
1949	b9,750	a10,310	9,820	9,480	9,140	7,690	a10,870	12,640	8,880	8,500	7,180
1950	7,100	7,700	-	-	-	-	-	9,800	10,800	10,890	12,240

a Interpolated on the basis of gage reading within 2 days of last day of month.

b Interpolated on the basis of weekly or less-frequent gage readings.

408. Nevada Creek near Helmsville, Mont.

Location.--Lat 46°49', long. 112°52', in SW $\frac{1}{4}$ sec. 4, T. 12 N., R. 10 W., on left bank 30 ft downstream from Douglas Creek diversion canal, 2 miles downstream from Nevada Creek Reservoir, and 6 miles southeast of Helmsville.

Drainage area.--165 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 4,470 ft (from topographic map).

Extremes.--1946-49: Maximum discharge, 470 cfs May 22, 1948 (gage height, 5.3 ft, from flood mark); minimum observed, 3.6 cfs Aug. 16-24, 1946.

Remarks.--Diversions above station for irrigation of 4,500 acres of which 2,000 acres are below station. Flow regulated by Nevada Creek Reservoir near Finn.

Monthly mean discharge, in cubic feet per second									
Water year						May	June	July	Aug.
1946						113	51.3	17.6	8.77
1947						-	135	51.7	32.6
1948						-	131	67.3	35.7
1949						-	-	24.5	13.4

Monthly runoff, in acre-feet									
Water year						May	June	July	Aug.
1946						6,940	3,050	1,080	539
1947						-	8,010	3,180	2,000
1948						-	7,770	4,140	2,200
1949						-	-	1,500	824

409. Douglas Creek near Helmsville, Mont.

Location.--Lat 46°49'40", long. 113°00'50", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 5, T. 12 N., R. 11 W., on right upstream abutment of county bridge on Helmsville-Drummond road 4 miles southwest of Helmsville.

Drainage area.--84.8 sq mi.

Gage.--Staff gage. Altitude of gage is 4,440 ft (from topographic map).

Extremes.--1946-47: Maximum discharge observed, 73 cfs June 10, 1947 (gage height, 5.03 ft); minimum observed, 1.2 cfs Sept. 5, 1946 (discharge measurement).

Remarks.--Diversions for irrigation of about 1,200 acres above station.

Monthly mean discharge, in cubic feet per second, of Douglas Creek near Helmville, Mont.

Water year							Apr.	May	June	July	Aug.	Sept.
1946							*17.0	9.28	6.05	-	-	-
1947							-	-	27.0	9.72	6.39	9.72

* Not previously published; partly estimated on the basis of records for nearby stations.

Monthly runoff, in acre-feet

Water year							Apr.	May	June	July	Aug.	Sept.
1946							*1,010	571	360	-	-	-
1947							-	-	1,610	597	393	579

* Not previously published; partly estimated on the basis of records for nearby stations.

410. North Fork Blackfoot River near Ovando, Mont.

Location.--Lat 47°03'00", long. 112°59'00", in NW¹ NW¹ sec. 22, T. 15 N., R. 11 W., on left bank at Pitkins ranch, 11 miles northeast of Ovando.

Drainage area.--228 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 4,270 ft (from topographic map).

Extremes.--1921-23: Maximum discharge observed, 2,900 cfs June 5, 1922 (gage height, 7.58 ft); minimum discharge not determined, probably occurred during periods of no record.

Remarks.--A few small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	-	-	-	-	-	-	-	-	*1,530	280	84.4	46.4	-
1922	34.5	-	-	-	-	-	-	882	1,620	255	92.5	53.7	-
1923	-	-	-	-	-	-	-	1,220	1,440	374	111	*66.3	-

* Not previously published; partly estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	-	-	-	-	-	-	-	-	*91,300	17,200	5,190	2,760	-
1922	2,120	-	-	-	-	-	-	54,200	96,400	15,700	5,690	3,200	-
1923	-	-	-	-	-	-	-	75,000	85,700	23,000	6,820	*3,950	-

* Not previously published; partly estimated on the basis of records for nearby stations.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1921	532	-	-	-	-	-	-	-
1922	552	2,900	June 5, 1922	-	-	-	-	-
1923	572	2,560	May 26, 1923	-	-	-	-	-

411. Blackfoot River near Ovando, Mont.

Location.--Lat 47°01'10", long. 113°13'40" (revised), in SE¹ NW¹ sec. 34, T. 15 N., R. 13 W., on left bank a quarter of a mile upstream from Monture Creek and 5 miles west of Ovando.

Drainage area.--1,274 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 3,917.27 feet above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Average discharge.--10 years (1940-50), 789 cfs.

Extremes.--1940-50: Maximum discharge, 8,200 cfs May 22, 1948 (gage height, 6.84 ft); minimum daily, 130 cfs Jan. 3, 1950. Floodmarks indicate stages of 10 ft reached in recent years.

Remarks.--Diversions for irrigation of about 25,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second, of Blackfoot River near Ovando, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	-	-	-	-	-	-	-	-	-	-	-	-	*264
1941	281	268	243	216	216	277	222	*426	*738	371	254	262	*315
1942	259	255	256	211	218	270	579	1,534	1,906	675	366	284	569
1943	282	337	284	235	237	321	1,706	2,545	4,916	2,168	694	467	1,183
1944	435	396	272	248	218	261	301	1,014	1,346	712	406	314	494
1945	302	303	225	282	246	286	289	1,288	2,354	830	437	372	602
1946	354	374	328	307	280	389	760	2,185	1,811	732	447	382	698
1947	480	482	481	357	382	671	1,206	4,242	3,340	1,218	617	480	1,167
1948	511	489	383	360	314	340	823	3,749	3,909	1,335	728	456	1,118
1949	399	375	309	268	261	264	747	2,972	2,051	704	414	334	761
1950	333	313	233	195	273	345	547	1,924	4,341	1,937	837	463	979

* Revised.

* Not previously published; partly estimated on the basis of records for Blackfoot River near Bonner.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	-	-	-	-	-	-	-	-	-	-	-	-	*16,890
1941	17,310	15,930	14,970	13,250	11,990	17,020	13,230	*26,190	*43,880	22,810	15,650	15,570	*227,800
1942	15,950	15,170	15,720	12,970	12,100	16,620	34,450	94,310	113,400	41,530	22,530	18,920	411,700
1943	17,350	20,030	17,450	14,460	13,180	19,750	101,500	158,500	292,500	33,300	42,670	27,790	856,500
1944	26,600	23,590	16,710	15,270	12,540	16,080	17,930	62,350	80,100	43,810	24,980	18,670	358,600
1945	18,590	18,010	13,850	17,370	13,670	17,590	17,210	79,210	140,100	51,050	26,900	22,150	435,700
1946	21,740	22,220	20,180	18,880	15,550	23,940	45,210	134,400	107,700	45,010	27,470	22,710	505,000
1947	29,520	28,660	29,560	21,980	21,200	41,250	71,760	260,800	198,800	74,920	37,930	28,580	845,000
1948	31,390	29,070	23,570	22,110	18,070	20,920	48,950	230,500	232,600	82,110	44,740	27,160	811,200
1949	24,540	22,350	19,010	16,450	14,510	16,240	44,430	182,700	22,000	45,270	25,480	19,880	550,800
1950	20,470	18,640	14,320	11,960	15,170	21,190	32,570	116,300	258,300	119,100	51,450	27,530	709,000

* Revised.

* Not previously published; partly estimated on the basis of records for Blackfoot River near Bonner.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff		Mean	Runoff	
		Discharge	Date						Inches	Acre-feet		Inches	Acre-feet
1940	932	-	-	-	-	-	-	-	-	-	-	-	-
1941	1246,932	*1,140	June 2, 1941	-	*315	*0.247	*3.36	*227,800	*313	*3.34	*226,400		
1942	982	4,150	May 26, 1942	175	569	.447	6.04	411,700	580	6.17	419,700		
1943	982	6,950	June 20, 1943	180	1,183	.929	12.63	856,500	1,200	12.81	868,600		
1944	1012	2,580	May 20, 1944	160	494	.388	5.27	358,600	471	5.02	342,200		
1945	1042	3,060	June 5, 1945	150	602	.473	6.40	435,700	621	6.61	449,400		
1946	1062	4,100	May 29, 1946	270	698	.548	7.43	505,000	730	7.77	528,600		
1947	1092	6,950	May 9, 1947	280	1,167	.916	12.43	845,000	1,162	12.58	841,200		
1948	1122	8,200	May 22, 1948	230	1,118	.878	11.95	811,200	1,092	11.68	793,000		
1949	1152	4,680	May 17, 1949	220	761	.597	8.10	550,800	744	7.91	538,400		
1950	1182	5,870	June 18, 1950	130	979	.768	10.43	709,000	-	-	-		

* Revised.

412. Blackfoot River at Clearwater, Mont.

Location.--Lat 46°58'00" long. 113°22'30", in S½ sec. 16, T. 14 N., R. 14 W., on right bank 200 ft upstream from bridge on Missoula-Ovando road, 300 ft upstream from Clearwater River, and 1 mile south of Clearwater Post Office.

Drainage area.--1,550 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 3,760 ft (from topographic map).

Extremes.--1921-23: Maximum discharge observed, 7,820 cfs June 6, 1922 (gage height, 6.4 ft); minimum observed, 410 cfs Nov. 13-21, 1922 (gage height, 1.00 ft), but probably was less during periods of no gage-height record.

Remarks.--Divisions for irrigation of approximately 30,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	-	-	-	-	-	-	-	-	*4,600	1,290	665	520	-
1922	517	-	-	-	-	-	-	3,420	4,910	1,090	642	504	-
1923	441	429	-	-	-	-	-	3,520	3,970	1,040	695	512	-

* Not previously published; partly estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in acre-feet, of Blackfoot River at Clearwater, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	-	-	-	-	-	-	-	-	*274,000	79,300	40,900	30,900	-
1922	31,800	-	-	-	-	-	-	210,000	292,000	67,000	39,500	30,000	-
1923	27,100	25,500	-	-	-	-	-	216,000	236,000	82,400	42,700	30,500	-

* Not previously published; partly estimated on the basis of records for nearby stations.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1921	532	-	-	-	-	-	-	-	-
1922	552	7,820	June 6, 1922	-	-	-	-	-	-
1923	572	6,630	May 26, 1923	-	-	-	-	-	-

413. Clearwater River at Clearwater, Mont.

Location.--Lat 46°58'00", long. 113°22'40", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 16, T. 14 N., R. 14 W., on left bank 400 ft upstream from mouth and 1 mile south of Clearwater Post Office.

Drainage area.--391 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 3,760 ft (from topographic map).

Extremes.--1921-23: Maximum discharge observed, 2,400 cfs May 26, 1922 (gage height, 3.9 ft); minimum observed, 30 cfs Oct. 23 to Nov. 21, 1922 (gage height, 0.7 ft).

Remarks.--A few small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	-	-	-	-	-	-	-	-	*876	203	82.1	54.2	-
1922	55.0	-	-	-	-	-	-	1,560	1,270	300	88.6	73.0	-
1923	36.0	32.9	-	-	-	-	-	1,280	947	271	118	65.3	-

* Not previously published; partly estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	-	-	-	-	-	-	-	-	*52,100	12,500	5,050	3,230	-
1922	3,380	-	-	-	-	-	-	95,900	75,600	18,400	5,450	4,340	-
1923	2,210	1,960	-	-	-	-	-	78,700	56,400	16,700	7,260	3,890	-

* Not previously published; partly estimated on the basis of records for nearby stations.

414. Blackfoot River near Bonner, Mont.

Location.--Lat 46°53'40", long. 113°46'50", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 8, T. 13 N., R. 17 W., on right bank 4 miles northeast of Bonner, 6 miles downstream from Union Creek, and 6 miles upstream from mouth.

Drainage area.--2,294 sq mi (revised). At site July 1898 to October 1905, 2,316 sq mi (revised).

Gage.--Staff gage. Datum of gage is 3,322.94 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. July 1898 to June 1901, May 1903 to October 1905, chain gage 6 miles downstream at different datum.

Average discharge.--14 years (1899-1901, 1903-04, 1939-50), 1,485 cfs.

Extremes.--1898-1901, 1903-5, 1939-50: Maximum discharge observed, 17,200 cfs June 19-21, 1899 (gage height, 8.7 ft, site and datum then in use); minimum daily, 200 cfs Jan. 4, 5, 1950, but may have been less during periods of no gage-height record.

Remarks.--Divisions for irrigation of about 35,000 acres above station.

PEND OREILLE RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Blackfoot River near Bonner, Mont.													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	-	-	*3,560	1,190	962	-
1899	968	897	-	-	-	*611	2,520	7,700	13,600	6,560	1,920	1,250	-
1900	1,070	1,070	1,010	787	634	1,280	2,710	6,570	3,120	1,350	944	859	1,790
1901	773	*692	*773	*563	580	1,020	1,190	8,550	3,700	*1,570	*716	*560	*1,730
1903	-	-	-	-	-	-	-	*3,250	7,580	2,190	1,100	889	-
1904	1,010	920	920	666	574	668	3,780	6,070	4,220	1,640	898	684	1,840
1905	581	509	472	*476	-	459	463	1,290	2,940	1,080	565	407	-
1906	465	-	-	-	-	-	-	-	-	-	-	-	-
1940	467	471	434	389	444	670	1,644	3,042	1,730	694	454	404	905
1941	412	424	395	356	369	491	537	1,096	1,236	609	390	375	558
1942	411	456	458	394	403	505	1,508	2,971	3,321	1,240	623	465	1,064
1943	442	554	527	438	446	678	4,727	4,905	7,607	3,356	1,078	725	2,122
1944	636	608	527	486	463	485	677	2,075	2,007	1,076	618	454	844
1945	421	432	342	461	448	511	668	3,277	3,951	1,399	663	524	1,094
1946	517	612	530	557	581	700	2,389	4,436	3,434	1,315	742	592	1,369
1947	730	797	978	733	704	1,405	2,912	7,907	5,440	1,866	943	748	2,104
1948	868	857	711	679	650	848	2,239	6,249	7,188	2,099	1,144	755	2,176
1949	636	602	459	415	446	534	1,921	5,957	3,320	1,058	606	526	1,379
1950	495	508	424	352	505	731	1,396	4,355	7,330	3,355	1,457	795	1,812

* Only monthly figures revised; revised daily figures not available.

† Not previously published; partly estimated on the basis of weather records and records for Clark Fork at Missoula.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	-	-	*219,000	73,200	57,200	-
1899	59,500	53,400	-	-	-	*49,900	150,000	473,000	809,000	403,000	118,000	74,400	-
1900	65,800	63,700	62,100	48,400	35,200	78,700	161,000	404,000	186,000	83,000	58,000	51,000	1,300,000
1901	47,500	*41,200	*47,500	*34,600	32,200	62,700	70,800	526,000	220,000	*96,500	*44,000	*33,300	*1,260,000
1903	-	-	-	-	-	-	-	*200,000	451,000	135,000	67,600	52,900	-
1904	62,100	54,700	56,600	41,000	33,000	41,100	225,000	373,000	51,000	101,000	55,200	40,700	1,330,000
1905	35,700	30,300	29,000	*29,300	-	28,200	27,600	79,300	175,000	66,400	34,700	24,200	-
1906	28,600	-	-	-	-	-	-	-	-	-	-	-	-
1940	28,740	28,040	26,660	23,890	25,560	41,220	97,840	187,100	103,000	42,690	27,930	24,040	656,700
1941	25,310	25,210	24,280	21,870	20,470	30,180	31,960	67,400	73,530	37,440	23,980	22,300	403,900
1942	25,280	27,130	28,170	24,240	22,390	31,080	89,740	182,700	197,800	76,210	38,320	27,670	770,500
1943	27,190	32,980	32,430	26,930	24,750	41,700	281,300	300,501	600,452	600,205	206,310	43,160	1,536,000
1944	39,090	36,200	32,390	29,870	26,640	29,850	40,280	27,600	119,400	66,170	38,010	26,990	612,500
1945	25,910	25,750	21,050	28,370	24,900	31,420	39,770	201,500	235,100	86,000	40,770	31,190	791,700
1946	31,810	36,440	32,600	34,270	32,280	43,060	142,200	272,800	204,300	80,860	45,630	35,210	991,500
1947	44,910	47,410	60,120	45,090	39,100	86,370	73,500	300,846	500,523	700,114	70,790	44,520	1,523,000
1948	53,560	51,000	43,720	41,720	37,370	39,870	33,200	500,507	200,427	700,129	10,330	44,950	1,580,000
1949	39,100	35,860	28,200	25,510	24,750	32,640	14,500	66,300	97,500	65,040	37,290	31,330	998,000
1950	30,470	30,230	26,060	21,670	28,070	44,980	83,060	267,700	436,100	206,300	89,570	47,280	1,311,000

* Only monthly figures revised; revised daily figures not available.

† Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1898	(a)	-	-	-	-	-	-	-	-	-	-	-
1899	(b)	c17,200	June 19, 1899	-	-	-	-	-	-	-	-	-
1900	(d)	c13,300	May 13, 1900	380	1,790	0.773	10.51	1,300,000	*1,710	*10.07	*1,240,000	-
1901	66,75	c12,300	May 17, 1901	-	*1,730	*7.47	*10.17	*1,260,000	-	-	-	-
1903	100	c11,900	June 4, 1903	-	-	-	-	-	-	-	-	-
1904	135	c9,060	May 26, 1904	525	1,840	.794	10.80	1,330,000	1,730	10.18	1,260,000	-
1905	178	c4,450	June 6, 9, 1905	-	-	-	-	-	-	-	-	-
1940	902	c3,800	May 12, 1940	220	905	.395	5.39	656,700	893	5.32	648,100	-
1941	932	c1,940	June 2, 1941	252	558	.243	3.32	403,900	566	3.36	409,700	-
1942	962	c6,900	May 26, 27, 1942	320	1,084	.464	6.30	770,500	1,081	6.40	782,600	-
1943	982	c9,750	May 18, 1943	340	2,122	.925	12.55	1,536,000	2,143	12.58	1,551,000	-
1944	1012	c4,280	May 19, 1944	405	844	.368	5.01	612,500	795	4.71	577,500	-
1945	1042	c5,540	June 4, 1945	240	1,094	.477	6.45	791,700	1,132	6.69	819,900	-
1946	1062	c6,540	May 29, 1946	420	1,369	.597	8.09	991,500	1,441	8.51	1,043,000	-
1947	1092	c12,800	May 9, 1947	560	2,104	.917	12.46	1,523,000	2,098	12.43	1,519,000	-
1948	1122	c16,300	May 22, 1948	415	2,176	.949	12.93	1,580,000	2,114	12.55	1,535,000	-
1949	1152	c8,940	May 16, 1949	300	1,379	.801	8.16	999,000	1,356	8.03	981,600	-
1950	1182	c9,400	June 21, 1950	200	1,812	.790	10.73	1,311,000	-	-	-	-

* Revised.

† Not previously published.

a 20th Ann. Rept., Pt. 4.

b 21st Ann. Rept., Pt. 4.

c Maximum observed.

d 22nd Ann. Rept., Pt. 4.

415. Clark Fork above Missoula, Mont.

Location.--Lat 46°52'40", long. 113°55'40", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 19, T. 13 N., R. 18 W., on right bank 3 miles downstream from Blackfoot River and 3 miles east of Missoula.

Drainage area.--5,999 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,230 ft (from topographic map). Prior to May 27, 1929, staff gage at same site and datum.

Average discharge.--21 years (1929-50), 2,585 cfs (revised).

Extremes.--1929-50: Maximum discharge, 31,500 cfs May 23, 1948 (gage height, 13.07 ft); minimum (revised), 115 cfs Oct. 25, 1943 (gage height, 0.64 ft, power plant shutdown); minimum daily (revised), 340 cfs Sept. 27, 1937.

Remarks.--Flow regulated by power plant at Bonner. Many diversions for irrigation of about 120,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	*2,150	2,580	*6,270	7,580	2,230	1,050	989	-
1930	1,310	1,310	*1,490	*832	2,010	1,790	5,010	6,280	4,030	1,580	1,130	1,200	*2,330
1931	1,520	1,360	1,200	1,250	1,220	1,400	1,730	2,980	2,160	868	746	781	1,430
1932	936	920	940	970	995	1,500	2,480	7,370	7,600	2,100	1,070	915	a2,220
1933	1,130	1,340	940	1,000	970	1,370	2,270	6,690	13,800	2,750	1,280	1,290	a2,870
1934	1,557	2,373	2,241	2,527	2,253	3,071	10,080	8,535	4,278	1,528	921	875	3,350
1935	1,235	1,385	1,218	1,122	1,162	*1,343	1,903	5,098	5,480	1,924	895	699	*1,957
1936	854	1,098	933	905	837	1,517	4,158	8,186	4,907	1,447	926	1,020	2,234
1937	1,061	1,067	990	806	850	1,037	1,615	3,936	3,211	1,286	810	653	1,429
1938	921	882	935	830	949	1,257	2,641	7,940	9,450	4,784	1,458	1,121	2,770
1939	1,329	1,425	1,183	1,035	868	2,009	3,387	7,325	4,158	1,794	893	905	2,199
1940	1,162	1,128	1,053	911	1,121	1,676	2,696	4,761	2,919	1,095	715	778	1,685
1941	1,178	1,088	1,090	978	924	1,185	1,191	2,005	3,018	1,433	889	1,146	1,344
1942	1,335	1,364	1,371	1,041	1,118	1,558	4,029	6,680	8,416	2,762	1,233	1,055	2,665
1943	1,192	1,500	1,433	1,209	1,450	1,797	8,771	8,961	13,850	5,984	2,042	1,411	4,131
1944	1,548	1,617	1,195	1,070	1,101	1,439	1,716	3,741	5,485	2,778	1,540	1,155	2,032
1945	1,193	1,220	874	1,192	1,251	1,366	1,585	5,460	7,534	2,535	1,206	1,103	2,211
1946	1,324	1,474	1,272	1,286	1,246	1,780	3,720	6,303	5,156	2,314	1,260	1,460	2,386
1947	2,088	2,031	2,253	1,611	1,984	2,951	4,897	12,990	9,230	3,207	1,699	1,595	3,887
1948	2,013	1,984	1,758	1,980	1,770	1,811	4,943	15,980	15,420	4,823	2,516	1,989	4,718
1949	1,696	1,712	1,237	1,095	1,332	1,799	4,489	10,100	6,842	2,137	1,270	1,428	2,934
1950	1,437	1,439	1,211	1,094	1,464	1,892	3,208	7,179	13,340	5,568	2,562	1,747	3,513

* Revised.

† Not previously published; partly estimated on the basis of records for station at St. Regis.

a Only monthly figures revised; revised daily figures not available.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	*132,000	154,000	*36,000	451,000	137,000	64,600	57,700	-
1930	80,600	78,000	*91,600	*51,200	112,000	111,000	298,000	386,000	240,000	97,200	69,500	71,400	*1,690,000
1931	93,500	80,900	73,800	76,900	67,800	86,100	103,000	182,000	129,000	53,400	45,900	46,500	*1,040,000
1932	57,600	54,700	57,800	55,500	57,200	92,200	148,000	453,000	93,000	129,000	65,800	54,400	a1,620,000
1933	89,500	75,700	57,800	81,500	87,200	84,200	135,000	411,000	821,000	169,000	78,700	76,800	a2,080,000
1934	95,760	141,200	137,800	155,400	125,100	188,800	599,600	524,800	254,400	93,960	56,610	52,060	2,425,000
1935	75,930	82,430	74,870	68,960	64,560	*82,550	113,200	513,400	326,100	118,300	55,060	41,590	*1,417,000
1936	52,500	65,320	57,370	55,650	48,170	93,300	247,400	503,300	292,000	89,000	56,940	60,710	1,622,000
1937	55,220	63,500	60,900	37,250	47,220	63,770	96,120	242,000	191,100	79,080	49,820	38,870	1,035,000
1938	56,600	52,470	57,490	51,010	52,720	77,320	157,100	488,200	562,300	294,100	89,640	66,680	2,006,000
1939	81,720	84,810	72,750	63,650	48,220	123,500	201,500	450,400	246,200	110,300	54,890	53,870	1,592,000
1940	71,440	67,100	64,740	56,020	64,450	103,000	172,400	292,700	173,700	87,310	43,950	46,320	1,223,000
1941	72,440	64,730	67,020	60,140	51,320	72,860	70,870	123,300	179,600	88,100	54,650	68,170	973,200
1942	82,100	81,150	84,300	64,030	62,080	95,800	239,800	410,700	500,800	169,800	75,800	62,770	1,929,000
1943	73,270	89,240	88,090	74,320	80,530	110,500	621,900	551,000	824,300	567,900	125,500	83,940	2,990,000
1944	95,210	96,200	73,490	65,790	63,330	88,500	102,100	230,000	326,400	170,800	94,690	68,710	1,475,000
1945	73,350	72,590	53,760	73,310	69,480	83,980	94,290	335,700	448,300	155,900	74,160	65,630	1,600,000
1946	81,400	87,690	78,230	79,080	69,200	109,500	221,400	587,600	306,800	142,300	77,490	86,900	1,728,000
1947	128,400	120,800	138,500	99,070	110,200	181,400	291,400	798,500	549,200	197,200	104,500	94,930	2,814,000
1948	123,800	118,100	108,100	100,210	77,000	111,300	294,100	100,882	400,917	800,296	500,540	704,570	3,425,000
1949	104,300	101,900	76,070	67,340	73,980	110,600	162,100	621,300	407,100	131,400	78,070	84,990	2,124,000
1950	88,340	85,630	74,440	67,240	81,320	116,300	190,800	441,400	794,100	542,400	157,500	104,000	2,543,000

* Revised.

† Corrected.

‡ Not previously published; partly estimated on the basis of records for station at St. Regis.

a Only monthly figures revised; revised daily figures not available.

Yearly discharge, in cubic feet per second, of Clark Fork above Missoula, Mont.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1929	1246,692	-	-	-	-	-	-	-
1930	1246,707	9,200	Apr. 28, 1930	*573	*2,330	*1,690,000	*2,330	*1,680,000
1931	722	4,150	June 21, 1931	368	1,430	1,040,000	*1,330	*961,000
1932	737	12,800	May 14, 1932	-	*2,220	*1,620,000	*2,280	*1,650,000
1933	752	21,600	June 2, 1933	-	*2,870	*2,080,000	*3,105	*2,249,000
1934	767	15,300	Apr. 13, 1934	697	3,350	2,425,000	3,155	2,284,000
1935	1246,792	10,300	May 25, 1935	654	*1,957	*1,417,000	*1,877	*1,359,000
1936	812	12,600	May 16, 1936	474	2,234	1,622,000	2,254	1,636,000
1937	832	7,780	May 5, 1937	340	1,429	1,035,000	1,398	1,012,000
1938	862	19,700	May 30, 1938	350	2,770	2,006,000	2,871	2,078,000
1939	882	11,000	May 5, 1939	360	2,199	1,592,000	2,149	1,556,000
1940	902	6,140	May 13, 1940	520	1,685	1,223,000	1,686	1,224,000
1941	932	5,400	June 6, 1941	533	1,344	973,200	1,404	1,017,000
1942	962,1152	17,400	May 27, 1942	620	2,665	1,929,000	2,669	1,932,000
1943	982	18,700	Apr. 20, 1943	650	4,131	2,990,000	4,150	3,005,000
1944	1012	8,230	May 20, 1944	668	2,032	1,475,000	1,942	1,410,000
1945	1042	9,860	June 7, 1945	460	2,211	1,600,000	2,276	1,648,000
1946	1062	10,100	May 29, 1946	850	2,386	1,728,000	2,580	1,868,000
1947	1092	24,200	May 9, 1947	856	3,887	2,814,000	3,835	2,776,000
1948	1122	31,500	May 23, 1948	1,100	4,718	3,425,000	4,625	3,357,000
1949	1152	15,200	May 17, 1949	500	2,934	2,124,000	2,887	2,090,000
1950	1182	19,800	June 19, 1950	600	3,513	2,543,000	-	-

* Revised.

416. Rattlesnake Creek at Missoula, Mont.

Location.--Lat 46°52'20", long. 113°59'00", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 22, T. 13 N., R. 19 W., on Ivy Street Bridge in Missoula.

Drainage area.--79.7 sq mi.

Supplemental records available.--January to November 1900, gage heights and discharge measurements only.

Gage.--Wire-weight gage. Altitude of gage is 3,220 ft (from topographic map).

Extremes.--June to December 1899: Maximum discharge observed, 2,050 cfs June 18 (gage height, 6.25 ft); minimum daily, 30 cfs Dec. 19 (revised).

Flood of June 6, 1948, reached a discharge of 2,400 cfs, by computation of peak flow over dam 4 miles upstream.

Remarks.--Diversion for municipal supply of Missoula; also, many small diversions for irrigation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1899						1,197	511	63	57	70	64	*68

* Not previously published; partly estimated on the basis of weather records.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1899						71,200	31,400	3,870	3,390	4,300	3,810	*4,060

* Not previously published; partly estimated on the basis of weather records.

417. Clark Fork at Missoula, Mont.1/

Location (revised).--Lat 46°52'40", long. 114°00'10", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 21, T. 13 N., R. 19 W., on right bank about 400 ft upstream from Northern Pacific Railway bridge at Missoula.

Drainage area.--6,084 sq mi (revised).

Gage.--Wire-weight gage. Datum of gage is 3,162.18 ft above mean sea level (from old survey). Prior to May 27, 1899, staff gage at Higgins Avenue Bridge three-quarters of a mile upstream at different datum.

Extremes.--Maximum discharge, 36,400 cfs June 20, 1899 (gage height, 10.7 ft, from graph based on gage readings); minimum observed, 455 cfs Feb. 17, 1900 (gage height, 2.55 ft).

Remarks.--Slight regulation by power plant at Bonner. Many small diversions above station for irrigation.

1/ Published as Missoula River at Missoula prior to Jan. 1, 1906.

Monthly and yearly mean discharge, in cubic feet per second, of Clark Fork at Missoula, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	-	-	\$6,350	2,120	1,810	-
1899	1,840	1,760	-	-	-	-	-	-	25,900	11,200	3,590	2,290	-
1900	2,150	2,140	\$1,990	\$1,470	\$1,170	2,690	4,880	12,800	6,360	2,060	1,270	1,490	\$3,350
1901	1,530	\$1,420	\$1,490	\$1,140	\$1,200	\$2,320	\$2,560	15,200	7,460	2,810	1,300	1,420	\$3,340
1902	1,470	1,480	-	-	-	1,770	2,380	\$14,300	\$11,100	4,720	2,140	1,780	-
1903	1,810	1,880	-	1,900	1,700	2,020	2,950	5,820	14,000	3,980	2,000	1,800	-
1904	1,700	1,500	1,500	1,300	1,300	1,440	6,700	11,400	8,160	2,790	1,480	1,180	3,370
1905	1,240	1,260	1,200	-	-	\$1,410	1,440	2,500	5,430	2,180	1,130	819	-
1906	1,070	\$1,140	-	-	-	1,480	2,560	4,510	5,510	2,060	-	1,100	-
1907	1,150	2,360	1,920	770	1,700	3,010	6,540	10,500	14,500	-	1,170	-	-

* Revised.

† Not previously published; estimated on the basis of weather records and records for Blackfoot River near Bonner.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	-	-	\$390	130	108	-
1899	113	105	-	-	-	-	-	-	1,540	689	221	136	-
1900	132	127	\$122	\$90.4	\$65	165	290	788	379	126	78	88.9	\$2,450
1901	94.4	\$84.5	\$91.6	\$70.1	\$66.6	\$143	\$152	932	444	173	79.9	84.2	\$2,415.3
1902	90.5	87.9	-	-	-	109	142	\$879	\$660	291	131	106	-
1903	111	112	-	117	94.4	124	175	358	830	244	123	107	-
1904	105	89.3	92.2	79.9	74.8	88.7	399	699	486	172	90.9	70.3	2,450
1905	76.3	75.2	74	-	-	\$86.7	85.8	154	323	134	69.6	48.7	-
1906	65.7	\$67.8	-	-	-	91	152	277	328	127	71.9	65.5	-
1907	70.7	140	118	\$47.3	94.4	185	389	646	863	-	-	-	-

* Revised.

† Corrected.

‡ Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1898	(a)	-	-	-	-	-	-	-
1899	(b)	\$36,400	June 20, 1899	-	-	-	-	-
1900	(c)	\$25,600	May 12, 1900	-	\$3,350	\$2,450,000	\$3,200	\$2,340,000
1901	75	20,200	May 18, 1901	-	\$3,340	\$2,415,300	-	-
1902	85	\$31,400	May 30, 1902	-	-	-	-	-
1903	100	\$25,000	June 4, 1903	-	-	-	3,400	2,460,000
1904	135	\$17,800	May 23, 1904	-	3,370	2,450,000	3,280	2,380,000
1905	178	\$8,500	June 8, 1905	-	-	-	-	-
1906	214	\$7,740	June 7, 1906	-	-	-	-	-
1907	252	\$18,500	May 21, 1907	-	-	-	-	-

* Not previously published.

a 20th Ann. Rept., Pt. 4.

b 21st Ann. Rept., Pt. 4.

c 22nd Ann. Rept., Pt. 4.

418. West Fork Bitterroot River Reservoir near Conner, Mont.

Location.--Lat 45°43', long. 114°17', in SW $\frac{1}{4}$ sec. 26, T. 1 S., R. 22 W., at dam on West Fork Bitterroot River, 7 miles upstream from Nez Perce Creek, and 23 miles south of Darby.

Drainage area.--317 sq mi (revised).

Gage.--Elevations determined by measuring from floor of control tower. Datum is at mean sea level (levels by Montana State Water Conservation Board).

Extremes.--1940-50: Maximum contents, in excess of 31,700 acre-ft when reservoir was full and spilling at times in most years; reservoir empty October 1940 to January 1941.

Remarks.--Storage began in 1940 for irrigation. Reservoir has usable capacity of 31,700 acre-ft at spillway crest, elevation 4,720 ft.

Cooperation.--Records furnished by Montana State Water Conservation Board.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	-	-	-	-	-	-	-	-	a4,900	a8,000	5,550	a1,800
1941	0	0	0	0	a3,750	7,500	20,600	32,000	32,000	32,000	32,000	16,000
1942	9,000	5,000	5,000	5,000	5,000	3,000	32,000	32,000	32,000	32,000	32,000	32,000
1943	6,000	650	3,150	4,150	5,100	2,000	10,500	32,360	32,360	32,360	32,360	29,000
1944	15,000	5,000	5,000	5,050	8,000	a10,600	a17,280	32,000	32,000	32,000	32,000	32,000
1945	20,750	10,000	10,000	10,000	10,000	10,000	a11,290	32,000	32,000	32,000	32,000	a24,400

a Interpolated on the basis of weekly or less-frequent gage readings.

Contents, in acre-feet, on last day of month, of West Fork Bitterroot River Reservoir, Mont.--Con.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1946	10,000	10,000	10,000	10,000	10,000	10,000	20,000	32,000	32,000	32,000	32,000	32,000
1947	14,500	10,000	10,000	10,000	10,000	10,000	a26,000	32,000	32,000	32,000	32,000	a31,180
1948	b20,070	a20,330	10,000	a10,000	a10,000	a10,000	b22,000	a32,000	a32,000	a32,000	a32,000	a27,280
1949	b19,960	a11,930	a10,000	a10,000	a10,000	a10,000	a15,590	a32,000	a32,000	a32,000	a31,200	a24,260
1950	5,000	650	650	650	650	5,500	a19,000	a32,000	a32,000	a32,000	32,000	26,710

a Interpolated on the basis of weekly or less-frequent gage readings.

b Interpolated on the basis of gage readings within 2 days of last day of month.

419. West Fork Bitterroot River near Conner, Mont.

Location.--Lat 45°44', long. 114°17', in NE¼ NW¼ sec. 26, T. 1 S., R. 22 W., on right bank half a mile downstream from West Fork Dam, 6 miles upstream from Nez Perce Creek, and 16 miles southwest of Conner.

Drainage area.--317 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 4,560 ft (by barometer).

Average discharge.--9 years (1941-50), 297 cfs.

Extremes.--1941-50: Maximum discharge, 4,060 cfs May 9, 1947 (gage height, 6.18 ft); minimum, 0.2 cfs Nov. 25, 1942.

Remarks.--Diversion for irrigation of about 200 acres above station. Flow regulated by West Fork Bitterroot River Reservoir (see preceding page).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	-	-	-	-	-	-	-	334	431	175	94.8	372	-
1942	248	199	140	66.5	87.4	87.9	147	914	1,067	320	114	86.5	291
1943	484	177	32.8	73.4	96.2	137	674	828	1,428	517	159	133	395
1944	273	285	80.5	37.8	6.80	7.85	8.65	329	533	195	94.0	62.4	160
1945	337	416	69.8	68.4	47.8	50.0	136	508	869	226	84.5	189	250
1946	283	90.6	55.1	84.7	72.5	112	275	752	489	158	92.9	134	217
1947	441	284	170	134	93.5	173	362	2,011	772	225	114	117	411
1948	191	250	224	70.2	62.3	63.3	144	1,559	1,284	307	131	147	370
1949	213	238	103	90.6	64.7	64.5	338	1,190	664	175	101	168	285
1950	404	130	74.0	69.8	60.3	32.1	92.8	661	1,395	373	126	133	296

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	-	-	-	-	-	-	-	20,530	25,650	10,780	5,830	22,140	-
1942	15,270	11,840	8,630	4,090	4,850	5,410	8,750	56,180	63,510	20,230	7,010	5,150	210,900
1943	29,760	10,530	2,000	4,510	5,340	8,450	40,140	50,930	64,950	31,760	9,770	7,920	286,100
1944	16,790	16,960	4,950	2,330	391	482	515	20,250	31,710	12,000	5,780	3,720	115,900
1945	20,710	24,780	4,290	4,200	2,650	3,070	8,070	31,250	51,710	13,920	5,200	11,260	181,100
1946	17,400	5,390	3,390	5,210	4,020	6,870	16,370	46,210	29,100	9,720	5,710	7,950	157,300
1947	27,100	16,920	10,450	8,260	5,190	10,620	21,530	23,600	45,920	13,840	6,980	6,930	297,300
1948	11,740	14,900	13,790	4,320	3,580	3,890	8,560	95,870	76,410	18,850	8,040	8,720	268,700
1949	13,110	14,170	6,360	5,570	3,590	3,950	20,140	73,140	39,530	10,620	6,220	9,980	206,400
1950	24,840	7,730	4,550	4,290	3,350	1,970	5,520	40,650	82,990	22,910	7,730	7,900	214,400

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1941	932	820	May 28, 1941	-	-	-	-	-	-
1942	962	2,490	May 26, 1942	1.7	291	210,900	300	217,500	
1943	982	2,290	May 31, 1943	9.8	395	286,100	390	282,500	
1944	1012	832	May 19, 1944	6.0	160	115,900	175	127,000	
1945	1042	1,300	June 6, 1945	1.5	250	181,100	218	157,500	
1946	1062	1,110	May 28, 1946	20	217	157,300	256	185,600	
1947	1092	4,080	May 9, 1947	88	411	297,300	391	283,300	
1948	1122	3,880	May 29, 1948	30	370	268,700	361	261,900	
1949	1152	2,280	May 16, 1949	51	285	206,400	290	209,900	
1950	1182	1,860	June 7, 1950	23	296	214,400	-	-	

420. West Fork Bitterroot River near Darby, Mont.

Location.--Lat 45°54'00", long. 114°10'40", in SE¼ NE¼ sec. 27, T. 2 N., R. 21 W., on left bank 500 ft downstream from Trapper Creek ranger station, half a mile downstream from Trapper Creek, and 10 miles south of Darby.

Drainage area.--552 sq mi (revised).

Gage.--Chain gage. Altitude of gage is 4,120 ft (from topographic map).

Extremes.--1910-17: Maximum discharge observed, 6,730 cfs June 17, 1917 (gage height, 7.6 ft); minimum observed, 106 cfs Aug. 28 to Sept. 7, 1914 (gage height, 1.85 ft).

Remarks.--Divisions for irrigation of about 600 acres above station.

Monthly and yearly mean discharge, in cubic feet per second, of West Fork Bitterroot River near Darby, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	236	*319	261	-	-	-	808	1,760	2,750	683	231	177	-
1912	191	-	-	-	-	-	833	2,930	4,080	1,060	-	-	-
1913	-	-	-	-	-	-	1,060	3,130	3,220	909	288	189	-
1914	-	210	-	-	-	229	760	2,070	1,430	477	167	168	-
1915	*245	-	-	-	-	-	-	-	-	647	252	-	-
1916	-	-	-	-	-	-	1,160	2,040	3,270	1,600	344	-	-

* Revised.

* Not previously published; partly estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	14,500	*19,000	16,000	-	-	-	48,100	108,000	164,000	42,000	14,200	10,500	-
1912	11,700	-	-	-	-	-	49,600	180,000	243,000	65,200	-	-	-
1913	-	-	-	-	-	-	63,100	192,000	192,000	55,900	17,700	11,200	-
1914	-	12,500	-	-	-	14,100	45,200	127,000	85,100	29,300	10,500	10,000	-
1915	*15,100	-	-	-	-	-	-	-	-	39,800	15,500	-	-
1916	-	-	-	-	-	-	69,000	125,000	195,000	98,400	21,200	-	-

* Revised.

* Not previously published; partly estimated on the basis of records for nearby stations.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1911	1246,312	4,000	June 13, 1911	-	-	-	-	-	-
1912	332	5,340	June 7-10, 1912	-	-	-	-	-	-
1913	362	6,420	May 27, 1913	-	-	-	-	-	-
1914	392	3,200	May 23, 1914	-	-	-	-	-	-
1915	412	-	-	-	-	-	-	-	-
1916	442	5,520	June 18, 1916	-	-	-	-	-	-
1917	462	6,750	June 17, 1917	-	-	-	-	-	-

421. East Fork Bitterroot River at Conner, Mont. 1/

Location.--Lat 45°56'00", long. 114°07'30", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 7, T. 2 N., R. 20 W., on left bank 125 ft downstream from highway bridge at Conner and half a mile upstream from confluence with West Fork.

Drainage area.--405 sq mi (revised).

Supplemental records available.--October 1915 to August 1916, gage heights only.

Gage.--Wire-weight gage. Datum of gage is 4,015.29 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Sept. 20, 1910, to Sept. 17, 1916, staff gage $2\frac{1}{2}$ miles upstream at different datum.

Average discharge.--13 years (1937-50), 247 cfs.

Extremes.--1910-15, 1937-50: Maximum discharge, 3,760 cfs May 29, 1948 (gage height, 5.70 ft); maximum gage height observed, 5.78 ft May 9, 1947; minimum discharge observed, 1.4 cfs Aug. 17, 1937.

Remarks.--Diversions for irrigation of about 3,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	104	111	108	-	-	-	*211	583	1,200	369	138	-	-
1912	-	*104	-	-	-	-	*269	*946	1,800	597	231	-	-
1913	-	-	-	-	-	-	287	1,010	1,480	439	173	-	-
1914	-	-	-	-	-	87.9	202	860	744	264	104	-	-
1915	-	-	-	-	-	-	-	-	-	-	*185	-	-
1937	-	-	-	-	-	-	*72.9	408	310	80.5	23.1	22.5	-
1938	43.3	44.9	59.7	44.9	69.4	63.7	168	721	853	291	63.5	33.6	205
1939	65.0	69.4	67.7	60.0	39.1	84.5	259	871	447	155	38.9	38.2	184
1940	64.2	55.2	50.8	54.9	85.2	71.4	146	518	240	41.2	15.8	46.6	116
1941	82.3	62.9	63.7	57.4	54.7	59.7	105	344	402	119	45.3	88.1	124
1942	118	116	108	77.1	81.8	92.5	345	787	1,023	297	82.4	62.6	268
1943	62.4	79.7	80.5	58.0	100	118	682	888	1,404	565	138	84.8	355
1944	82.3	93.0	70.7	65.5	73.5	72.0	103	428	772	246	96.0	53.5	179
1945	64.8	76.2	63.1	85.5	84.1	70.0	96.0	508	780	231	52.5	44.6	180

* Revised.

* Not previously published; partly estimated on the basis of fragmentary gage-height records and records for nearby stations.

1/ Published as East Fork Bitterroot River near Darby, 1910-16.

Monthly and yearly mean discharge, in cubic feet per second, of East Fork Bitterroot River at Conner, Mont.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	69.2	83.6	64.2	75.5	60.4	91.9	273	735	579	171	57.5	153	201
1947	234	214	221	134	132	184	435	1,951	942	243	96.0	88.5	408
1948	102	98.1	91.1	81.4	77.0	74.0	266	1,714	1,398	397	166	92.7	380
1949	93.9	81.8	88.2	74.0	78.7	113	327	1,561	835	207	70.8	77.1	285
1950	86.0	97.9	79.5	93.7	113	122	220	666	1,651	497	153	94.3	322

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	6,600	6,640	-	-	-	*12,600	35,800	71,400	22,700	8,480	-	-
1912	6,400	*6,190	-	-	-	-	*16,000	58,200	107,000	36,700	14,200	-	-
1913	-	-	-	-	-	-	17,100	82,100	88,100	27,000	10,600	-	-
1914	-	-	-	-	-	5,400	12,000	52,900	44,300	16,200	6,400	-	-
1915	-	-	-	-	-	-	-	-	-	*11,400	-	-	-
1937	-	-	-	-	-	-	*4,340	25,110	18,420	4,950	1,420	1,340	-
1938	2,660	2,670	3,670	2,760	3,850	3,920	10,010	44,360	50,740	17,910	3,910	2,000	148,500
1939	3,990	4,150	4,160	3,690	2,170	5,190	15,390	55,540	26,590	9,510	2,390	2,290	133,000
1940	3,950	3,290	3,150	3,370	4,900	4,390	8,690	31,860	14,310	2,530	969	2,770	84,160
1941	5,060	3,740	3,920	3,530	3,040	3,670	6,230	21,130	23,910	7,310	2,780	5,240	89,560
1942	7,280	7,040	6,660	4,740	4,540	5,690	20,540	48,390	60,880	18,240	5,070	3,730	192,800
1943	3,840	4,740	4,950	3,570	5,580	7,120	40,550	54,580	83,540	34,720	8,500	5,040	256,700
1944	5,060	5,530	4,350	4,020	4,230	4,430	6,130	26,340	45,960	15,150	5,900	3,180	130,300
1945	3,980	4,540	3,880	5,260	4,670	4,310	5,710	31,250	46,430	14,190	3,230	2,660	130,100
1946	4,250	4,970	3,950	4,650	3,350	5,650	16,250	45,090	34,480	10,540	3,530	9,110	145,800
1947	14,580	12,730	13,560	8,240	7,320	11,310	25,890	20,000	56,030	14,950	5,900	5,270	295,600
1948	6,300	5,840	5,600	5,000	4,430	4,550	15,840	105,400	83,170	23,770	10,220	5,520	275,600
1949	5,780	4,870	5,420	4,550	4,370	6,970	19,440	83,670	49,670	12,710	4,350	4,590	206,400
1950	5,290	5,830	4,890	5,760	6,280	7,510	13,080	40,980	98,220	30,570	9,380	5,610	233,400

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	-	-	-	-	-	-	-	-	-	-
1912	1246,332	-	-	-	-	-	-	-	-	-	-
1913	362	-	-	-	-	-	-	-	-	-	-
1914	392	-	-	-	-	-	-	-	-	-	-
1915	412	-	-	-	-	-	-	-	-	-	-
1937	832	700	May 26, 1937	-	-	-	-	-	-	-	-
1938	862	1,810	May 29, 1938	20	205	0.506	6.86	148,500	210	7.01	151,700
1939	882	1,320	May 5, 1939	24	184	.454	6.15	133,000	181	6.06	131,100
1940	902	738	May 13, 1940	5.5	116	.286	3.89	84,160	119	4.00	86,510
1941	932	715	June 5, 1941	15	124	.306	4.14	89,560	135	4.53	97,820
1942	962	1,990	May 26, 1942	-	266	.657	8.92	192,800	258	8.58	185,400
1943	882	2,110	May 31, 1943	-	355	.877	11.87	256,700	357	11.93	258,100
1944	1012	1,010	June 10, 1944	36	179	.442	6.04	130,300	176	5.92	127,700
1945	1042	1,030	June 5, 1945	26	180	.444	6.01	130,100	181	6.05	130,900
1946	1062	1,310	May 28, 1946	27	201	.496	6.75	145,800	239	8.03	173,300
1947	1092	3,680	May 9, 1947	61	408	1.01	13.68	295,600	377	12.61	272,600
1948	1122	3,760	May 29, 1948	28	380	.938	12.75	275,600	377	12.68	274,000
1949	1152	2,910	May 17, 1949	40	285	.704	9.55	206,400	285	9.54	206,300
1950	1182	2,380	June 16, 1950	42	322	.795	10.82	233,400	-	-	-

422. Bitterroot River near Darby, Mont.

Location--Lat 45°58'20", long. 114°08'20", in E₁¹ (revised) sec. 36, T. 3 N., R. 21 W., on left bank 25 ft downstream from bridge on U. S. Highway 93, a quarter of a mile downstream from Chaffin Creek, and 4 miles southeast of Darby.

Drainage area--1,049 sq mi (revised).

Gage--Water-stage recorder. Datum of gage is 3,943.14 ft above mean sea level, datum of 1929, supplementary adjustment 1947. Prior to Aug. 2, 1939, wire-weight gage 25 ft upstream at same datum.

Average discharge--13 years (1937-50), 858 cfs.

Extremes--1937-50: Maximum discharge, 11,500 cfs May 9, 1947 (gage height, 8.18 ft); minimum observed, about 71 cfs Feb. 9, 1939; minimum gage height observed, 1.06 ft Dec. 9, 1937.

Remarks--Some regulation by West Fork Bitterroot River Reservoir (see p. 335). Diversions above station for irrigation of about 5,500 acres of which about 500 acres are below station.

Monthly and yearly mean discharge, in cubic feet per second, of Bitterroot River near Darby, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1937	-	-	-	-	-	-	*306	1,966	1,380	376	146	129	-
1938	143	158	185	166	167	224	938	2,583	2,705	910	275	184	721
1939	258	254	224	206	168	448	1,586	3,147	1,471	606	176	170	729
1940	199	160	177	148	193	272	871	2,224	982	210	141	209	483
1941	400	218	195	158	125	164	384	1,426	1,428	514	229	634	491
1942	554	547	445	234	238	278	1,094	2,509	3,156	979	282	226	880
1943	611	403	240	258	281	463	2,530	2,879	4,385	1,869	492	313	1,227
1944	435	486	191	157	128	139	336	1,599	2,024	711	316	202	561
1945	365	408	148	210	198	167	400	2,029	2,812	868	244	302	681
1946	438	293	232	264	224	351	1,209	2,717	1,963	759	284	502	773
1947	1,020	788	765	421	352	634	1,521	5,995	2,910	1,034	357	319	1,351
1948	491	498	466	269	271	248	948	5,130	4,565	1,252	444	293	1,243
1949	367	377	240	221	205	295	1,704	4,408	2,636	638	294	313	978
1950	567	365	271	233	279	310	696	2,412	4,882	1,685	441	320	1,039

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1937	-	-	-	-	-	-	*18,220	120,900	82,140	23,110	8,980	7,660	-
1938	8,800	9,390	11,380	10,210	9,290	13,800	55,820	158,800	160,900	55,970	16,890	10,980	522,200
1939	15,840	15,110	13,800	12,640	9,320	27,530	94,350	193,500	87,560	37,270	10,840	10,110	752,900
1940	12,220	9,530	10,890	9,090	11,080	16,720	51,850	136,700	58,460	12,930	8,660	12,430	350,800
1941	24,580	12,940	11,990	9,690	6,930	10,070	22,830	87,690	84,940	31,610	14,100	37,750	355,100
1942	34,030	32,530	27,340	14,420	13,190	17,080	65,120	154,300	187,800	60,220	17,350	13,440	638,800
1943	37,560	23,980	14,770	15,870	15,590	28,460	150,500	177,000	260,900	114,900	30,280	18,630	888,500
1944	26,740	28,900	11,770	9,680	7,580	8,540	20,010	98,290	120,500	43,700	19,440	12,010	407,000
1945	22,420	24,280	9,090	12,890	10,990	11,480	23,900	124,700	167,300	53,400	14,990	18,000	493,300
1946	26,960	17,460	14,270	16,210	12,420	21,560	71,910	167,100	188,000	46,670	17,470	29,860	559,900
1947	62,690	46,910	47,060	25,870	19,550	38,990	90,520	368,600	173,100	63,580	21,930	18,990	977,800
1948	30,180	29,630	29,900	16,560	15,610	15,230	56,390	315,400	271,600	76,950	27,290	17,440	902,200
1949	25,540	22,420	14,780	13,600	11,380	18,110	101,400	271,100	156,800	39,230	18,110	18,650	708,100
1950	34,850	21,730	16,670	14,330	15,490	19,050	41,410	148,300	290,500	103,600	27,120	19,060	752,100

† Corrected.

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1937	832	a2,650	May 19, 1937	-	-	-	-	-	-
1938	862	a5,480	May 29, 1938	88	721	522,200	742	537,400	
1939	882	a4,920	(b)	80	729	†527,900	712	515,800	
1940	902	3,360	May 12, 1940	95	483	350,600	506	367,400	
1941	932	2,420	May 13, 1941	90	491	355,100	552	399,500	
1942	962	5,930	May 26, 1942	170	880	636,800	855	619,200	
1943	982	6,820	May 31, 1943	183	1,227	888,500	1,215	879,600	
1944	1012	3,060	May 31, 1944	110	561	407,000	545	395,300	
1945	1042	3,980	June 1, 1945	100	681	493,300	685	496,200	
1946	1062	4,060	May 28, 1946	180	773	559,900	909	657,900	
1947	1092	11,500	May 9, 1947	245	1,351	977,800	1,258	910,800	
1948	1122	11,300	May 29, 1948	186	1,243	902,200	1,202	872,200	
1949	1152	7,440	May 16, 1949	175	978	708,100	997	721,600	
1950	1182	6,930	June 17, 1950	190	1,039	752,100	-	-	

† Corrected.

a Maximum observed.

b Apr. 30, May 4, 1939.

423. Como Lake near Darby, Mont.

Location (revised).--Lat 46°03'50", long. 114°14'00", in NW¹ sec. 32, T. 4 N., R. 21 W., at dam on Rock Creek 4 miles northwest of Darby.

Drainage area.--54.6 sq mi (revised).

Gage.--Staff gage. Datum of gage is 4,188.5 ft above mean sea level (U. S. Coast and Geodetic Survey datum).

Extremes.--1940-50: Reservoir has been filled to capacity of 34,800 acre-ft at times in most years; no storage at times in several years.

Remarks.--Storage began in 1909 for irrigation. Reservoir has maximum capacity of 34,800 acre-ft at gage height 54.0 ft (elevation, 4,242.5 ft).

Cooperation.--Records furnished by Bitterroot Irrigation District.

Contents, in acre-feet, on last day of month, of Como Lake near Darby, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	200	1,300	3,200	4,800	6,200	8,900	18,100	32,600	31,100	20,200	5,200	0
1941	3,400	4,300	5,200	6,900	7,600	9,600	16,000	24,700	32,700	16,100	4,800	2,100
1942	7,000	13,600	18,200	18,500	20,400	22,400	26,900	34,800	34,800	22,500	4,000	0
1943	2,400	4,200	11,000	12,100	13,400	15,000	26,800	31,200	34,800	34,800	19,700	8,600
1944	4,000	5,900	5,900	5,900	5,900	8,900	14,200	30,300	34,800	14,200	2,600	0
1945	0	0	2,400	3,570	4,610	7,600	8,700	21,800	37,400	23,100	8,200	5,000
1946	0	0	3,180	3,960	4,870	9,220	10,820	25,900	34,800	31,700	15,230	6,430
1947	14,200	20,000	23,600	23,000	20,400	20,400	21,700	33,900	34,700	32,300	17,600	10,200
1948	15,380	19,100	22,700	24,220	18,150	17,360	21,300	32,100	34,800	30,200	15,780	5,300
1949	1,280	2,890	5,780	5,820	6,690	8,250	20,320	32,100	34,770	26,800	9,220	2,890
1950	2,530	7,170	10,660	13,860	17,360	19,890	22,930	25,080	34,770	33,880	22,500	8,900

a Interpolated on the basis of weekly or less-frequent gage readings.

424. Rock Creek near Darby, Mont.

Location.--Lat 46°04'10", long. 114°13'20", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 29, T. 4 N., R. 21 W., on left bank 0.6 mile downstream from Como Lake, 0.7 mile upstream from Rock Creek Canal, and 4 miles northwest of Darby.

Drainage area.--55.4 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 4,070 ft (from topographic map). Prior to Dec. 2, 1948, staff gage 0.6 mile downstream at different datum.

Extremes.--1946-50: Maximum discharge recorded, 1,580 cfs June 17, 1950 (gage height, 5.19 ft), from rating curve extended above 580 cfs (revised); no flow Apr. 6, 18, 19, May 27-30, 1946.

Remarks.--Small diversions for irrigation above station. Flow regulated to limit of capacity of Como Lake (see p. 339).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	219	285	238	354	319	163	-
1947	-	2.89	33.7	78.7	76.0	75.4	-	-	-	-	-	-	-
1948	-	-	-	-	-	-	-	575	706	303	229	178	-
1949	-	-	.60	.65	.67	.68	22.6	527	411	281	265	142	-
1950	11.5	.43	.73	.82	1.09	1.90	47.6	303	581	470	249	231	159

* Not previously published; partly estimated on the basis of gage heights and records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	13,000	17,520	14,150	21,770	19,640	9,690	-
1947	-	172	2,070	4,840	4,220	4,640	-	-	-	-	-	-	-
1948	-	-	-	-	-	-	-	35,330	42,000	18,650	14,080	10,570	-
1949	-	-	37	40	37	42	1,340	32,430	24,450	17,290	16,310	8,430	-
1950	705	26	45	50	60	117	2,830	18,640	34,560	28,920	15,320	13,770	115,000

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1946	1062	-	-	-	-	-	-
1947	1092	-	-	-	-	-	-
1948	1122	al,500	May 27, 1946	-	-	-	-
1949	1152	1,160	May 17, 1949	-	-	-	-
1950	1182	1,580	June 17, 1950	0.4	159	115,000	-

a Maximum observed.

425. Rock Creek Canal near Darby, Mont.

Location (revised).--Lat 46°04'40", long. 114°12'40", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 28, T. 4 N., R. 21 W., near right bank a quarter of a mile downstream from diversion dam, 1½ miles downstream from Como Lake, and 4 miles northwest of Darby.

Gage.--Staff gage. Altitude of gage is 3,950 ft (from topographic map). Prior to May 14, 1948, staff gage at headgate a quarter of a mile upstream at different datum. May 14, 1948, to May 27, 1950, staff gage on foot bridge 80 ft upstream at approximately present datum.

Extremes.--Maximum discharge not determined; no flow at times.

Remarks.--Canal diverts from left bank of Rock Creek in sec. 28, T. 4 N., R. 21 W., for irrigation of land in the vicinity of Hamilton. During irrigation seasons water may be diverted from Lost Horse Creek into canal below station near southwest corner of sec. 22, T. 4 N., R. 21 W.

Monthly runoff, in acre-feet, of Rock Creek Canal near Darby, Mont.

Water year						Apr.	May	June	July	Aug.	Sept.	
1946						12,070	14,220	10,220	13,990	17,660	8,870	
1948						-	-	7,330	17,050	13,560	10,270	
1949						984	12,690	12,610	16,530	15,230	7,450	
1950						1,740	15,280	8,570	14,480	14,170	11,460	

426. Bitterroot River near Grantsdale, Mont.

Location.--Lat 46°11'30", long. 114°10'10", in W $\frac{1}{2}$ sec. 13, T. 5 N., R. 21 W., on downstream side of highway bridge two miles southwest of Grantsdale.

Drainage area.--1,414 sq mi (revised).

Gage.--Chain gage. Altitude of gage is 3,570 ft (from topographic map).

Extremes.--1902-7: Maximum discharge observed, 12,900 cfs June 3, 1903 (gage height, 7.3 ft); minimum observed, 5 cfs Sept. 19-22, 1905 (gage height, 1.0 ft).

Remarks.--Many diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1902	-	-	-	-	-	-	-	4,823	5,176	2,143	428	167	-
1903	242	353	472	518	471	519	1,409	3,031	7,968	1,912	334	481	1,470
1904	825	615	650	296	323	490	2,783	5,868	5,208	1,899	248	74	1,610
1905	118	179	181	-	-	485	915	1,544	3,276	1,111	168	44	-
1906	247	264	-	359	-	4329	1,370	2,800	2,540	868	127	157	-
1907	386	1,650	750	-	-	694	2,010	5,610	7,250	4,040	803	583	-
1908	367	351	351	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of weather records and records for Clark Fork at Missoula.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1902	-	-	-	-	-	-	-	297,000	508,000	132,000	26,300	9,940	-
1903	14,900	21,000	29,000	31,800	26,200	31,900	83,800	186,000	474,000	118,000	20,500	28,600	1,070,000
1904	50,700	36,600	40,000	18,200	18,600	30,100	166,000	561,000	10,000	117,000	15,100	4,400	1,170,000
1905	7,260	10,700	11,100	-	-	29,800	54,400	94,900	135,000	68,300	10,300	2,640	-
1906	15,200	15,700	-	22,100	-	20,200	81,500	172,000	151,000	53,200	7,810	9,340	-
1907	23,700	98,200	46,100	-	-	42,700	120,000	545,000	431,000	248,000	49,400	34,700	-
1908	22,600	20,900	21,600	-	-	-	-	-	-	-	-	-	-

† Corrected.

* Not previously published; partly estimated on the basis of weather records and records for Clark Fork at Missoula.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1902	85	all, 1,100	May 29, 1902	-	-	-	-	-
1903	100	12,900	June 3, 1903	150	1,470	1,070,000	1,580	1,130,000
1904	135	11,800	May 24, 1904	65	1,610	1,170,000	1,470	1,070,000
1905	178	-	-	5	-	-	-	-
1906	214	4,110	(a)	60	-	-	-	-
1907	252	11,800	June 4, 1907	150	-	-	-	-

a May 27, June 12, 1906.

427. Skalkaho Creek near Hamilton, Mont. 1/

Location.--Lat 46°09'50", long. 113°56'20", in SW $\frac{1}{4}$ sec. 26, T. 5 N., R. 19 W., on right bank 2 miles downstream from Daly Creek and 12 miles southeast of Hamilton.

Drainage area.--87.8 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 4,510 ft (from topographic map).

Extremes.--1948-50: Maximum discharge, 812 cfs June 21, 1950 (gage height, 4.40 ft); minimum recorded, 12 cfs Mar. 11, 1950 (gage height, 1.27 ft).

Flood of May 1948 reached a discharge of 1,130 cfs (by slope-area method at a point five miles downstream).

Remarks.--No diversion above station. During irrigation season flow is supplemented by releases from Kent Lake and Dam Creek Lake (combined capacity, 200 acre-ft).

1/ Records collected at station of same name April 1920 to September 1924 at site 3 miles downstream are not equivalent and are published elsewhere in this report as Skalkaho Creek at Brennan's Ranch, near Hamilton.

Monthly and yearly mean discharge, in cubic feet per second, of Skalkaho Creek near Hamilton, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	27.3	25	24.4	24.1	75.0	419	355	110	51.5	37.3	-
1950	31.1	27.3	23.7	20.6	20.4	17.8	31.2	166	518	275	78.2	45.3	105

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	1,680	1,540	1,350	1,480	4,460	25,740	21,110	6,780	3,160	2,220	-
1950	1,910	1,620	1,460	1,270	1,130	1,090	1,860	10,190	30,850	16,930	4,810	2,700	75,820

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1949	1152	645	May 17, 1949	-	-	-	-	-	101	15.56	72,830	-
1950	1182	812	June 21, 1950	15	105	1.20	16.19	75,820	-	-	-	-

428. Skalkaho Creek at Brennan's ranch, near Hamilton, Mont. 1/

Location.--Lat 46°09'40", long. 113°58'50", in NW 1/4 SW 1/4 sec. 28, T. 5 N., R. 19 W., on left abutment of private bridge, about 1,000 ft south of ranch buildings, and 9 miles south-east of Hamilton.

Drainage area.--96.2 sq mi.

Gage.--Staff gage. Altitude of gage is 4,310 ft (from topographic map).

Extremes.--1920-24: Maximum discharge observed, 1,110 cfs June 15, 1922 (corrected) (gage height, 3.80 ft); minimum discharge, 14 cfs Mar. 26 to Apr. 5, 1924 (gage height, 1.30 ft).

Flood of May 1948 reached a discharge of 1,130 cfs (by slope-area method at a point 2 miles downstream).

Remarks.--No diversion above station. During irrigation season flow is supplemented by releases from Kent Lake and Dam Creek Lake (combined capacity, 200 acre-feet).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	114	375	191	57.6	42.5	-
1921	42.7	36.9	-	-	-	29.0	39.4	342	524	123	57.3	44.9	-
1922	36.0	-	-	-	-	-	31.7	171	552	149	62.0	43.8	-
1923	34.8	-	-	-	-	-	39.2	176	412	191	68.2	41.5	-
1924	33.6	28.4	-	-	-	-	21.7	268	175	73.0	35.4	25.1	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	7,010	22,300	11,700	3,540	2,530	-
1921	2,630	2,200	-	-	-	1,780	2,340	21,000	31,200	7,560	3,520	2,670	-
1922	2,210	-	-	-	-	-	1,890	10,500	38,800	9,160	3,810	2,610	-
1923	2,140	-	-	-	-	-	2,330	10,800	24,500	11,700	4,190	2,470	-
1924	2,070	1,690	-	-	-	-	1,290	16,500	10,400	4,490	2,180	1,490	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1920	512,532	582	June 22, 1920	-	-	-	-	-	-	-	-	-
1921	532	950	June 7, 1921	-	-	-	-	-	-	-	-	-
1922	552	1,110	June 15, 1922	-	-	-	-	-	-	-	-	-
1923	572	648	June 12, 1923	-	-	-	-	-	-	-	-	-
1924	592	462	May 25, 1924	-	-	-	-	-	-	-	-	-

1/ Previously published as Skalkaho Creek near Hamilton, Mont.

429. Blodgett Creek near Corvallis, Mont.

Location.--Lat 46°16'10", long. 114°14'10", in NW¼ sec. 21, T. 6 N., R. 21 W., on right bank 4½ miles upstream from mouth and 7 miles southwest of Corvallis.

Drainage area.--26.4 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 4,050 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 836 cfs May 16, 1949 (gage height, 6.42 ft); minimum, 1.6 cfs Feb. 19, 1949 (gage height, 1.96 ft).

Remarks.--Some regulation for irrigation at low flow by High Lake and Blodgett Lake (combined capacity, 900 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	\$50.6	17.8	13.6	30.1	101	363	209	83.5	20.2	23.0	-
1948	63.8	30.5	28.9	33.6	16.1	13.6	72.3	328	335	68.9	31.2	12.8	86.3
1949	11.9	10.5	9.41	7.77	5.00	15.7	115	357	186	52.1	18.1	11.9	67.1
1950	16.1	31.1	27.1	17.3	17.0	22.0	53.8	195	361	177	39.0	17.1	81.3

* Not previously published; partly estimated on the basis of records for Bear Creek near Victor.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	\$3,110	1,090	753	1,850	6,020	22,310	12,410	5,130	1,240	1,370	-
1948	3,930	1,820	1,750	2,070	928	839	4,300	20,170	19,930	4,230	1,920	764	62,680
1949	732	624	579	478	277	964	6,860	21,950	11,060	3,210	1,110	711	48,560
1950	993	1,850	1,870	1,070	946	1,350	3,200	11,960	21,500	10,890	2,400	1,020	58,850

* Not previously published; partly estimated on the basis of records for Bear Creek near Victor.

Yearly discharge, in cubic feet per second

Water year ending Sept. 30														Calendar year		
Year	W.S.P. no.	Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff	Mean	Inches	Acre-feet	Mean	Inches	Acre-feet	
		Discharge	Date													
1947	1092	750	May 9, 1947	-	-	-	-	-	-	82.5	42.48	59,700	-	-	-	
1948	1122	812	May 28, 1948	4.2	86.3	3.27	44.49	62,680	78.6	40.52	57,090	-	-	-	-	
1949	1152	836	May 16, 1949	2.9	67.1	2.54	34.45	48,560	70.6	36.29	51,130	-	-	-	-	
1950	1182	771	June 17, 1950	5.5	81.3	3.08	41.84	58,850	-	-	-	-	-	-	-	

430. Blodgett Creek near Hamilton, Mont.

Location.--Lat 46°17'20", long. 114°09'50", in NW¼ SE¼ sec. 12, T. 6 N., R. 21 W., on upstream side of highway bridge 1½ miles upstream from mouth and 2½ miles north of Hamilton.

Drainage area.--29.2 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 3,480 ft (from topographic map).

Extremes.--1938-43: Maximum discharge observed, 678 cfs May 26, 1942 (gage height, 3.56 ft), from rating curve extended above 350 cfs; minimum observed, 0.6 cfs Aug. 3, 9, 1942.

Remarks.--Many diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	-	-	-	-	220	201	21.8	1.12	1.08	-
1939	2.20	6.02	16.9	12.5	8.90	19.6	79.8	221	67.1	-	-	-	-
1940	-	\$3.70	6.53	9.25	11.0	17.3	69.9	157	60.9	1.92	1.31	5.70	-
1941	7.63	9.56	4.56	5.06	7.46	8.34	29.8	93.3	69.1	3.25	1.77	16.4	21.4
1942	25.1	31.7	37.7	11.0	11.6	11.6	74.7	138	175	37.3	1.26	1.58	46.4
1943	1.98	25.3	29.9	18.8	19.4	21.3	151	186	255	-	-	-	-

* Not previously published; partly estimated on the basis of records for Bear Creek near Victor.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	-	-	-	-	13,550	11,970	1,340	69	64	-
1939	135	358	1,040	772	494	1,210	4,750	13,610	3,990	-	-	-	-
1940	-	\$220	402	569	633	1,070	4,160	9,640	3,630	118	81	339	-
1941	469	569	281	311	414	513	1,770	5,740	4,110	200	109	974	15,460
1942	1,550	1,890	2,320	675	647	711	4,440	8,510	10,390	2,290	78	94	33,600
1943	116	1,510	1,780	1,150	1,080	1,310	8,970	11,460	15,160	-	-	-	-

* Not previously published; partly estimated on the basis of records for Bear Creek near Victor.

PEND OREILLE RIVER BASIN

Yearly discharge, in cubic feet per second, of Blodgett Creek near Hamilton, Mont.

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1938	862	a606	May 28, 1938	-	-	-	-
1939	882	a492	Apr. 30, 1939	-	-	-	-
1940	902	a350	May 11, 1940	-	-	-	29.7
1941	932	275	May 13, 1941	-	21.4	15,460	27.5
1942	962	a878	May 26, 1942	-	46.4	33,600	43.2
1943	982	a515	May 23, 1943	-	-	-	-

a Maximum observed.

431. Willow Creek near Corvallis, Mont.

Location.--Lat 46°17'40", long. 113°59'40", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 8, T. 6 N., R. 19 W., on right bank at Willey Ranch 6 miles southeast of Corvallis.

Drainage area.--22.4 sq mi.

Gage.--Staff gage. Altitude of gage is 4,130 ft (from topographic map).

Extremes.--1920-24: Maximum discharge, 130 cfs June 15, 1922 (gage height, 2.20 ft); minimum observed, 3.6 cfs Nov. 28 to Dec. 1, 1923, Mar. 23-25, 1924 (gage height, 0.52 ft).

Remarks.--One small diversion for irrigation above station. During irrigation season natural flow is supplemented by releases from Gleason Lake (capacity, 160 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	15.6	35.9	26.2	10.3	8.27	-
1921	8.61	8.33	-	-	-	5.77	8.13	40.5	71.0	20.2	8.94	6.89	-
1922	6.26	-	-	-	-	-	6.49	24.7	86.0	26.0	12.4	8.39	-
1923	6.61	6.03	6.10	-	-	-	6.97	11.0	42.3	27.2	13.1	6.41	-
1924	6.23	4.83	5.30	-	-	-	5.08	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	959	2,140	1,610	633	492	-
1921	529	496	-	-	-	355	484	2,490	4,220	1,240	550	410	-
1922	385	-	-	-	-	-	386	1,520	5,120	1,600	762	499	-
1923	406	359	375	-	-	-	415	676	2,520	1,670	806	391	-
1924	583	287	326	-	-	-	302	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1920	512	60	(a)	-	-	-	-
1921	532	114	June 9, 1921	-	-	-	-
1922	552	130	June 15, 1922	-	-	-	-
1923	572	-	-	-	-	-	-
1924	592	-	-	-	-	-	-

a June 22, July 2, 1920 (revised).

432. Willow Creek at Anfinson Ranch, near Corvallis, Mont.

Location.--Lat 46°17'40", long. 114°01'30", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 7, T. 6 N., R. 19 W., on left bank at Anfinson Ranch, 5 miles southeast of Corvallis.

Drainage area.--23.2 sq mi.

Gage.--Staff gage. Altitude of gage is 3,750 ft (from topographic map).

Extremes.--1938-43: Maximum discharge observed, 125 cfs June 9, 1942 (gage height, 2.50 ft), from rating curve extended above 70 cfs; minimum observed, 0.1 cfs Sept. 11, 1938, Aug. 13 to Sept. 13, 1939.

Remarks.--Many diversions for irrigation above station. During irrigation season natural flow is supplemented by releases from Gleason Lake (capacity, 160 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second, of Willow Creek at Anfinson Ranch, near Corvallis, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	-	-	-	-	11.8	49.3	15.1	3.28	0.34	-
1939	3.56	6.75	6.54	5.88	5.26	6.02	7.30	9.51	12.5	5.10	.68	†.47	5.79
1940	1.82	2.82	5.17	4.13	4.23	4.32	4.56	6.17	10.3	2.01	.33	.49	3.85
1941	1.00	2.45	3.55	3.05	3.88	2.88	1.80	1.15	11.8	3.37	.54	.79	3.00
1942	3.27	3.22	5.69	3	4.55	4.52	8.25	19.4	73.0	15.8	1.17	3.57	12.1
1943	2.10	5.68	6.70	5.51	5.02	6.08	18.5	20.2	65.4	-	-	-	-

† Corrected.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	-	-	-	-	728	2,940	928	202	20	-
1939	219	402	402	362	292	370	435	585	743	313	42	†28	4,190
1940	112	168	318	254	244	266	271	380	612	124	20	28	2,800
1941	61	146	218	187	215	177	107	70	702	207	33	47	2,170
1942	201	192	350	184	253	278	491	1,190	4,340	970	72	213	8,730
1943	129	338	412	339	279	374	1,100	1,240	3,890	-	-	-	-

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1938	862	73	June 19, 1938	-	-	-	-	-	-
1939	882	16	May 31, 1939	0.1	5.79	4,190	5.21	3,770	
1940	902	16	June 1, 1940	.2	3.85	2,800	3.62	2,620	
1941	932	16	June 4, 1941	.3	3.00	2,170	3.44	2,490	
1942	962	125	June 9, 1942	-	12.1	8,730	12.3	8,670	
1943	982	123	June 21, 1943	-	-	-	-	-	

433. Fred Burr Creek near Victor, Mont.

Location.--Lat 46°21'20", long. 114°15'10", in NE¼NW¼ sec. 20 T. 7 N., R. 21 W., on right bank 5 miles upstream from mouth and 7 miles southwest of Victor.

Drainage area.--18.4 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 4,150 ft (from topographic map). Prior to Apr. 4, 1948, water-stage recorder at same site at datum 1.74 ft higher. July 30 to Sept. 30, 1948, staff gage at same site at datum 0.22 ft lower.

Extremes.--1946-50: Maximum discharge, 23,100 cfs May 28, 1948 (failure of dam above station) by slope-area method at site 3 miles upstream from station; minimum observed, 2.7 cfs Sept. 20-22, 1948.

Remarks.--No diversion above station. Slight regulation by Fred Burr Reservoir prior to May 28, 1948 (capacity, 515 acre-ft); also some regulation by Fred Burr Lake during summer low flow.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	†27.8	10.5	10.1	19.8	54.3	211	150	58.5	10.5	9.76	-
1948	36.3	18.6	16.1	18.9	8.12	7.89	†45	†230	†240	†36	12.9	3.66	†56.2
1949	†11	†8	†7	†5.5	†3.5	†8.5	†85	236	111	32.3	9.11	6.69	†43.8
1950	10.7	†9.3	22.3	12.0	12.0	13.0	35.3	120	255	121	25.2	7.48	55.3

* Not previously published; partly estimated on the basis of records for Bear Creek near Victor.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1947	-	-	†1,710	643	559	1,220	3,230	12,950	8,920	3,590	643	581	-
1948	2,230	1,110	992	1,160	467	485	†2,680	†14,140	†14,280	†2,210	794	218	†40,770
1949	†676	†476	†430	†338	†194	†523	†5,060	†14,480	6,620	1,980	560	398	†31,740
1950	658	1,750	1,370	738	665	802	2,100	7,360	15,190	7,420	1,550	445	40,050

* Not previously published; partly estimated on the basis of records for Bear Creek near Victor.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in Acres-feet	Mean	Runoff
		Discharge	Date						Inches
1947	1092	397	May 8, 1947	-	-	-	-	50.7	37.44
1948	1122	23,000	May 28, 1948	2.7	†56.2	†3.05	†41.50	†40,770	†52.4
1949	1152	632	May 16, 1949	-	†43.8	†2.36	†32.35	†31,740	†46.9
1950	1182	822	June 17, 1950	5.3	55.3	3.01	40.88	40,050	-

* Not previously published.

434. Bear Creek near Victor, Mont.

Location.--Lat 46°23', long. 114°13', in NE $\frac{1}{4}$ sec. 9, T. 7 N., R. 21 W., on left bank 4 miles upstream from mouth and 5 miles southwest of Victor.

Drainage area.--26.8 sq mi (revised).

Gage.--Water-stage recorder and timber control. Altitude of gage is 3,770 ft (from topographic map). Prior to Aug. 27, 1941, staff gage at same site and datum.

Average discharge.--12 years (1938-50), 63.7 cfs.

Extremes.--1938-50: Maximum discharge, 1,340 cfs June 16, 1950 (gage height, 4.04 ft), from rating curve extended above 530 cfs; minimum recorded, 1.0 cfs Sept. 13, Nov. 15, 1944.

Remarks.--No diversion above station. Natural flow is supplemented by stored water from Bear Lake (capacity, 375 acre-ft) during irrigation season.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	-	-	-	-	256	287	54.9	7.9	4.2	-
1939	14.0	16.4	29.5	14.7	11.5	25.0	112	259	116	41.5	6.19	4.20	54.5
1940	6.26	10.6	16.3	9.5	11.8	27.1	81.3	272	144	15.3	2.75	4.67	50.2
1941	16.2	15.4	12.9	9.57	9.22	15.7	53.0	177	118	33.7	7.71	44.0	42.8
1942	52.8	44.7	43.8	11.8	9.27	10.1	102	165	199	72.7	7.37	3.25	60.3
1943	3.61	26.2	24.9	17.5	17.1	18.8	142	188	326	189	21.6	6.08	81.8
1944	5.25	8.03	5.28	4.08	3.66	5.48	33.2	186	187	33.4	6.66	5.49	40.3
1945	4.69	9.03	5.89	8.63	7.12	6.87	27.0	251	262	81.8	8.33	8.24	56.9
1946	16.3	24.3	10.9	10.7	8.92	18.7	111	220	182	67.7	11.6	15.7	58.3
1947	61.0	39.4	38.0	14.6	13.9	30.6	96.9	385	248	78.9	13.1	14.1	86.6
1948	61.1	31.0	26.3	30.6	13.1	12.1	65.2	334	352	52.3	19.4	4.18	83.5
1949	15.4	11.9	10.2	8.2	5.0	12.3	132	360	184	42.3	8.75	8.16	66.8
1950	15.9	32.8	23.6	14.4	14.9	18.3	42.8	187	407	192	33.9	11.0	82.9

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1938	-	-	-	-	-	-	-	15,760	17,090	3,370	484	252	-
1939	859	974	1,810	906	639	1,540	6,670	15,940	6,930	2,550	381	250	39,450
1940	385	829	1,000	587	678	1,670	4,840	16,700	8,550	941	169	278	36,430
1941	995	914	793	589	512	966	3,160	10,870	7,050	2,070	474	2,620	31,010
1942	3,240	2,660	2,690	724	515	624	6,060	10,150	11,870	4,470	453	194	43,650
1943	222	1,560	1,530	1,080	950	1,160	8,440	11,570	19,380	11,610	1,330	362	59,190
1944	323	478	325	251	210	337	1,980	11,460	11,130	2,050	409	327	29,280
1945	289	537	362	531	395	422	1,600	15,440	15,600	5,030	512	491	41,210
1946	1,000	1,440	670	657	496	1,150	6,600	13,510	10,860	4,160	711	934	42,190
1947	3,750	2,340	2,340	899	774	1,880	5,770	23,660	14,750	4,850	807	839	62,660
1948	3,760	1,850	1,620	1,880	756	748	3,880	20,560	20,930	3,210	1,190	249	60,650
1949	945	708	829	504	278	754	7,870	22,130	10,950	2,600	538	485	48,390
1950	979	1,950	1,450	883	827	1,130	2,540	11,490	24,210	11,800	2,080	652	59,990

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30											Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		Inches	Acre-feet	
1938	862	865	Apr. 18, 1938	-	-	-	-	-	-	-	-	-	-	-	-
1939	882	507	Apr. 30, 1939	2.6	54.5	2.03	37.26	39,450	52.2	36.12	37,820	-	-	-	-
1940	902	578	May 11, 1940	1.1	50.2	1.87	25.43	36,430	51.1	25.91	37,120	-	-	-	-
1941	932	578	May 13, 1941	4.8	42.8	1.60	21.68	31,010	51.0	25.80	36,900	-	-	-	-
1942	962, 982	652	May 24, 1942	2.2	60.3	2.25	30.55	43,650	53.0	26.84	39,370	-	-	-	-
1943	982	611	June 18, 1943	1.9	81.8	3.05	41.45	59,190	78.7	39.92	57,010	-	-	-	-
1944	1012	514	May 15, 1944	1.2	40.3	1.50	20.49	29,280	40.4	20.53	29,340	-	-	-	-
1945	1042	536	June 21, 1945	2	56.9	2.12	28.84	41,210	59.6	30.19	43,130	-	-	-	-
1946	1062	406	June 3, 1946	4.6	58.3	2.18	29.52	42,190	65.6	33.25	47,510	-	-	-	-
1947	1092	901	May 8, 1947	4.7	86.6	3.23	43.89	62,660	84.9	43.03	61,460	-	-	-	-
1948	1122	1,100	May 27, 1948	2.0	83.5	3.12	42.40	60,630	76.7	38.95	55,680	-	-	-	-
1949	1152	866	May 18, 1949	3.0	66.8	2.49	33.82	48,390	69.8	35.28	50,490	-	-	-	-
1950	1182	1,340	June 16, 1950	7.5	82.9	3.09	42.01	59,990	-	-	-	-	-	-	-

435. Kootenai Creek near Stevensville, Mont.

Location.--Lat 46°32'30", long. 114°10'00", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ (corrected) sec. 18, T. 9 N., R. 20 W., on left bank 3 miles upstream from mouth and 4 miles northwest of Stevensville.

Drainage area.--28.9 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,780 ft (from topographic map).

Extremes.--1948-50: Maximum discharge, 1,300 cfs June 17, 1950 (gage height, 5.85 ft), from rating curve extended above 500 cfs; minimum daily, 6 cfs Feb. 19, 20, 1949.

Flood of May-June 1948 reached a discharge of 1,250 cfs, by slope-area study at a point a quarter of a mile downstream.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	13.0	9.9	7.6	15.8	134	408	240	89.1	17.0	11.5	-
1950	18.7	41.2	23.2	13.5	13.8	20.7	53.7	195	385	252	60.0	17.9	91.5

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	-	-	801	611	422	972	7,980	25,110	14,290	5,480	1,050	684	-
1950	1,150	2,450	1,430	827	768	1,270	3,200	11,980	22,890	15,490	3,690	1,060	66,200

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Mean	Inches	Runoff Acre-feet	
		Discharge	Date								
1949	1152	980	May 16, 1949	-	-	-	-	85.1	39.95	61,630	-
1950	1182	1,300	June 17, 1950	8.7	91.5	3.17	42.99	66,200	-	-	-

436. Burnt Fork Creek near Stevensville, Mont.

Location.--Lat 46°27'50", long. 113°56'40", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 11, T. 8 N., R. 19 W., on downstream side of county road bridge, 8 miles southeast of Stevensville.

Drainage area.--74.0 sq mi.

Gage.--Staff gage. Altitude of gage is 4,270 ft (from topographic map). Prior to Aug. 4, 1924, staff gage at same site at different datum.

Average discharge.--12 years (1938-50), 47.6 cfs.

Extremes.--1920-24, 1938-50: Maximum discharge observed, 641 cfs May 28, 1938 (gage height, 2.92 ft); maximum gage height observed, 3.40 ft Jan. 6, 9, 1947 (backwater from ice); minimum daily discharge, 2 cfs Mar. 11, 1948.

Remarks.--Bypass diversion for irrigation of about 2,000 acres below station. Some regulation during irrigation season by Burnt Fork Lake (capacity, 510 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	*157	242	80.8	30.8	37.1	-
1921	43.7	42.3	-	-	-	-	-	-	-	-	-	-	-
1922	-	-	-	-	-	-	-	*225	429	67.0	-	-	-
1923	22.9	26.7	-	-	-	-	*36.6	*70	190	73.4	30.5	23.5	-
1924	-	-	-	-	-	-	-	*139	75.2	30.9	*19.0	*12	-
1938	-	-	-	-	-	-	-	*169	*204	-	-	-	-
1939	18.2	20.5	18.1	18.7	19.7	21.3	50.5	133	89.0	39.9	23.2	19.5	39.4
1940	17.7	16.9	16.7	14.5	14.2	17.8	37.2	80.2	52.8	25.6	21.1	20.4	28.0
1941	19.5	17.1	13.7	12.7	11.9	12.8	19.0	43.1	72.0	35.0	20.8	20.4	24.9
1942	19.5	20.5	24.2	13.8	14.8	16.2	66.8	147	217	77.7	37.9	18.9	56.3
1943	18.9	22.1	21.1	18.8	17.4	20.2	108	180	288	144	43.0	25.4	74.0
1944	22.9	22.6	20.5	17.2	12.5	10.2	22.7	62.1	148	72.0	34.0	25.9	40.9
1945	20.3	18.3	13.5	16.6	16.9	10.6	15.4	72.9	105	49.4	24.9	18.3	31.9
1946	16.1	14.5	13.0	15.4	11.6	17.1	47.5	89.4	86.7	42.6	22.7	22.9	33.4
1947	36.0	35.8	26.1	18.5	23.3	26.5	63.4	241	179	59.8	27.3	20.8	63.4
1948	27.7	25.5	24.3	26.2	16.6	14.0	58.0	296	311	80.8	39.4	25.9	78.8
1949	21.4	19.7	19.1	17.1	16.6	15.4	42.9	175	173	42.3	22.8	20.5	48.9
1950	19.5	18.2	15.6	13.8	12.5	12.4	24.5	92.5	242	111	31.5	22.8	51.4

* Not previously published; estimated on the basis of records for Bear Creek near Victor, Mont.

PEND OREILLE RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Burnt Fork Creek near Stevensville, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1920	-	-	-	-	-	-	-	#9,650	14,400	4,970	1,890	2,210	-
1921	2,690	2,520	-	-	-	-	-	-	-	-	-	-	-
1922	-	-	-	-	-	-	-	-	-	-	-	-	-
1923	1,270	1,590	-	-	-	-	-	#2,180	#4,300	11,300	4,510	1,880	1,400
1924	-	-	-	-	-	-	-	#8,550	4,470	1,900	#1,170	#714	-
1938	-	-	-	-	-	-	-	#10,410	#12,160	-	-	-	-
1939	1,120	1,220	1,110	1,150	1,090	1,310	3,010	8,200	5,300	2,450	1,430	1,160	28,550
1940	1,090	1,010	1,030	893	815	1,100	2,210	4,930	3,140	1,570	1,300	1,210	20,300
1941	1,200	1,020	845	781	660	785	1,130	2,650	4,280	2,150	1,280	1,210	17,990
1942	1,200	1,220	1,490	849	823	996	3,970	9,050	12,900	4,780	2,330	1,120	40,730
1943	1,160	1,310	1,300	1,140	964	1,240	6,450	9,820	17,160	8,880	2,640	1,510	53,570
1944	1,410	1,340	1,280	1,060	720	628	1,350	5,050	8,820	4,430	2,090	1,540	29,700
1945	1,250	1,090	829	1,020	958	653	914	4,480	6,270	3,030	1,530	1,090	23,090
1946	992	862	797	946	644	1,050	2,830	5,500	5,160	2,620	1,390	1,370	24,160
1947	2,210	2,130	1,610	1,140	1,290	1,630	3,770	14,850	10,680	3,680	1,680	1,240	45,910
1948	1,700	1,520	1,500	1,610	954	859	3,450	18,200	18,500	4,970	2,420	1,540	57,220
1949	1,320	1,170	1,170	1,050	920	948	2,550	10,770	10,270	2,600	1,400	1,220	35,390
1950	1,200	1,080	958	851	694	762	1,460	5,690	14,400	6,810	1,940	1,350	37,200

* Not previously published; estimated on the basis of records for Bear Creek near Victor, Mont.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1920	512	347	June 16, 1920	-	-	-	-
1921	532	-	-	-	-	-	-
1922	552	620	June 10, 1922	-	-	-	-
1923	572	276	June 19, 1923	-	-	-	-
1924	592	268	May 18, 1924	-	-	-	-
1938	882	641	May 28, 1938	-	-	-	-
1939	882	192	May 4, 1939	-	39.4	28,550	39.0
1940	902	121	May 25, 1940	6	28.0	20,300	27.9
1941	932	119	June 4, 1941	8	24.9	17,990	26.0
1942	962	371	May 26, 1942	-	56.3	40,730	56.1
1943	982	382	June 19, 1943	-	74.0	53,570	74.4
1944	1012	183	June 19, 1944	8	40.9	29,700	39.7
1945	1042	139	June 4, 6, 1945	5.6	31.9	23,090	31.2
1946	1062	142	May 28, 1946	6	33.4	24,160	37.9
1947	1092	414	May 8, 1947	13	63.4	45,910	61.7
1948	1122	565	May 28, 1948	2	78.8	57,220	77.4
1949	1152	310	May 17, 1949	14	48.9	35,390	48.3
1950	1182	379	June 21, 1950	10	51.4	37,200	-

Note.--Records for December 1922, published in Water-Supply Papers 572 and 916 have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. Those records are not published herein and should not be used.

437. Lolo Creek near Lolo, Mont.

Location.--Lat 46°45'20", long. 114°13'00" (revised), in S $\frac{1}{2}$ NE $\frac{1}{4}$ sec. 34, T. 12 N., R. 21 W., on downstream end of left bridge abutment, $7\frac{1}{2}$ miles upstream from mouth, and 6 $\frac{1}{2}$ miles west of Lolo.

Drainage area.--231 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 3,430 ft (from topographic map).

Extremes.--1911-14: Maximum discharge observed, 2,500 cfs May 28, 1913 (gage height, 5.2 ft); minimum observed, 33 cfs Dec. 21, 22, 24, 26, 1911 (corrected), but may have been less at times during winter months.

Flood of May-June 1948 reached a discharge of 1,460 cfs, from determination of flow over dam about 4 miles upstream.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	719	945	262	93.3	78.3	-
1912	83.5	75.9	48.3	-	-	-	398	1,120	1,190	319	112	104	-
1913	97.9	132	71.5	-	-	-	#640	1,570	1,680	329	174	69.8	-
1914	75.4	82.5	75	70	55	142	508	1,160	706	247	82.5	80.2	274
1915	142	157	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet, of Lolo Creek near Lolo, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	44,200	56,200	16,100	5,740	4,680	-
1912	5,130	4,520	2,970	-	-	-	23,700	68,900	19,600	6,890	6,190	-	-
1913	6,020	7,860	4,400	-	-	-	*38,100	96,500	100,000	20,200	10,700	4,150	-
1914	4,640	4,910	4,610	4,300	3,050	8,730	30,200	71,300	42,000	15,200	5,070	4,770	199,000
1915	8,730	9,340	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1911	312	-	-	-	-	-	-	-
1912	332	1,600	(a)	-	-	-	-	-
1913	362	2,500	May 28, 1913	-	-	-	-	-
1914	392	1,600	May 25, 1914	-	274	199,000	-	-

a May 21, 23, 26, 27, 29, 30, June 10, 1912.

Note.--Records for December 1914 to September 1915 published in Water-Supply Papers 412 and 916 have been found in error on the basis of restudy of original data. These records are not published herein and should not be used.

438. Bitterroot River near Missoula, Mont.

Location (revised).--Lat 46°49'20", long. 114°04'30", in center of S½ sec. 2, T. 12 N., R. 20 W., on downstream rail of bridge 4 miles southwest of Missoula and 5 miles upstream from mouth.

Drainage area.--2,812 sq mi (revised).

Gage.--Chain gage. Altitude of gage is 3,120 ft (from topographic map).

Extremes.--1898-1901, 1903-4: Maximum discharge observed, 38,900 cfs June 20, 1899 (gage height, 11.55 ft); minimum observed, 370 cfs Sept. 16-29, 1904 (gage height, 1.12 ft).

Remarks.--Many diversions for irrigation above station (about 17,000 acres irrigated in 1890; about 73,000 acres in 1900; about 100,000 acres in 1905).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	-	-	a5,080	1,200	1,020	-
1899	1,150	1,150	a990	a1,050	a820	1,070	2,840	7,730	21,900	14,500	3,410	1,620	a 4,860
1900	1,470	1,480	1,350	1,220	a980	1,650	3,630	9,870	7,350	1,820	869	1,140	a 2,740
1901	*1,260	a1,310	1,150	a1,160	a1,300	1,690	a1,790	11,000	5,020	*2,460	995	1,130	*2,540
1902	1,160	1,150	-	-	-	-	-	-	-	-	-	-	-
1903	-	-	-	-	-	-	-	*4,290	a13,000	a3,350	*885	*846	-
1904	*1,570	*1,370	*1,420	799	788	1,430	4,590	9,030	a8,880	3,470	a930	455	*2,900
1905	568	614	530	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; records partly estimated on the basis of weather records and records for Clark Fork at Missoula.

a Only monthly figures revised; revised daily figures not available.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1898	-	-	-	-	-	-	-	-	-	a312	73.8	60.8	-
1899	70.6	68.7	a60.9	a64.6	a45.5	65.8	169	475	1,300	891	210	96.5	a3,520
1900	90.4	87.9	83.1	75.1	a54.4	102	216	607	438	112	53.4	67.7	a1,990
1901	*77.5	a78.0	70.6	a71.3	a72.2	104	a107	678	299	*151	61.2	67.5	*1,840
1902	71.1	68.4	-	-	-	-	-	-	-	-	-	-	-
1903	-	-	-	-	-	-	-	*264	a174	a206	*54.4	*50.3	-
1904	*96.5	*81.5	*87.3	49.1	45.3	88.2	273	555	a528	213	a57.2	27.1	*2,100
1905	35.0	36.5	32.6	-	-	-	-	-	-	-	-	-	-

* Revised.

* Not previously published; see footnote to preceding table.

a Only monthly figures revised; revised daily figures not available.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1898	(a)	-	-	-	-	-	-	-
1899	(b)	*38,300	June 20, 1899	-	*4,860	*3,520,000	*4,950	*3,580,000
1900	(c)	18,200	May 13, 1900	-	*2,740	*1,990,000	*2,690	*1,950,000
1901	1246,75	18,400	May 30, 1901	-	*2,540	*1,840,000	-	-
1902	75	-	-	-	-	-	-	-
1903	916	*19,700	June 5, 1903	-	-	-	-	-
1904	916,135	18,300	May 25, 1904	370	*2,900	*2,100,000	*2,670	*1,940,000
1905	916,135	-	-	-	-	-	-	-

* Revised.

* Not previously published.

a 20th Ann. Rept., Pt. 4.

b 21st Ann. Rept., Pt. 4.

c 22nd Ann. Rept., Pt. 4.

439. Clark Fork below Missoula, Mont.

Location.--Lat 46°52'10", long. 114°07'30", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 21, T. 13 N., R. 20 W., on right bank 2 miles downstream from Bitterroot River and 5 miles west of Missoula.

Drainage area.--9,003 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,090 ft (from topographic map).

Average discharge.--21 years (1929-50), 4,771 cfs.

Extremes.--1929-50: Maximum discharge, 52,800 cfs May 23, 1948 (gage height, 12.08 ft); minimum, 388 cfs Jan. 18, 1933 (gage height, 0.58 ft, backwater from ice).

Remarks.--Some regulation by power plant at Bonner. Many diversions for irrigation of about 235,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1930	2,060	2,100	2,440	1,380	2,900	2,860	9,610	11,800	8,980	2,890	1,650	1,950	4,220
1931	2,900	2,590	1,900	1,800	1,910	2,110	2,960	7,950	5,270	1,360	810	1,190	2,730
1932	1,560	1,490	1,520	1,410	1,640	2,390	4,230	14,900	14,300	4,300	1,680	1,490	4,250
1933	1,940	2,320	1,480	1,660	1,110	2,030	4,030	11,200	27,200	5,620	1,750	1,700	5,170
1934	2,700	4,150	3,950	4,400	4,232	6,028	16,500	15,110	7,843	2,866	1,356	1,399	5,875
1935	2,392	2,845	2,207	1,995	2,035	2,421	3,556	10,090	10,930	3,488	1,263	1,010	3,690
1936	1,475	1,842	1,570	1,492	1,321	2,482	8,414	17,190	10,430	2,307	1,195	1,574	4,277
1937	1,679	1,749	1,625	871	1,249	1,743	2,379	8,306	7,247	2,043	1,117	909	2,582
1938	1,393	1,471	1,714	1,512	1,498	2,334	5,340	15,040	18,890	7,259	1,957	1,575	4,999
1939	2,231	2,414	2,279	1,996	1,712	2,203	6,473	15,750	8,257	2,989	1,243	1,367	4,175
1940	1,843	1,812	1,852	1,542	1,920	2,651	5,222	10,140	6,023	1,634	1,002	1,162	3,068
1941	2,308	1,940	1,812	1,495	1,489	1,772	2,302	5,113	6,612	2,353	1,355	2,624	2,599
1942	3,024	3,050	3,160	2,053	1,992	2,575	6,922	12,280	16,550	5,085	1,797	1,725	5,020
1943	2,517	2,852	2,692	2,338	2,562	3,792	15,620	16,150	25,440	12,510	3,262	2,349	7,656
1944	2,338	2,893	1,957	1,702	1,715	2,026	2,636	7,502	11,620	4,133	2,067	1,119	3,540
1945	1,942	2,114	1,468	1,920	1,903	1,949	2,506	10,530	14,340	4,528	1,594	1,624	3,872
1946	2,348	2,600	2,123	2,150	1,956	2,782	6,760	12,670	10,680	4,651	2,020	2,806	4,469
1947	4,481	4,260	4,626	2,944	3,329	4,714	8,276	25,810	18,060	6,008	2,836	2,798	7,367
1948	4,114	3,725	3,435	3,292	3,028	3,096	7,583	27,670	30,100	8,076	3,908	2,416	8,355
1949	2,900	2,812	2,075	1,602	2,255	3,149	8,352	21,560	14,480	4,044	2,056	2,371	5,649
1950	2,769	2,766	2,474	2,145	2,784	3,365	5,437	12,550	26,620	11,580	4,179	2,752	6,622

Monthly and yearly runoff, in thousands of acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1930	127	125	150	84.8	161	176	572	726	534	178	101	116	3,050
1931	178	154	117	110	106	130	176	489	314	83.7	49.8	71.1	1,980
1932	95.9	98.7	93.5	86.7	94.3	147	252	916	851	264	102	98.7	3,080
1933	119	138	91	102	61.6	125	240	889	1,620	346	108	101	3,740
1934	166	247	243	271	235.1	370.7	981.8	929.3	466.7	176.2	83.4	83.25	4,253
1935	147.1	169.3	135.7	122.7	113	148.8	211.6	620.4	650.4	214.5	77.63	60.11	2,671
1936	90.7	109.6	96.52	91.78	75.97	152.6	500.6	1,057	620.8	141.9	73.49	93.64	3,105
1937	103.2	104.1	99.95	53.55	69.38	107.2	141.5	510.7	451.2	125.6	68.67	54.08	1,869
1938	85.67	87.51	105.4	92.96	83.2	137.4	317.7	924.5	1,124	446.4	120.4	93.7	3,619
1939	137.2	143.6	140.1	122.7	95.08	196.9	385.2	968.7	491.3	183.8	76.42	81.32	5,022
1940	113.3	107.8	113.9	94.84	110.4	163	310.7	625.5	358.4	100.5	61.59	69.17	2,227
1941	141.9	115.5	111.4	91.93	82.67	108.9	137	314.4	393.4	144.7	83.31	156.2	1,881
1942	185.9	181.5	194.3	126.2	110.6	158.3	411.9	755.3	964.6	312.7	110.5	102.7	3,634
1943	142.5	169.7	165.5	143.8	142.3	233.2	929.6	993	1,514	769.5	200.6	139.8	5,544
1944	162.2	172.2	120.3	104.7	98.64	124.6	156.9	461.3	691.4	254.1	127.1	96.34	2,570
1945	119.4	125.8	91.52	118.1	105.7	119.8	149.1	647.4	853.4	278.4	98	96.7	2,803
1946	144.4	154.7	130.5	132.2	108.6	171	402.3	776.9	635.6	286	124.2	167	3,235
1947	275.6	253.5	284.4	181	184.9	289.8	492.5	1,587	1,075	369.4	174.4	166.5	5,534
1948	253	221.7	211.2	202.4	174.1	190.4	439.3	1,701	1,791	469.6	240.3	143.8	6,065
1949	178.3	167.3	127.6	96.5	125.2	193.6	497	1,326	861.5	248.7	125.2	141.1	4,090
1950	170.3	164.6	152.1	131.9	154.6	208.1	323.5	771.7	1,584	712.3	257	163.7	4,794

Yearly discharge, in cubic feet per second								
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1930	707	17,500	Apr. 26, 1930	1,010	4,220	3,050,000	4,280	3,100,000
1931	722,1042	12,200	May 18, 1931	682	2,730	1,980,000	2,500	1,810,000
1932	737	*25,800	May 23, 1932	910	4,250	3,080,000	4,350	3,150,000
1933	752	56,800	June 11, 1933	580	5,170	3,740,000	5,587	4,049,000
1934	767	25,700	Apr. 26, 1934	1,110	5,875	4,253,000	5,593	4,050,000
1935	792	*20,200	May 25, 1935	875	3,690	2,671,000	3,475	2,516,000
1936	812	26,900	May 16, 1936	800	4,277	3,105,000	4,291	3,115,000
1937	832	11,700	May 27, 1937	660	2,582	1,869,000	2,542	1,840,000
1938	862	35,700	May 30, 1938	810	4,999	3,619,000	5,195	3,761,000
1939	882	22,000	May 5, 1939	997	4,175	3,022,000	4,056	2,936,000
1940	902	14,200	May 13, 1940	770	3,068	2,227,000	3,114	2,261,000

* Revised.

Yearly discharge, in cubic feet per second, of Clark Fork below Missoula, Mont.--Continued

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1941	932	10,400	June 2, 1941	920	2,599	1,881,000	2,865	2,074,000
1942	962	30,500	May 27, 1942	1,260	5,020	3,634,000	4,904	3,550,000
1943	982	33,200	June 20, 1943	1,400	7,656	5,544,000	7,625	5,520,000
1944	1012	14,400	June 18, 1944	1,180	3,540	2,570,000	3,377	2,452,000
1945	1042	19,100	June 2, 1945	853	3,872	2,803,000	4,001	2,896,000
1946	1062	*19,700	May 29, 1946	1,280	4,469	3,235,000	4,999	3,619,000
1947	1092	45,900	May 10, 1947	1,850	7,367	5,334,000	7,191	5,206,000
1948	1122	52,800	May 23, 1948	1,910	8,355	6,065,000	8,062	5,852,000
1949	1152	34,300	May 17, 1949	1,200	5,649	4,080,000	5,668	4,104,000
1950	1182	39,100	June 18, 1950	1,250	6,622	4,794,000	-	-

* Revised.

440. Clark Fork at Tarkio, Mont.

Location (revised).--Lat 47°01'10", long. 114°44'10", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 34, T. 15 N., R. 25 W., on right bank a quarter of a mile northwest of Tarkio, 1 mile upstream from Quartz Creek, 3 $\frac{1}{2}$ miles downstream from Fish Creek, and 15 miles west of Alberton.

Drainage area.--9,882 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 2,750 ft (by barometer).

Average discharge.--5 years (1944-1949), 7,094 cfs.

Extremes.--1944-1949: Maximum discharge, 63,200 cfs May 30, 1948 (gage height, 30.35 ft, from graph based on gage readings); minimum daily, 1,200 cfs Dec. 26, 1944.

Remarks.--Diversions for irrigation of about 235,000 acres above station. Some regulation by power plant at Bonner.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	2,413	2,565	1,903	2,374	2,364	2,403	3,160	12,800	16,270	5,553	2,122	2,142	4,676
1946	2,751	2,999	2,511	2,489	2,234	3,229	7,941	14,530	12,240	5,561	2,385	3,171	5,178
1947	4,955	4,976	5,634	3,556	4,068	5,736	9,994	30,130	19,700	6,960	3,366	3,275	8,556
1948	4,645	4,138	3,870	3,846	3,521	3,552	9,549	33,210*	37,860	8,991	4,448	2,916	*10,040
1949	3,360	3,358	2,584	1,906	2,659	3,633	10,310	28,200	17,830	4,860	2,507	2,801	7,020

* Revised.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	148.3	152.6	117	145.9	131.3	147.8	188	786.8	968.1	341.4	130.5	127.5	3,385
1946	169.2	178.4	154.4	153.1	124.1	198.5	472.5	893.2	728.1	341.9	146.7	188.7	3,749
1947	304.7	296.1	346.4	218.7	225.9	352.7	594.7	1,853	1,172	428	207	194.9	6,194
1948	285.6	246.2	238	236.5	202.5	218.4	568.22	2,042	2,253	552.9	273.5	173.5	*7,230
1949	206.6	199.8	158.9	117.2	147.7	223.4	613.8	1,734	1,061	298.8	154.2	166.7	5,082

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1945	1042	21,600	June 2, 1945	1,200	4,676	3,385,000	4,792	3,469,000
1946	1062	20,600	May 29, 1946	1,600	5,178	3,749,000	5,793	4,194,000
1947	1092	a55,000	May 10, 1947	2,250	8,556	6,194,000	8,511	6,017,000
1948	1246,1122	63,200	May 30, 1948	2,250	*10,040	*7,230,000	*9,761	*7,086,000
1949	1152	-	May 30, 1949	1,500	7,020	5,082,000	-	-

* Revised.

a Maximum observed.

441. St. Regis River near St. Regis, Mont.

Location.--Lat 47°17'40", long. 115°10'00", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 28, T. 18 N., R. 28 W., on left bank just downstream from Twomile Creek, 2 miles upstream from Little Joe Creek, 3 miles west of St. Regis, and 3 $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--300 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 2,720 ft (from topographic map).

Extremes.--1910-17: Maximum discharge observed, 7,740 cfs May 28, 1917 (gage height 8.65 ft); minimum observed, 85 cfs Aug. 30 to Sept. 2, 1915 (gage height, 1.75 ft).

Flood in May 1948 reached a discharge of 4,650 cfs, on the basis of slope-area determination of peak flow.

Remarks.--Diversions for irrigation of hay meadows above station.

Monthly and yearly mean discharge, in cubic feet per second, of St. Regis River near St. Regis, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	-	\$127	-
1911	210	443	a120	-	-	687	1,670	1,910	1,320	375	184	145	-
1912	124	-	-	-	#165	200	1,400	*2,060	1,070	266	123	132	-
1913	131	-	-	-	-	#290	1,740	3,270	1,760	401	174	108	-
1914	123	162	-	-	-	*542	1,750	1,900	617	229	145	204	-
1915	175	590	-	-	-	-	1,130	671	388	190	110	-	-
1916	91.0	-	-	-	-	-	2,060	*2,850	*3,060	*1,150	313	192	-
1917	-	-	-	-	-	-	*1,600	*4,700	2,550	668	*210	*145	-

* Revised.

† Corrected.

Not previously published; partly estimated on the basis of occasional gage readings and records for Clark Fork at St. Regis.

a Only monthly figures revised; revised daily figures not available.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	-	*7,560	-
1911	12,900	26,400	a7,380	-	#9,490	42,200	99,400	117,000	78,600	23,100	11,300	8,630	-
1912	7,620	-	-	-	-	12,300	83,300	*127,000	63,700	16,400	7,560	7,860	-
1913	8,060	-	-	-	-	*17,800	104,000	201,000	105,000	24,700	10,700	6,430	-
1914	7,560	9,640	-	-	-	*33,300	104,000	117,000	36,700	14,100	8,920	12,100	-
1915	10,800	35,100	-	-	-	-	67,200	41,300	23,100	11,700	6,760	-	-
1916	5,600	-	-	-	-	-	123,000	175,000	182,000	*70,700	19,200	11,400	-
1917	-	-	-	-	-	-	*95,200	*289,000	152,000	41,100	*12,900	*8,630	-

* Revised.

Not previously published; see footnote to preceding table.

a Only monthly figures revised; revised daily figures not available.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1910	312	-	-	-	-	-	-	-
1911	312	3,880	(a)	-	-	-	-	-
1912	1246,332	3,100	May 21, 1912	-	-	-	-	-
1913	362	6,220	May 28, 1913	-	-	-	-	-
1914	392	2,970	Apr. 23, 24, 1914	-	-	-	-	-
1915	412	1,900	Apr. 15, 16, 1915	-	-	-	-	-
1916	462	5,900	May 7, 1916	-	-	-	-	-
1917	462	-	-	-	-	-	-	-

a Apr. 25, May 6, 1911.

442. Clark Fork at St. Regis, Mont.

Location.--Lat 47°18'05", long. 115°05'15", in center of SW $\frac{1}{4}$ sec. 19, T. 18 N., R. 27 W., on left bank at St. Regis and half a mile downstream from St. Regis River.

Drainage area.--10,709 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 2,600 ft (by barometer). Prior to Nov. 29, 1933, staff gage at same site and datum.

Average discharge.--40 years (1910-50), 7,185 cfs.

Extremes.--1910-50: Maximum discharge, 68,900 cfs May 24, 1948 (gage height, 19.96 ft); minimum recorded, 1,000 cfs Dec. 17, 1940 (gage height, 3.36 ft), but may have been less during period of ice effect Feb. 19-22, 1929.

Remarks.--Diversions for irrigation of about 244,000 acres above station. Some diurnal fluctuation at low flows caused by powerplant at Bonner.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	4,620	5,210	3,850	3,170	2,920	4,980	9,270	16,900	25,200	9,300	4,060	3,680	7,770
1912	4,330	3,520	3,030	2,830	3,140	3,030	10,000	25,100	31,900	11,500	5,120	4,900	9,030
1913	4,740	4,640	3,550	3,120	3,520	3,950	13,200	31,100	40,300	12,300	4,930	3,130	10,700
1914	3,700	3,810	2,800	2,850	2,720	4,440	9,920	25,000	19,000	6,280	3,000	2,890	7,220
1915	4,110	4,950	2,980	2,590	2,710	3,190	7,000	10,600	15,000	8,650	4,300	3,770	5,830
1916	3,710	*3,360	3,100	*2,300	*3,120	*9,020	14,300	25,600	34,900	25,500	6,730	4,800	*11,400
1917	5,110	4,250	*3,290	*3,180	3,780	*3,370	9,530	32,300	41,100	17,700	4,840	4,230	*11,100
1918	3,650	3,930	8,070	10,500	5,370	6,820	17,200	25,800	30,800	7,840	5,750	4,060	10,800
1919	4,330	3,800	3,100	3,000	2,910	3,610	9,200	17,400	10,700	2,980	2,130	1,850	5,420
1920	2,280	2,570	2,370	*3,720	*2,930	3,390	6,860	22,200	24,400	9,230	3,580	3,590	*7,260

* Revised; supersedes estimate published in Water-Supply Paper 916.

† Corrected.

Monthly and yearly mean discharge, in cubic feet per second, of Clark Fork at St. Regis, Mont.--Con.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1921	4,980	4,150	3,510	3,480	3,940	6,100	10,600	28,200	26,000	6,800	2,970	3,030	8,670
1922	3,020	2,830	3,890	2,830	2,410	2,990	6,940	24,800	33,200	7,380	3,350	3,050	8,070
1923	2,630	2,830	2,650	3,200	2,570	3,650	9,490	20,800	25,200	9,490	3,800	2,640	7,260
1924	\$2,960	\$2,770	\$2,540	\$1,600	\$3,900	\$3,280	\$4,880	\$19,500	\$9,320	\$3,340	\$2,140	\$1,940	\$4,850
1925	\$2,790	\$3,000	\$3,020	\$3,820	\$5,520	\$5,320	\$16,100	\$28,400	\$17,700	\$5,100	\$2,770	\$2,780	\$8,020
1926	\$3,460	\$2,920	\$2,740	\$2,450	\$2,910	\$3,330	\$8,730	\$10,400	\$5,390	\$1,840	\$1,990	\$2,450	\$4,050
1927	\$3,200	\$3,600	\$4,090	\$2,970	\$3,770	\$4,330	\$7,980	\$21,100	\$37,000	\$10,000	\$3,940	\$4,400	\$8,860
1928	\$4,800	\$7,800	\$7,460	\$5,520	\$4,580	\$6,820	\$10,700	\$34,500	\$20,000	\$10,300	\$3,850	\$3,220	\$9,990
1929	\$3,740	\$3,220	\$2,370	\$1,450	\$2,050	2,330	3,390	14,400	18,400	5,600	2,350	1,920	\$5,110
1930	2,430	2,410	3,010	2,100	3,750	3,740	13,100	14,800	11,100	3,960	2,280	2,520	5,430
1931	3,270	2,980	2,540	2,360	2,370	2,720	4,190	10,900	6,400	2,000	1,450	1,680	3,580
1932	1,990	1,940	2,160	1,910	2,130	3,550	7,490	24,700	18,300	5,940	2,530	2,170	5,980
1933	2,520	2,230	2,700	2,800	2,380	3,010	6,700	16,000	37,000	7,720	2,810	2,760	7,460
1934	4,555	7,047	10,710	8,520	6,927	10,130	24,880	21,090	10,750	3,675	2,083	1,986	9,364
1935	2,964	3,885	2,942	2,987	2,902	3,167	5,972	15,900	16,080	5,457	2,057	1,558	5,494
1936	1,942	2,230	1,922	1,935	1,592	3,292	11,920	22,440	13,690	3,359	1,933	2,123	5,701
1937	2,148	2,135	1,909	1,474	2,090	2,139	3,333	12,260	10,150	3,041	1,703	1,351	3,656
1938	1,854	1,946	2,217	2,060	1,980	2,974	8,770	20,540	24,030	9,119	2,730	2,140	6,708
1939	2,808	2,997	2,907	2,583	2,233	3,879	8,984	19,660	10,470	3,964	1,828	1,887	5,368
1940	2,287	2,283	2,453	2,112	2,487	3,979	7,644	13,390	8,015	2,309	1,503	1,566	4,170
1941	2,706	2,321	2,334	1,993	1,961	2,450	3,509	7,190	8,263	3,223	1,884	3,183	3,420
1942	3,755	3,915	4,880	2,845	2,814	3,351	9,504	15,120	19,940	6,743	2,547	2,385	6,487
1943	2,803	3,592	3,475	3,039	3,505	4,689	21,420	22,220	32,630	16,000	4,543	3,207	10,090
1944	5,341	3,612	2,550	2,328	2,291	2,590	3,793	9,580	15,310	5,344	2,738	2,219	4,471
1945	2,950	2,695	2,065	2,610	2,566	2,609	3,697	15,040	17,760	6,097	2,423	2,276	5,203
1946	2,553	3,249	2,868	2,898	2,523	3,611	9,351	17,570	13,790	6,009	2,675	3,410	5,915
1947	5,262	5,555	6,388	3,839	4,670	6,319	11,750	33,310	22,160	7,435	3,559	3,445	9,543
1948	5,062	4,591	4,302	4,381	3,898	4,010	11,220	37,180	39,420	10,230	5,124	3,293	11,060
1949	3,731	3,683	2,822	2,161	3,365	4,124	11,340	30,010	18,680	5,393	2,748	2,934	7,585
1950	3,540	3,598	3,448	2,892	3,168	5,075	8,968	19,000	36,230	15,870	5,626	3,956	9,298

* Not previously published; estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	284	310	237	195	162	306	552	1,040	1,500	572	250	219	5,630
1912	266	209	186	174	181	186	595	1,540	1,900	707	315	292	6,550
1913	291	276	218	192	195	243	786	1,910	2,400	756	303	186	7,760
1914	228	227	172	174	151	273	590	1,540	1,130	386	184	172	5,230
1915	253	295	185	159	151	196	417	652	893	532	264	224	4,220
1916	228	200	191	*141	*179	*555	851	1,570	2,080	1,570	414	286	*8,260
1917	314	253	*202	*196	210	*207	567	1,990	2,450	1,090	298	252	*8,030
1918	224	234	496	646	298	419	1,020	1,590	1,830	482	354	242	7,840
1919	266	226	191	184	162	222	547	1,070	637	183	131	109	3,930
1920	140	153	146	*229	*169	208	408	1,360	1,450	568	220	214	*5,260
1921	306	247	216	214	219	375	631	1,750	1,550	418	183	180	6,270
1922	186	168	245	174	134	184	413	1,520	1,980	454	206	181	5,840
1923	162	168	163	197	145	224	565	1,280	1,380	584	234	157	5,260
1924	*182	*165	*156	*98.4	*224	*202	*290	*1,200	*555	*205	*132	*115	*3,520
1925	*172	*179	*186	*235	*307	*327	*958	*1,750	*1,050	*514	*170	*165	*5,810
1926	*213	*174	*168	*149	*162	*205	*519	*640	*321	*113	*122	*146	*2,930
1927	*197	*214	*251	*183	*209	*266	*475	*1,300	*2,200	*615	*242	*262	*6,410
1928	*295	*464	*459	*539	*263	*419	*637	*2,120	*1,190	*633	*237	*192	*7,250
1929	*230	*192	*146	*89.2	*114	*143	202	885	1,090	344	144	114	*3,690
1930	149	145	185	129	207	230	780	910	660	243	140	150	3,950
1931	201	177	156	145	132	167	249	670	381	123	89.2	100.2	2,590
1932	122	115	133	117	123	206	446	1,330	1,090	365	156	129	4,330
1933	155	192	166	172	132	185	399	984	2,200	475	173	164	5,400
1934	280.7	419.3	658.3	523.9	384.7	622.8	1,481	1,297	639.6	226	268.1	118.2	6,780
1935	181.6	231.2	180.9	183.6	161.2	194.8	355.4	977.4	957	335.5	126.5	92.73	3,988
1936	119.4	132.7	118.2	119	91.56	202.5	709.4	1,380	814.8	206.5	118.8	126.3	4,139
1937	132.1	126.9	117.4	90.64	116.1	135.2	198.3	754	804	187	104.7	80.39	2,647
1938	114	115.6	136.3	126.6	110	192.9	621.9	263.3	1,450	560.7	167.9	127.3	4,856
1939	172.7	176.3	178.4	158.8	124	238.5	534.6	61,209	623.2	243.7	112.4	112.3	3,886
1940	140.6	135.8	150.8	129.8	143	244.7	454.8	823.1	476.9	142	92.43	93.16	3,027
1941	166.4	138.1	145.5	122.5	108.9	150.6	208.8	442.1	491.7	198.2	115.8	189.4	2,476
1942	230.9	233	300	174.9	156.3	206	565.5	930	1,187	414.6	156.6	141.9	4,697
1943	172.4	213.8	213.7	186.9	194.7	288.3	1,275	1,366	1,942	983.7	279.3	190.8	7,307
1944	205.4	214.9	156.8	143.1	131.8	159.3	225.7	589	792	328.8	166.9	132.1	3,246
1945	155.5	160.4	126.9	160.5	142.5	160.4	220	924.8	1,057	374.9	149	135.4	3,767
1946	181.7	193.3	172.5	178.2	140.1	222	556.4	1,081	820.4	369.5	164.5	202.9	4,282
1947	323.5	330.5	423.5	236.1	259.4	388.6	699.3	2,048	1,318	457.2	218.8	205	6,908
1948	311.3	273.2	264.5	269.4	224.2	246.5	667.8	2,268	2,346	629.2	315.1	196	8,029
1949	229.4	219.2	173.5	132.9	175.8	253.6	675	1,845	1,111	331.6	169	174.6	5,491
1950	217.7	214.1	212	177.8	200.9	312.1	533.5	1,168	2,156	976	345.9	217.5	6,732

* Revised; supersedes estimate published in Water-Supply Paper 916.

* Not previously published; estimated on the basis of records for nearby stations.

Yearly discharge, in cubic feet per second, of Clark Fork at St. Regis, Mont.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1911	312	33,800	June 14, 1911	2,390	7,770	5,630,000	7,540	5,460,000
1912	332	41,400	June 12, 1912	1,710	9,030	6,550,000	9,200	6,680,000
1913	362	63,500	May 30, 1913	2,280	10,700	7,760,000	10,500	7,600,000
1914	392	35,000	May 15, 1914	2,480	7,220	5,230,000	7,370	5,330,000
1915	412	17,300	June 21, 1915	2,200	5,830	4,220,000	5,670	4,110,000
1916	916,442	*53,000	June 20, 1916	-	*11,400	*8,260,000	*11,600	*8,420,000
1917	916,462	59,100	May 29, 1917	-	*11,100	*8,030,000	*11,300	*8,210,000
1918	482	48,400	June 14, 1918	3,160	10,800	7,840,000	10,500	7,560,000
1919	512	29,300	May 31, 1919	1,680	5,420	3,930,000	*5,980	*3,860,000
1920	916,512	32,100	(a)	-	*7,260	*5,260,000	*7,720	*5,600,000
1921	532	41,800	May 28, 1921	2,340	8,670	6,270,000	8,430	6,100,000
1922	552	47,200	June 8, 1922	1,330	8,070	5,840,000	7,930	5,740,000
1923	572	33,100	June 12, 1923	1,660	7,260	5,260,000	*7,270	*5,270,000
1924	-	-	-	-	*4,850	*3,520,000	*4,900	*3,560,000
1925	-	-	-	-	*8,020	*5,810,000	*8,050	*5,830,000
1926	-	-	-	-	*4,050	*2,930,000	*4,200	*3,040,000
1927	-	-	-	-	*8,860	*6,410,000	*9,630	*6,970,000
1928	-	-	-	-	*9,990	*7,250,000	*9,090	*6,600,000
1929	692	*32,600	May 26, 1929	-	*5,110	*3,690,000	*4,990	*3,600,000
1930	707	*22,200	Apr. 26, 1930	1,430	5,430	3,930,000	5,510	3,980,000
1931	722	*15,900	May 17, 1931	1,280	3,580	2,590,000	3,350	2,430,000
1932	737	32,700	May 23, 1932†	1,430	5,980	4,330,000	6,170	4,480,000
1933	752	*49,000	June 11, 1933	1,200	7,460	5,400,000	8,628	6,242,000
1934	767	35,700	Apr. 26, 1934	1,760	9,364	6,780,000	8,308	6,015,000
1935	792	27,400	May 25, 1935†	1,510	5,494	3,968,000	5,186	3,754,000
1936	812	34,000	May 17, 1936	1,080	5,701	4,139,000	5,709	4,145,000
1937	832	17,100	May 28, 1937	1,180	3,656	2,647,000	3,642	2,636,000
1938	862	46,400	May 31, 1938	1,260	6,708	4,856,000	6,933	5,020,000
1939	882	26,100	May 5, 1939	1,280	5,368	3,886,000	5,227	3,784,000
1940	902	17,200	May 13, 1940	1,220	4,170	3,027,000	4,199	3,048,000
1941	932	12,000	June 3, 1941	1,180	3,420	2,476,000	3,856	2,792,000
1942	962	35,800	May 28, 1942	1,700	6,487	4,697,000	6,260	4,533,000
1943	982	41,300	June 21, 1943	1,430	10,090	7,307,000	10,060	7,284,000
1944	1012	16,000	June 18, 1944	1,690	4,471	3,246,000	4,286	3,111,000
1945	1042	23,900	June 2, 1945	1,250	5,203	3,767,000	5,348	3,872,000
1946	1062	23,900	May 30, 1946	2,000	5,915	4,282,000	6,647	4,812,000
1947	1092	54,600	May 10, 1947	2,400	9,543	6,908,000	9,227	6,679,000
1948	1122	68,900	May 24, 1948	2,420	11,060	8,029,000	10,750	7,802,000
1949	1152	47,900	May 17, 1949	1,800	7,585	5,491,000	7,615	5,512,000
1950	1182	51,200	June 19, 1950	1,900	9,298	6,732,000	-	-

* Revised.

† Corrected.

a May 18, June 17, 1920.

443. Flathead River at Flathead, British Columbia 1/

Location.--Lat 49°00'00", long. 114°29'00", on left bank at highway bridge, 0.2 mile north of international boundary, 0.2 mile northwest of Flathead, British Columbia, and 7 miles northwest of Trail Creek, Montana.

Drainage area.--450 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 3,980 ft (from topographic map). Prior to Sept. 1, 1949, staff gage on center pier of bridge, at same site and datum.

Extremes.--1929-50: Maximum discharge observed, 14,600 cfs May 23, 1948 (gage height, 9.1 ft, from floodmark), from rating extended above 8,000 cfs; minimum observed, 65 cfs Apr. 9, 1929, but was probably less during periods of no record during winter.

Remarks.--No diversion above station.

Cooperation.--This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	275	2,660	2,970	661	296	215	-
1930	178	-	-	-	-	-	1,130	2,420	2,120	622	289	208	-
1931	176	-	-	-	-	-	318	2,440	1,190	387	188	164	-
1932	147	-	-	-	-	-	756	4,050	3,680	892	394	261	-
1933	301	401	-	-	-	-	534	3,140	5,460	1,270	423	318	-
1934	757	707	-	-	-	-	2,980	4,840	1,980	603	275	192	-
1935	181	574	-	-	-	-	356	3,250	3,690	1,100	374	230	-

1/ Published as Flathead River near Trail Creek, Mont. prior to 1:35.

Monthly and yearly mean discharge, in cubic feet per second, of Flathead River at Flathead, British Columbia--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	198	174	134	-	-	-	1,080	3,630	1,420	406	220	175	-
1937	138	124	-	-	-	-	299	3,110	2,210	654	308	185	-
1938	273	452	-	-	-	-	1,720	4,340	3,800	931	385	249	-
1939	226	-	-	-	-	-	1,680	3,170	1,440	594	246	204	-
1940	190	225	-	-	-	-	-	3,110	1,390	405	225	227	-
1941	-	-	-	-	-	-	-	1,930	934	422	212	468	-
1942	623	-	-	-	-	-	1,430	3,360	2,700	1,180	463	344	-
1943	272	-	-	-	-	-	-	2,450	2,850	1,240	415	248	-
1944	212	176	-	-	-	-	550	1,670	1,050	383	230	214	-
1945	225	164	-	-	-	-	-	3,200	2,410	763	284	242	-
1946	228	-	-	-	-	-	1,420	4,820	3,170	988	370	269	-
1947	302	-	-	-	-	-	1,310	4,680	2,330	715	376	360	-
1948	1,280	643	-	-	-	-	-	5,580	3,690	954	654	289	-
1949	239	196	-	-	-	-	1,280	4,110	1,910	601	291	240	-
1950	230	388	-	-	-	-	-	3,530	4,570	1,630	543	271	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	16,400	164,000	177,000	40,600	18,200	12,800	-
1930	10,900	-	-	-	-	-	67,200	149,000	126,000	38,200	17,800	12,400	-
1931	10,800	-	-	-	-	-	18,900	150,000	70,800	23,800	11,600	9,760	-
1932	9,040	-	-	-	-	-	45,000	249,000	219,000	54,800	24,200	15,500	-
1933	18,500	23,900	-	-	-	-	31,800	193,000	326,000	78,100	26,000	18,900	-
1934	46,500	42,100	-	-	-	-	176,000	298,000	118,000	37,100	16,900	11,400	-
1935	11,100	34,200	-	-	-	-	21,200	200,000	220,000	67,600	23,000	13,700	-
1936	12,200	10,300	8,230	-	-	-	64,500	223,000	84,500	25,000	13,500	10,400	-
1937	8,480	7,370	-	-	-	-	17,800	191,000	131,000	40,200	18,900	10,900	-
1938	16,800	26,900	-	-	-	-	102,000	267,000	226,000	57,200	23,500	14,800	-
1939	13,900	-	-	-	-	-	100,000	195,000	85,800	36,600	15,200	12,100	-
1940	11,660	13,380	-	-	-	-	-	191,400	82,670	24,900	13,860	13,490	-
1941	-	-	-	-	-	-	-	118,600	55,560	25,930	13,030	27,870	-
1942	38,320	-	-	-	-	-	85,360	206,900	160,500	72,280	28,450	20,480	-
1943	16,750	-	-	-	-	-	-	150,700	169,500	76,160	25,540	14,780	-
1944	13,030	10,490	-	-	-	-	32,700	103,000	62,740	23,560	14,170	12,740	-
1945	13,860	9,780	-	-	-	-	-	196,500	143,700	46,920	17,460	14,430	-
1946	14,040	-	-	-	-	-	84,790	296,200	188,500	60,720	22,770	16,000	-
1947	18,590	-	-	-	-	-	77,990	287,900	138,800	43,940	23,120	21,420	-
1948	79,010	38,270	-	-	-	-	-	343,400	19,700	58,670	40,220	17,180	-
1949	14,720	11,690	-	-	-	-	76,070	252,500	113,400	36,960	17,910	14,270	-
1950	14,150	23,060	-	-	-	-	-	217,000	272,100	100,500	33,370	16,110	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1929	692	a7,750	May 24, 1929	-	-	-	-	-
1930	707	a4,760	May 31, 1930	-	-	-	-	-
1931	722	a5,400	May 15, 1931	-	-	-	-	-
1932	737	a8,030	May 22, 1932	-	-	-	-	-
1933	752	a10,600	June 17, 1933	-	-	-	-	-
1934	767	a6,990	May 16, 1934	-	-	-	-	-
1935	792	a8,080	May 29, 1935	-	-	-	-	-
1936	812	a6,270	May 15, 1936	-	-	-	-	-
1937	832	a5,260	May 27, 1937	-	-	-	-	-
1938	862	a8,950	May 26, 1938	-	-	-	-	-
1939	882	a5,030	May 4, 1939	-	-	-	-	-
1940	902	a6,220	May 12, 1940	-	-	-	-	-
1941	932	a2,930	May 2, 1941	-	-	-	-	-
1942	962	a6,160	June 6, 1942	-	-	-	-	-
1943	982	a5,550	May 29, 1943	-	-	-	-	-
1944	1012	a2,780	May 17, 1944	-	-	-	-	-
1945	1042	a5,470	May 31, 1945	-	-	-	-	-
1946	1062	a7,960	May 6, 1946	-	-	-	-	-
1947	1092	a8,510	May 9, 1947	-	-	-	-	-
1948	1122	a14,600	May 23, 1948	-	-	-	-	-
1949	1152	a6,750	May 13, 1949	-	-	-	-	-
1950	1182	6,320	June 21, 1950	-	-	-	-	-

a Maximum observed.

444. Flathead River near Columbia Falls, Mont.1/

Location (revised).--Lat 48°28'20", long. 114°05'20", in NE1/4 sec. 12, T. 31 N., R. 20 W., on right bank 1 mile upstream from Middle Fork and 8 miles northeast of Columbia Falls.

Drainage area.--1,553 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 3,109.70 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). Prior to Oct. 1, 1917, staff gage at site 1,000 ft downstream at different datum.

Average discharge (revised).--19 years (1910-12, 1913-15, 1935-50), 2,660 cfs.

Extremes.--1910-17, 1929-50: Maximum discharge, 30,100 cfs (revised) June 20, 1916 (gage height, 9.9 ft, revised, from graph based on gage readings, site and datum then in use); minimum, 296 cfs Mar. 5, 1945.

Remarks.--A few small diversions from tributaries for irrigation of hay meadows above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	2,220	2,310	1,120	*921	917	983	3,080	6,960	11,700	4,290	1,870	1,550	*3,160
1912	1,020	764	774	762	657	632	2,510	7,230	6,440	3,930	1,700	1,510	2,330
1913	1,200	1,390	854	-	-	-	2,960	8,580	14,900	4,390	2,050	1,300	-
1914	1,210	1,100	809	901	623	647	3,110	8,730	7,380	3,190	1,470	1,380	2,550
1915	2,280	2,940	1,190	939	804	803	3,780	5,340	4,960	3,540	1,680	1,190	2,460
1916	1,370	1,110	696	-	-	2,060	3,660	7,030	16,800	11,100	2,930	2,480	-
1917	1,090	874	776	-	-	873	1,130	9,950	16,200	6,550	1,660	1,000	-
1929	-	-	-	-	-	-	*1,660	8,310	9,380	2,690	*1,140	-	-
1930	-	-	-	-	-	-	7,110	6,760	7,220	1,410	923	-	-
1931	876	677	562	561	614	729	2,520	8,810	4,820	*1,770	-	-	-
1932	*662	-	527	421	760	1,510	3,970	12,000	12,400	*3,860	*1,480	906	-
1933	*939	-	-	-	-	-	*3,160	*10,000	*17,100	-	-	-	-
1934	-	-	-	-	-	-	14,680	7,287	2,475	1,186	758	-	-
1935	792	2,010	1,018	1,037	1,011	-	-	11,690	4,592	1,498	936	-	-
1936	779	628	394	398	400	554	5,619	12,130	5,496	1,687	898	668	2,475
1937	518	420	416	325	377	435	1,374	9,039	8,422	2,760	1,185	708	2,173
1938	814	1,234	713	757	618	766	4,562	11,910	12,360	3,935	1,364	933	3,337
1939	824	873	613	655	490	801	4,866	9,587	5,309	2,597	1,071	777	2,387
1940	647	649	852	597	610	782	2,787	8,599	4,984	1,582	808	780	1,977
1941	823	645	562	524	465	649	2,824	5,757	3,353	1,526	747	1,340	1,606
1942	1,717	1,269	2,268	1,004	665	575	3,409	8,650	8,638	4,802	1,695	1,125	2,997
1943	881	871	849	568	747	691	6,877	7,695	9,609	5,722	1,702	910	3,105
1944	745	616	537	406	370	406	1,288	4,986	4,124	1,529	861	705	1,383
1945	776	657	512	486	448	490	845	8,245	8,449	3,145	1,084	891	2,177
1946	829	1,246	828	640	614	900	4,964	13,490	10,430	3,744	1,445	958	3,351
1947	1,116	944	723	502	788	940	4,628	13,780	9,104	3,487	1,669	1,386	3,267
1948	3,224	1,844	961	737	659	590	2,892	12,420	11,300	3,339	2,338	1,038	3,452
1949	767	640	549	545	564	607	4,048	12,260	7,120	2,628	1,370	953	2,682
1950	912	1,463	1,377	847	753	979	2,184	9,783	14,800	7,255	2,426	1,136	3,670

* Revised.

† Not previously published; estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	136	137	68.9	*56.6	50.9	60.4	183	428	*896	264	115	92.2	*2,290
1912	62.7	45.5	47.6	46.9	37.8	38.9	149	445	383	242	105	89.8	1,690
1913	73.8	82.7	52.5	-	-	-	176	528	887	270	126	77.4	-
1914	74.4	65.5	49.7	55.4	34.6	39.8	185	537	439	196	90.4	82.1	1,850
1915	140	175	73.2	57.7	44.7	49.4	225	328	295	218	103	70.8	1,780
1916	84.2	66	42.8	-	-	127	218	432	1,000	682	180	148	-
1917	67	52	47.7	-	-	53.7	67.2	612	964	403	102	59.5	-
1929	-	-	-	-	-	-	*98.8	511	558	185	*70.1	-	-
1930	-	-	-	-	-	-	-	437	402	167	86.7	54.9	-
1931	53.9	40.3	34.6	34.5	34.1	44.8	150	542	287	*109	-	-	-
1932	*40.7	-	32.4	25.9	43.7	92.8	236	738	738	*237	*91	53.9	-
1933	*57.7	-	-	-	-	-	*188	*615	*1,020	-	-	-	-
1934	-	-	-	-	-	-	-	902.9	433.6	152.2	72.95	45.12	-
1935	48.7	119.6	62.59	63.79	56.16	-	-	-	695.8	282.4	92.09	55.72	-
1936	47.9	37.36	24.25	24.48	23.01	34.09	334.4	745.8	327.1	103.7	55.23	39.76	1,797
1937	31.86	25	25.61	19.98	20.93	26.72	81.73	555.8	501.1	169.7	72.85	42.1	1,573
1938	50.07	73.46	43.82	46.52	34.35	47.11	271.4	732.3	735.3	241.9	83.84	55.5	2,416
1939	50.64	40.02	37.7	40.27	26.66	49.24	289.5	588.3	333.8	159.7	65.83	46.25	1,728
1940	39.77	38.61	52.37	36.69	35.07	48.1	165.8	528.7	296.6	97.25	49.66	46.4	1,435

* Revised.

† Not previously published; estimated on the basis of records for nearby stations.

1/ Published as North Fork Flathead River near Columbia Falls, 1910-14.

Monthly and yearly runoff, in thousands of acre-feet, of Flathead River near Columbia Falls, Mont.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	50.58	38.38	34.54	32.24	25.82	39.92	168	354	199.5	93.81	45.93	79.74	1,162
1942	105.6	75.49	139.5	61.76	36.92	35.39	202.9	531.8	514	295.2	104.2	66.94	2,170
1943	54.14	51.82	52.19	41.07	41.47	42.48	409.2	473.1	571.8	351.8	104.6	54.17	2,248
1944	45.81	36.64	35	24.94	21.3	24.95	76.62	306.6	245.4	94	52.92	41.95	1,004
1945	47.74	39.1	31.46	29.91	24.87	30.12	50.5	507	502.8	193.4	66.85	53	1,576
1946	50.96	74.12	50.92	39.32	34.1	55.56	295.4	829.2	620.7	230.2	88.84	56.98	2,426
1947	68.59	56.17	44.46	30.84	43.76	57.83	275.4	847	541.7	214.4	102.6	82.47	2,365
1948	198.2	109.7	59.08	45.31	37.88	36.29	172.1	763.9	672.6	205.3	143.8	61.75	2,506
1949	47.15	38.05	33.74	33.5	31.34	37.32	240.9	753.7	423.7	161.6	84.24	56.7	1,942
1950	56.07	87.03	84.67	52.09	41.81	60.19	130	601.5	880.5	446.1	149.2	87.57	2,657

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary			Minimum day	Mean	Per square mile	Runoff		Mean	Runoff
		Discharge	maximum Date					Inches	Acre-feet		Inches Acre-feet
1910	292	-	-	-	-	-	-	-	-	-	-
1911	1246,312	*15,100	June 13-15, 1911	*480	*3,160	2.03	27.60	*2,290,000	*2,900	25.34	*2,100,000
1912	332	*11,700	May 17, 1912	350	2,330	1.50	20.45	1,690,000	2,400	21.09	1,750,000
1913	362	23,800	June 2, 1913	-	-	-	-	-	-	-	-
1914	392	13,300	June 4, 1914	350	2,550	1.64	22.31	1,850,000	2,830	24.71	2,050,000
1915	412	*8,540	June 27, 1915	640	2,460	1.58	21.49	1,780,000	2,190	19.14	1,580,000
1916	442	*30,100	June 20, 1916	-	-	-	-	-	-	-	-
1917	462	*25,400	June 17, 1917	-	-	-	-	-	-	-	-
1929	692	*20,300	May 24, 1929	-	-	-	-	-	-	-	-
1930	707	11,800	May 31, 1930	-	-	-	-	-	-	-	-
1931	722	15,000	May 17, 1931	-	-	-	-	-	-	-	-
1932	737	21,200	May 23, 1932	-	-	-	-	-	-	-	-
1933	752	24,400	June 17, 1933	-	-	-	-	-	-	-	-
1934	787	19,400	Apr. 26, 1934	-	-	-	-	-	-	-	-
1935	792	20,800	May 24, 1935	-	-	-	-	-	-	-	-
1936	812	19,000	May 16, 1936	-	2,475	1.59	21.71	1,797,000	2,438	21.39	1,770,000
1937	832	13,900	May 28, 1937	-	2,173	1.40	19.00	1,573,000	2,291	20.02	1,658,000
1938	862	*24,000	May 28, 1938	384	3,337	2.15	29.16	2,416,000	3,283	28.69	2,377,000
1939	882	*13,900	Apr. 30, 1939	325	2,387	1.54	20.85	1,728,000	2,390	20.88	1,730,000
1940	902	13,900	May 12, 1940	380	1,977	1.27	17.33	1,435,000	1,967	17.24	1,428,000
1941	932	8,010	May 3, 1941	360	1,606	1.03	14.03	1,162,000	1,878	16.41	1,360,000
1942	962	18,000	May 27, 1942	420	2,997	1.93	26.20	2,170,000	2,773	24.24	2,007,000
1943	982	15,300	May 28, 1943	350	3,105	2.00	27.14	2,248,000	3,048	26.62	2,205,000
1944	1012	7,850	May 17, 1944	350	1,383	.891	12.13	1,004,000	1,387	12.17	1,007,000
1945	1042	15,400	June 2, 1945	330	2,177	1.40	19.03	1,576,000	2,257	19.72	1,634,000
1946	1062	*22,000	May 29, 1946	400	3,351	2.16	29.31	2,426,000	3,342	29.24	2,419,000
1947	1092	23,500	May 10, 1947	350	3,267	2.10	28.56	2,365,000	3,540	30.95	2,563,000
1948	1122	26,400	May 24, 1948	482	3,452	2.22	30.28	2,506,000	3,110	27.28	2,258,000
1949	1152	19,800	May 14, 1949	500	2,692	1.73	23.44	1,942,000	2,833	24.75	2,051,000
1950	1182	21,000	June 23, 1950	600	3,670	2.36	32.07	2,657,000	-	-	-

* Revised.

† Corrected.

Note.--Records for January to March 1913, January, February 1915, January, February 1917 published in Water-Supply Papers 362 and 916 have been found in error on the basis of restudy of the original data and comparison with weather records. Those records are not published herein and should not be used.

445. Skyland Creek near Essex, Mont.

Location.--Lat 48°17'30", long. 113°23'10", in SE¹ NW¹ sec. 9, T. 29 N., R. 14 W., on left bank 150 ft upstream from mouth and 10 miles northeast of Essex.

Drainage area.--8.09 sq mi.

Gage.--Water-stage recorder and concrete control. Datum of gage is 4,835.83 ft above mean sea level (Corps of Engineers benchmark).

Extremes.--1946-50: Maximum discharge, 284 cfs May 22, 1948 (gage height, 2.15 ft); maximum gage height, 2.46 ft June 12, 1950; minimum discharge, 0.1 cfs Nov. 15, 1946 (gage height, 0.12 ft, ice jam upstream).

Remarks.--No diversion above station. Records collected in conjunction with Upper Columbia River Snow Laboratory.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	2.55	2.52	2.96	12.4	55.6	34.1	11.0	6.60	5.37	-
1947	6.46	4.89	4.58	3.84	3.43	3.15	12.7	90.3	52.9	13.0	8.52	7.57	17.7
1948	11.0	7.70	5.33	4.84	3.79	3.36	6.50	71.5	85.1	17.3	9.85	7.08	19.5
1949	5.87	4.28	4.12	3.57	3.48	3.21	9.15	67.7	33.6	9.16	6.10	5.40	13.0
1950	4.71	5.34	4.75	2.97	2.99	3.04	4.82	44.8	156	51.2	12.5	8.19	25.0

PEND OREILLE RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Skyland Creek near Essex, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	157	140	182	739	3,420	2,030	676	406	320	-
1947	397	291	282	236	190	194	753	5,550	3,150	798	524	451	12,820
1948	678	458	329	297	218	207	387	4,400	5,060	1,060	606	421	14,120
1949	361	254	253	220	193	197	544	4,160	2,000	563	375	321	9,440
1950	290	318	292	182	166	187	287	2,760	9,250	3,150	766	488	18,140

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062		May 28, 1946	-	-	-	-	-	12.5	20.93	9,040
1947	1092		May 9, 1947	2.5	17.7	2.19	29.75	12,820	18.4	30.30	13,310
1948	1122		May 22, 1948	2.5	19.5	2.41	32.72	14,120	18.6	31.35	13,520
1949	1152		May 16, 1949	3	13.0	1.61	21.89	9,440	13.1	21.96	9,470
1950	1182		June 12, 1950	2	25.0	3.09	42.13	18,140	-	-	-

446. Bear Creek near Essex, Mont.

Location.--Lat 48°16'50", long. 113°25'30", SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 18, T. 29 N., R. 14 W., on right bank 1 mile downstream from Autumn Creek and $8\frac{1}{2}$ miles northeast of Essex.

Drainage area.--20.7 sq mi.

Gage.--Water-stage recorder. Datum of gage is 4,484.14 ft above mean sea level, datum of 1929. Prior to Mar. 19, 1947, wire-weight gage at same site and datum.

Extremes.--1946-50: Maximum discharge, 696 cfs May 22, 1948 (gage height, 3.01 ft); minimum daily, 5.5 cfs Jan. 21 to Mar. 4, Mar. 8-16, 1949.

Remarks.--A few small diversions above station. Records collected in conjunction with Upper Columbia River Snow Laboratory.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	8	7	12.9	76.0	146	71.4	22.1	11.1	10.2	-
1947	24.6	18.6	14.8	11.5	11.3	14.1	85.1	231	107	26.2	16.3	14.1	48.1
1948	27.7	16.9	12.2	12.3	8.52	7.01	49.4	204	172	33.6	15.9	11.1	47.6
1949	9.42	8.57	7.32	6.00	5.50	6.00	55.1	168	63.5	17.3	10.4	10.4	30.6
1950	9.99	15.9	11.3	7.86	7.98	10.6	27.7	178	265	76.7	21.8	15.6	54.2

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	492	389	791	4,520	8,990	4,250	1,360	684	609	-
1947	1,510	1,100	912	706	629	864	5,060	14,210	6,550	1,610	1,000	841	34,790
1948	1,700	1,010	752	754	490	431	2,940	12,530	10,230	2,070	990	662	34,550
1949	579	510	450	369	305	369	3,280	10,210	3,780	1,060	637	617	22,170
1950	614	943	697	483	443	649	1,650	10,960	15,790	4,720	1,340	928	39,220

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1946	1062	a253	May 28, 1946	-	-	-	-	-	35.4	23.18	25,610
1947	1092	623	May 2, 1947	7.0	48.1	2.32	31.59	34,790	48.0	31.53	34,730
1948	1122	696	May 22, 1948	6	47.6	2.30	31.31	34,550	44.9	29.57	32,630
1949	1152	280	May 12, 1949	5.5	30.6	1.48	20.07	22,170	31.6	20.73	22,880
1950	1182	620	June 12, 1950	6.5	54.2	2.62	35.51	39,220	-	-	-

a Maximum observed.

447. Middle Fork Flathead River at Essex, Mont.

Location.--Lat 48°16'30", long. 113°36'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 14, T. 29 N., R. 16 W., on right bank 0.6 mile upstream from Ole Creek, 0.7 mile southeast of Essex, and 4 miles downstream from Bear Creek.

Drainage area.--510 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,730 ft (from river profile map).

Average discharge.--11 years (1939-50), 971 cfs.

Extremes.--1939-50: Maximum discharge, 14,500 cfs May 22, 1948 (gage height, 10.95 ft, from partly estimated gage-height record); minimum daily, 30 cfs Jan. 22, 1940 (revised).

Remarks.--No diversion or regulation above station.

PEND OREILLE RIVER BASIN

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Monthly and yearly mean discharge, in cubic feet per second, of Middle Fork Flathead River at Essex, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	#137	130	166	93.4	99.8	224	1,098	3,197	1,273	309	164	148	#598
1941	146	135	135	110	106	191	1,002	1,973	1,001	373	174	211	465
1942	442	326	727	190	189	174	1,730	3,180	2,581	824	285	237	908
1943	184	339	370	214	232	247	2,850	3,865	5,588	2,214	451	261	1,401
1944	227	192	170	128	123	127	782	2,915	1,381	407	216	200	574
1945	203	175	145	163	142	171	389	4,250	3,175	785	267	198	843
1946	233	460	237	222	178	331	2,136	4,841	2,897	788	292	221	1,073
1947	436	441	413	290	286	385	1,985	5,844	3,338	895	324	254	1,246
1948	590	359	257	228	163	153	1,026	5,409	4,399	849	334	200	1,166
1949	170	152	147	128	108	148	1,431	4,827	2,423	540	227	192	879
1950	228	472	415	253	279	340	813	4,828	7,303	2,591	557	271	1,532

* Not previously published; estimated on the basis of weather records and records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	#8,440	7,750	10,190	5,740	5,740	13,780	65,350	196,800	75,720	19,000	10,080	8,820	#427,200
1941	8,980	8,040	8,290	6,730	5,890	11,740	59,610	121,300	59,590	22,940	10,710	12,570	336,400
1942	27,150	19,380	44,710	11,680	10,520	10,720	102,900	195,500	52,400	50,680	17,520	14,130	657,300
1943	11,290	20,170	22,780	13,160	12,870	15,160	169,600	237,600	32,500	36,100	27,720	15,510	1,014,000
1944	13,930	11,440	10,440	7,890	7,050	7,840	46,560	179,200	82,170	25,020	13,260	11,900	416,700
1945	12,470	10,420	8,890	10,020	7,880	10,490	23,140	261,300	188,900	48,260	16,430	11,810	610,000
1946	14,300	27,590	14,600	13,640	9,860	20,340	127,100	297,600	172,400	48,450	17,940	13,130	776,800
1947	26,790	26,270	25,390	17,810	15,900	23,700	118,100	359,300	198,600	55,020	19,920	15,140	901,900
1948	36,300	21,350	15,780	14,050	9,400	9,430	61,070	332,600	261,800	52,230	20,540	11,900	846,400
1949	10,460	9,050	9,060	7,860	6,010	9,080	85,170	296,800	144,200	33,210	13,950	11,410	636,300
1950	13,990	28,060	25,550	15,530	15,490	20,910	48,400	296,900	434,600	159,300	34,220	16,110	1,109,000

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1940	902	*5,420	May 11, 1940	30	*592	1.15	*15.70	*427,200	587	15.68	426,100
1941	932	3,410	May 14, 1941	70	465	.912	12.37	336,400	556	14.79	402,300
1942	962	7,740	May 24, 1942	95	908	1.78	24.17	657,300	857	22.81	620,300
1943	982	9,800	June 18, 1943	150	1,401	2.75	31.73	1,014,000	1,376	31.04	996,000
1944	1012	5,700	May 19, 1944	110	574	1.13	15.33	416,700	568	15.19	412,700
1945	1042	7,070	June 1, 1945	90	843	1.65	22.43	610,000	877	22.34	634,500
1946	1062	7,570	May 28, 1946	100	1,073	2.10	28.58	776,800	1,104	29.39	798,900
1947	1092	11,200	May 9, 1947	194	1,246	2.44	33.22	901,900	1,239	33.04	896,900
1948	1122	14,500	May 22, 1948	110	1,166	2.29	31.15	846,400	1,104	29.46	801,600
1949	1152	8,480	May 15, 1949	100	879	1.72	23.38	636,300	933	24.83	675,300
1950	1182	11,800	June 6, 1950	150	1,532	3.00	40.75	1,109,000	-	-	-

* Revised.

* Not previously published.

448. Middle Fork Flathead River at Belton, Mont.

Location.--Lat 48°30'00", long. 113°58'30" in NW 1/4 sec. 36, T. 32 N., R. 19 W., on left bank at Belton, half a mile upstream from highway bridge, and 2 miles upstream from outlet of Lake McDonald.

Drainage area.--943 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 3,170 ft (from river profile map).

Average discharge.--13 years (1910-12, 1915-16, 1918-19, 1920-21, 1929-33, 1943-47), 2,294 cfs.

Extremes.--1910-23, 1929-33, 1943-47: Maximum discharge (revised), 45,000 cfs June 21, 1916 (gage height, 17.5 ft, from floodmark), from rating curve extended above 23,000 cfs; minimum observed, 115 cfs Mar. 1, 1929.
Flood of May 23, 1948, reached a stage of 14.3 ft, from floodmarks (discharge, 30,000 cfs).

Remarks.--No significant diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of Middle Fork Flathead River at Belton, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	*1,760	1,960	808	*480	*470	891	3,020	7,030	8,390	2,760	1,140	1,120	*2,490
1912	1,140	759	†444	403	415	377	3,360	7,990	5,620	1,950	1,130	1,060	2,060
1913	810	1,300	*740	-	-	-	*3,140	9,850	11,500	*3,130	1,390	*760	-
1914	-	*930	*430	-	-	668	3,620	7,300	*4,650	*2,000	-	*570	-
1915	1,100	1,440	492	-	-	474	3,140	4,170	3,960	2,630	1,170	1,060	-
1916	1,090	1,080	809	624	568	1,460	3,480	6,960	14,700	6,440	1,470	1,920	3,380
1917	901	-	-	-	-	*330	870	9,290	10,800	4,490	1,290	599	-
1918	378	311	-	-	564	730	3,280	7,420	10,400	4,200	1,180	875	-
1919	630	490	396	668	437	*410	3,130	7,520	4,530	1,550	671	424	*1,740
1920	334	331	-	-	-	-	1,280	7,000	7,860	2,910	941	1,150	-
1921	1,330	985	711	413	406	1,160	3,540	10,800	12,300	4,000	1,070	557	3,100
1922	491	392	1,200	892	-	-	584	10,400	10,400	2,030	708	486	-
1923	318	347	-	-	-	-	2,740	11,200	11,200	2,620	746	566	-
1929	-	-	-	-	-	348	1,470	7,470	6,240	1,610	642	397	-
1930	299	240	218	211	443	424	6,240	6,010	4,830	1,470	659	516	1,800
1931	644	611	397	351	496	619	2,180	7,540	3,280	1,010	547	558	1,530
1932	420	577	351	287	862	1,300	3,510	10,300	7,880	2,480	863	502	2,440
1933	538	1,160	1,070	512	356	429	2,670	7,700	15,200	*3,900	*1,100	*740	*2,950
1943	-	-	-	-	-	-	-	-	-	-	*1,130	679	-
1944	630	469	393	297	207	257	1,612	5,651	3,185	1,091	648	843	1,260
1945	608	467	360	392	395	457	1,090	8,290	6,705	2,257	736	672	1,877
1946	716	1,390	772	567	444	772	4,767	9,608	6,510	2,650	853	617	2,480
1947	1,240	986	916	571	697	939	4,370	10,980	6,912	2,754	1,335	832	2,721
1948	2,121	*920	-	-	-	-	-	-	-	-	-	-	-

* Monthly figures only revised; revised daily figures not available.

† Corrected.

* Not previously published; partly estimated on the basis of weather records or records for nearby stations.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	*108	117	49.7	*29.5	*26.1	54.8	180	432	499	170	70.1	66.6	*1,800
1912	70.1	45.2	*27.3	24.8	23.9	23.2	200	491	334	120	69.5	63.1	1,490
1913	49.8	77.4	*45.5	-	-	-	*187	606	*684	*192	85.5	*45.2	-
1914	-	*55.3	*26.4	-	-	41.1	215	449	*277	*123	-	*33.9	-
1915	67.6	65.7	30.3	-	-	29.1	187	256	236	162	71.9	65.1	-
1916	67	64.3	49.7	38.4	32.7	89.8	207	428	875	396	90.4	114	2,450
1917	49.3	-	-	-	-	*18.4	51.8	571	643	276	79.3	35.6	-
1918	23.2	18.5	-	-	31.3	44.9	195	456	619	135	72.6	40.2	-
1919	36.7	29.2	24.3	41.1	24.3	*25.2	86	462	270	95.3	41.3	25.2	*1,160
1920	20.5	19.7	-	-	-	-	76.2	430	468	179	57.9	68.4	-
1921	81.8	58.6	43.7	25.4	22.5	71.3	211	652	732	246	65.8	33.1	2,240
1922	30.2	23.3	73.8	54.8	-	-	34.8	640	619	125	43.5	26.9	-
1923	19.6	20.6	-	-	-	-	163	689	666	161	45.9	33.7	-
1929	-	-	-	-	-	21.4	87.5	459	371	99	39.5	23.6	-
1930	18.4	14.3	13.4	13	24.6	26.1	371	370	287	90.4	40.5	30.7	1,300
1931	39.6	36.4	24.4	21.6	27.5	38.1	130	464	195	62.1	33.6	33.2	1,110
1932	25.8	34.3	21.6	17.6	49.6	79.9	209	633	469	152	53.1	29.9	1,770
1933	33.1	69	65.8	31.5	19.8	26.4	159	473	904	*240	*67.6	*44	*2,130
1943	-	-	-	-	-	-	-	-	-	-	*69.5	40.38	-
1944	38.71	27.89	24.19	18.27	11.9	15.79	95.91	347.5	189.5	67.08	39.63	36.25	914.8
1945	37.36	27.77	22.17	24.13	21.96	28.09	64.86	509.7	399	138.8	45.28	39.97	1,359
1946	44.03	82.7	47.5	34.89	24.67	47.46	283.8	590.8	387.4	162.9	52.46	36.74	1,795
1947	76.26	58.64	56.33	35.11	38.73	57.72	260	675.2	411.3	169.3	82.06	49.53	1,970
1948	130.4	*54.7	-	-	-	-	-	-	-	-	-	-	-

* Monthly figures only revised; revised daily figures not available.

† Corrected.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	1246,312	*13,000	June 3, 1911	280	*2,490	*2.64	*35.87	*1,800,000	*2,310	*33.24	*1,670,000
1912	332	12,200	May 16, 1912	182	2,060	2.18	29.66	1,490,000	*2,100	30.25	*1,520,000
1913	1246,362	26,900	May 27, 1913	-	-	-	-	-	-	-	-
1914	392	11,500	May 17, 1914	-	-	-	-	-	-	-	-
1915	412	*7,250	May 2, 1915	-	-	-	-	-	-	-	-
1916	442	*45,000	June 21, 1916	535	3,390	3.58	46.79	2,450,000	-	-	-
1917	462	*23,400	May 15, 1917	-	-	-	-	-	-	-	-
1918	482	*22,500	June 11, 1918	-	-	-	-	-	-	-	-
1919	512	13,600	May 28, 1919	320	*1,740	*1.85	*25.09	*1,160,000	-	-	-
1920	512	*11,800	May 18, 1920	-	-	-	-	-	-	-	-

* Revised.

† Not previously published.

Note.—Records for January, February 1914, published in Water-Supply Papers 392 and 916, and for November, December 1916, published in Water-Supply Papers 462 and 916 have been found in error on the basis of restudy of the original data and comparison with weather records or records at nearby stations. Those records are not published herein and should not be used.

Yearly discharge, in cubic feet per second, of Middle Fork Flathead River at Belton, Mont.--Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1921	532	21,500	May 27, 1921	260	3,100	3.29	44.47	2,240,000	3,020	43.33	2,190,000
1922	552	*22,500	June 5, 1922	-	-	-	-	-	-	-	-
1923	572	*16,800	May 26, 1923	-	-	-	-	-	-	-	-
1929	692	*18,000	May 24, 1929	-	-	-	-	-	-	-	-
1930	707	*10,900	Apr. 14, 1930	-	1,800	1.91	25.85	1,300,000	1,870	26.93	1,350,000
1931	722	*18,000	May 16, 1931	238	1,530	1.62	21.98	1,110,000	1,500	21.60	1,090,000
1932	737	*24,100	May 22, 1932	238	2,440	2.59	35.27	1,770,000	2,560	36.98	1,860,000
1933	752	23,400	June 16, 1933	226	*2,950	*3.13	*42.41	*2,130,000	-	-	-
1943	1012	-	-	-	-	-	-	-	-	-	-
1944	1012	*4,190	May 20, 1944	155	1,260	1.34	18.19	914,800	1,255	18.12	911,400
1945	1042	*13,700	June 1, 1945	255	1,877	1.99	27.02	1,359,000	1,997	28.75	1,446,000
1946	1062	14,800	May 28, 1946	380	2,480	2.63	35.69	1,795,000	2,503	36.03	1,812,000
1947	1092	*24,500	May 9, 1947	450	2,721	2.89	39.13	1,970,000	-	-	-
1948	1092	30,000	May 23, 1948	-	-	-	-	-	-	-	-

* Revised.

* Not previously published.

449. Lake McDonald Outlet at Lake McDonald, Mont.

Location.--Lat 48°31'50", long. 113°59'40", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 23, T. 32 N., R. 19 W., on right abutment of highway bridge at lower end of Lake McDonald, in Glacier National Park.

Drainage area.--175 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 3,150 ft (from river profile map). Prior to June 8, 1913, at site 100 ft upstream at same datum.

Extremes.--1912-14: Not determined.

Remarks.--Natural storage in Lake McDonald.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	-	-	-	*340	327	-
1913	214	-	-	-	-	-	-	-	*3,040	*1,000	*400	*210	-
1914	-	-	-	-	-	-	-	*1,480	*1,320	*620	-	*230	-

* Not previously published; partly estimated on the basis of records for Flathead River stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	-	-	-	*20,900	19,500	-
1913	13,200	-	-	-	-	-	-	-	*181,000	*61,500	*24,600	*12,500	-
1914	-	-	-	-	-	-	-	*91,000	*78,600	*38,100	-	*13,700	-

* Not previously published; partly estimated on the basis of records for Flathead River stations.

450. Middle Fork Flathead River near West Glacier, Mont.1/

Location.--Lat 48°29'50", long. 114°00'30", in NE $\frac{1}{4}$ sec. 34, T. 32 N., R. 19 W., on left bank three-quarters of a mile downstream from McDonald Creek, $\frac{1}{4}$ miles west of West Glacier (formerly Belton), and $\frac{3}{4}$ miles upstream from mouth.

Drainage area.--1,128 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 3,130 ft (from river profile map).

Average discharge.--11 years (1939-50), 2,605 cfs.

Extremes.--1939-50: Maximum discharge, 32,600 cfs May 23, 1948 (gage height, 12.40 ft, from floodmark); minimum observed, 232 cfs Jan. 21, 1940 (gage height, 1.08 ft).

Remarks.--No significant diversion or regulation above station.

1/ Published as Middle Fork Flathead River near Belton, 1939-47.

PEND OREILLE RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Middle Fork Flathead River near West Glacier, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	367	364	573	384	331	744	2,950	8,095	4,818	1,366	582	610	1,769
1941	614	447	432	410	365	572	2,600	5,259	3,576	1,389	576	959	1,437
1942	1,498	1,088	2,552	857	531	443	3,901	7,435	7,037	3,640	1,174	760	2,585
1943	587	990	1,015	646	803	629	7,093	8,560	12,000	6,550	1,426	756	3,591
1944	704	537	462	345	300	307	1,737	6,793	4,550	1,245	795	716	1,528
1945	706	559	472	504	504	516	1,136	9,672	8,759	3,125	925	800	2,316
1946	820	1,655	934	718	560	910	5,220	11,690	9,248	3,418	1,097	733	3,092
1947	1,245	1,167	1,049	669	828	1,102	4,908	12,710	8,587	3,510	1,562	1,078	3,213
1948	2,414	1,250	849	644	486	447	2,594	13,340	11,850	2,981	1,365	682	3,247
1949	530	437	358	343	347	470	3,419	11,650	6,702	2,033	979	688	2,341
1950	781	1,461	1,308	674	698	988	2,486	9,460	16,580	7,586	1,948	911	3,731

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	22,580	21,680	35,230	23,610	19,070	45,720	175,600	497,800	286,700	84,000	35,760	36,320	1,284,000
1941	37,780	26,590	26,590	25,200	20,250	35,170	154,700	323,300	212,800	85,410	35,420	57,060	1,040,000
1942	92,090	64,770	55,700	52,700	29,470	27,210	232,100	457,200	418,800	223,800	72,160	45,210	1,871,000
1943	36,070	58,880	62,300	39,700	33,480	38,680	422,000	514,000	714,300	402,800	87,700	44,990	2,455,000
1944	43,260	31,940	28,430	21,190	17,240	18,850	103,300	417,700	258,800	76,800	48,850	42,590	1,109,000
1945	43,420	35,240	29,030	30,970	28,000	31,710	67,590	594,700	621,200	192,200	56,890	47,590	1,777,000
1946	50,450	98,480	57,420	44,150	31,110	55,940	310,600	718,700	500,300	210,200	67,430	43,630	2,238,000
1947	76,580	69,420	64,520	41,150	45,970	67,760	292,000	781,500	511,000	215,800	96,060	64,170	2,326,000
1948	148,400	74,400	52,200	39,610	27,950	27,460	154,300	808,200	1,007,050	800,183,300	83,900	40,610	2,357,000
1949	32,610	25,890	21,980	21,070	19,290	28,920	203,500	716,500	598,800	125,000	60,190	40,940	1,695,000
1950	48,020	86,920	80,420	41,450	38,750	60,730	148,000	581,700	874,800	466,500	119,800	54,200	2,701,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30										Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		Inches	Acre-feet
1940	902	12,800	May 12, 1940	232	1,769	1.57	21.34	1,284,000	1,784	21.53	1,296,000			
1941	932	7,620	May 14, 1941	268	1,437	1.27	17.29	1,040,000	1,743	20.97	1,262,000			
1942	962	15,700	May 24, 1942	410	2,585	2.29	31.10	1,871,000	2,370	28.53	1,716,000			
1943	982	20,600	June 18, 1943	437	3,391	3.01	40.77	2,455,000	3,317	39.87	2,401,000			
1944	1012	11,300	May 20, 1944	270	1,528	1.35	18.44	1,109,000	1,530	18.47	1,111,000			
1945	1042	16,400	June 1, 1945	360	2,316	2.05	27.89	1,677,000	2,455	29.56	1,777,000			
1946	1062	18,500	May 29, 1946	480	3,092	2.74	37.26	2,238,000	3,098	37.32	2,243,000			
1947	1092	23,600	May 9, 1947	550	3,213	2.85	38.67	2,326,000	3,302	39.76	2,390,000			
1948	1122	32,600	May 23, 1948	400	3,247	2.88	39.16	2,357,000	2,979	35.92	2,163,000			
1949	1152	19,500	May 14, 1949	291	2,341	2.08	28.13	1,695,000	2,527	30.38	1,830,000			
1950	1182	23,600	June 6, 1950	400	3,731	3.31	44.89	2,701,000	-	-	-			

451. South Fork Flathead River at Spotted Bear ranger station, near Hungry Horse, Mont.

Location.--Lat 47°55'20", long. 113°31'25", in SE¹/₄ SW¹/₄ sec. 17, T. 25 N., R. 15 W., on left bank 1,000 ft upstream from Spotted Bear River and 40 miles southeast of Hungry Horse.

Drainage area.--958 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,670 ft (from river profile map).

Extremes.--1948-50: Maximum discharge, 15,600 cfs June 21, 1950 (gage height, 10.54 ft); minimum daily, 160 cfs Feb. 5-8, 1949.

Flood of May-June 1948 reached a stage of 14.00 ft about May 22 (discharge, 22,000 cfs, by slope-area method).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	-	-	333	-
1949	275	263	257	205	216	272	1,909	7,890	4,462	1,082	418	326	1,472
1950	344	574	504	308	355	407	1,360	5,847	10,640	5,893	1,425	526	2,355

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	-	-	19,800	-
1949	16,920	15,650	15,770	12,580	11,990	16,700	113,600	485,100	265,500	66,550	25,720	19,380	1,065,000
1950	21,150	34,160	30,980	18,970	19,740	25,060	80,920	359,500	633,400	362,300	87,610	31,270	1,705,000

Yearly discharge, in cubic feet per second, of South Fork Flathead River at Spotted Bear ranger station, near Hungry Horse, Mont.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1152	22,000	(a)	-	-	-	-	-	-	-	-
1949	1152	13,700	May 15, 1949	160	1,472	1.54	20.86	1,065,000	-	21.60	1,103,000
1950	1182	15,600	June 21, 1950	230	2,355	2.46	33.35	1,705,000	1,524	-	-

a About May 22, 1948.

452. Spotted Bear River near Hungry Horse, Mont.

Location.--Lat 47°55'40", long. 113°31'10", near center of sec. 17, T. 25 N., R. 15 W., on left bank a third of a mile upstream from mouth and 40 miles southeast of Hungry Horse.

Drainage area.--184 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,690 ft (from river profile map).

Extremes.--1948-50: Maximum discharge, 3,860 cfs June 6, 1950 (gage height, 6.42 ft); minimum daily, 26 cfs Feb. 5-7, 1949.

Flood of May-June 1948 reached a stage of 7.24 ft about May 22 (discharge, 4,010 cfs, by slope-area study).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	51.0	45.7	42.6	31.2	30.3	39.5	472	1,735	724	143	67.7	55.9	288
1950	54.8	103	88.3	57.6	74.5	78.7	291	1,369	2,277	723	160	77.6	447

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	3,140	2,720	2,620	1,920	1,680	2,430	28,120	106,700	43,060	8,780	4,160	3,330	208,700
1950	3,370	6,100	5,430	3,540	4,140	4,840	17,340	84,150	135,500	44,480	9,850	4,620	323,400

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1949	1152	3,050	May 13, 1949	26	288	1.57	21.27	208,700	297	21.91	215,100
1950	1182	3,860	June 6, 1950	40	447	2.43	32.95	323,400	-	-	-

453. Twin Creek near Hungry Horse, Mont.

Location.--Lat 47°59'10", long. 113°33'30", in E $\frac{1}{2}$ sec. 25, T. 26 N., R. 16 W., on left bank 300 ft upstream from road bridge, 0.1 mile upstream from mouth, and 36 miles southeast of Hungry Horse.

Drainage area.--47.0 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,610 ft (from river profile map).

Extremes.--1948-50: Maximum discharge, 1,550 cfs May 14, 1950 (gage height, 7.51 ft); minimum daily, 5 cfs Jan. 11, Jan. 20 to Feb. 6, Feb. 13, 14, 1949.

Flood of May-June 1948, reached a stage of 8.1 ft about May 22 (discharge, 2,410 cfs, by slope-area determination).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	-	-	-	-
1949	11.5	12.0	12.3	7.10	7.79	20.6	264	532	170	30.5	13.0	11.0	91.4
1950	15.2	49.2	38.4	18.5	23.4	42.8	154	553	616	152	33.9	15.9	143

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	-	-	-	-
1949	710	716	756	436	432	1,270	15,720	32,680	10,110	1,880	797	756	66,160
1950	954	2,930	2,360	1,140	1,300	2,630	9,170	34,030	36,680	9,370	2,080	944	103,600

Yearly discharge, in cubic feet per second, of Twin Creek near Hungry Horse, Mont.											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1152	2,410	(a)	-	-	-	-	-	-	-	-
1949	1152	980	May 14, 1949	5	91.4	1.94	26.37	66,160	97.0	27.99	70,200
1950	1182	1,550	May 14, 1950	11	143	3.04	41.31	103,600	-	-	-

a About May 22, 1948.

454. Lower Twin Creek near Hungry Horse, Mont.

Location.--Lat 47°59'40", long. 113°33'20", in SE $\frac{1}{4}$ sec. 24, T. 26 N., R. 16 W., on left bank half a mile upstream from mouth and 35 miles southeast of Hungry Horse.

Drainage area.--22.4 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,630 ft (from river profile map).

Extremes.--1948-50: Maximum discharge, 565 cfs June 5, 1950 (gage height, 3.86 ft); minimum daily, 2 cfs Jan. 18 to Feb. 10, 1949.

Flood of May-June 1948 reached a stage of 5.25 ft about May 22 (discharge, 1,200 cfs, by slope-area determination).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1948	-	-	-	-	-	-	-	-	-	-	-	9.81
1949	7.53	7.17	5.11	3.0	3.8	9.66	169	309	113	27.5	13.0	8.45
1950	11.6	33.0	28.5	14.4	14.5	26.7	74.9	260	342	125	30.4	12.5

Monthly and yearly runoff, in acre-feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1948	-	-	-	-	-	-	-	-	-	-	-	584
1949	463	426	314	182	198	594	10,040	18,960	6,700	1,690	800	503
1950	712	1,970	1,750	887	807	1,640	4,460	15,960	20,340	7,670	1,870	744

Yearly discharge, in cubic feet per second											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1152	1,200	(a)	-	-	-	-	-	-	-	-
1949	1152	548	May 12, 1949	5	56.5	2.52	34.28	40,890	60.9	36.97	44,120
1950	1182	565	June 5, 1950	9.5	81.2	3.62	49.27	58,810	-	-	-

a About May 22, 1948.

455. Sullivan Creek near Hungry Horse, Mont.

Location.--Lat 48°01'45", long. 113°42'10", in W $\frac{1}{2}$ sec. 12, T. 26 N., R. 17 W., on left bank a quarter of a mile downstream from Quintonkon Creek, 3 miles upstream from mouth, and 30 miles southeast of Hungry Horse.

Drainage area.--71.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 3,740 ft (from topographic map).

Extremes.--1948-50: Maximum discharge, 1,700 cfs May 12, 1949 (gage height, 4.73 feet); minimum daily, 17 cfs Feb. 14, 1949.

Flood of about May 22, 1948, reached a discharge of 2,280 cfs, by slope-area method.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1949	26.2	30.7	21.2	18.3	20.9	40.1	393	1,022	426	70.9	31.5	28.3
1950	36.6	119	76.5	43.7	46.2	93.0	226	773	1,104	423	110	43.9

Monthly and yearly runoff, in acre-feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1949	1,610	1,830	1,300	1,120	1,160	2,470	23,410	62,840	25,320	4,360	1,940	1,690
1950	2,250	7,090	4,830	2,690	2,570	5,720	13,550	47,560	65,660	25,990	6,740	2,610

Yearly discharge, in cubic feet per second, of Sullivan Creek near Hungry Horse, Mont.

Daily discharge, in cubic feet per second, of Sullivan Creek near Hudson, N.M.											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1949	1152	1,700	May 12, 1949	17	178	2.50	33.90	129,000	191	36.38	138,500
1950	1182	1,620	May 14, 1950	23	259	3.63	49.22	187,300	-	-	-

456. Graves Creek near Hungry Horse, Mont.

Location.--Lat 48°07'50", long. 113°46'10", in W $\frac{1}{2}$ sec. 4, T. 27 N., R. 17 W., on left bank 2 miles upstream from mouth and 22 miles southeast of Hungry Horse.

Drainage area.--33.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 3,380 ft (from topographic map).

Extremes.--1948-50: Maximum discharge, 1,520 cfs June 22, 1950 (gage height, 5.70 ft); minimum daily, 10 cfs during several periods in January and February 1949.
Flood of May-June 1948 reached a stage of 5.33 ft about May 22 (discharge, 1,440 cfs, by slope-area method).

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	-	-	25.5	-
1949	19.8	22.2	18.3	11.2	11.1	30.2	187	615	358	69.7	30.0	25.8	117
1950	50.5	91.7	65.7	27.7	25.4	54.2	91.6	357	736	390	81.1	35.0	167

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1948	-	-	-	-	-	-	-	-	-	-	-	1,520	-
1949	1,220	1,320	1,120	690	619	1,860	11,140	37,790	21,270	4,280	1,840	1,530	84,680
1950	3,110	5,460	4,040	1,700	1,410	3,330	5,450	21,930	43,780	23,980	4,990	2,080	121,300

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1948	1152	1,440	(a)	-	-	-	-	-	-	-	-
1949	1152	1,030	May 16, 1949	10	117	3.55	48.04	84,680	129	53.11	93,630
1950	1182	1,520	June 22, 1950	20	167	5.06	68.86	121,300	-	-	-

a About May 22, 1948.

457. South Fork Flathead River near Columbia Falls, Mont.

Location.--Lat 48°22'10", long. 114°02'40", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 17, T. 30 N., R. 19 W., on right bank 2 miles upstream from mouth and 6 miles (corrected) east of Columbia Falls.

Drainage area.--1,667 sq mi (revised).

Supplemental records available.--September 1910 to January 1911, discharge measurements only.

Gage.--Water-stage recorder. Datum of gage is 3,030.3 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 1, 1948, chain gage or water-stage recorder $\frac{1}{2}$ miles downstream at different datums.

Average discharge.--22 years (1928-50), 3,249 cfs.

Extremes.--1910-16, 1923-50: Maximum discharge observed, 46,200 cfs June 19, 1916 (gage height, 16.6 ft, site and datum then in use), from rating curve extended above 20,000 cfs; minimum discharge, 206 cfs Dec. 6, 1935, discharge measurement.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second, of South Fork Flathead River near Columbia Falls, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	1,530	1,980	3,770	12,200	16,000	4,160	1,190	830	-
1912	1,130	1,380	-	-	-	-	\$4,290	10,900	12,500	4,900	1,090	1,610	-
1913	930	1,250	770	-	-	-	\$3,970	15,200	27,200	7,010	3,780	\$2,020	-
1914	-	-	-	-	-	-	-	-	-	-	-	-	-
1915	-	-	-	-	-	-	-	-	-	-	-	-	-
1916	-	-	-	-	-	-	-	-	-	-	-	-	-
1923	-	-	-	-	-	-	\$3,580	11,600	11,400	3,530	1,230	601	-
1924	568	564	-	-	-	\$650	2,800	15,200	8,330	2,410	908	453	-
1925	553	913	-	-	-	-	-	-	-	\$3,830	\$1,880	\$1,110	-
1926	734	-	-	-	-	-	-	-	-	-	-	-	-
1927	-	-	-	-	-	-	-	12,800	22,100	6,200	1,580	1,540	-
1928	3,390	3,380	-	-	-	-	-	22,300	12,200	5,580	1,490	715	-
1929	915	740	528	453	430	606	2,110	10,900	10,600	2,490	811	493	2,600
1930	445	392	372	309	538	470	8,490	9,180	6,830	1,860	690	558	2,510
1931	922	1,000	758	694	755	1,200	3,300	11,800	5,660	1,370	618	691	2,410
1932	615	820	788	552	1,440	2,130	5,480	14,500	12,300	3,480	1,140	719	3,660
1933	832	2,290	1,910	1,170	910	878	4,010	11,100	25,000	\$5,400	\$1,430	\$870	\$4,650
1934	2,899	4,128	3,504	2,729	2,042	2,945	11,770	15,230	6,920	1,907	775	539	4,623
1935	879	2,064	997	924	1,029	1,280	3,058	12,750	11,990	3,213	964	574	3,317
1936	451	396	313	348	349	474	7,222	17,460	7,140	1,560	676	498	3,091
1937	432	361	410	266	302	402	2,020	11,360	7,780	2,296	873	504	2,344
1938	551	824	961	957	946	939	5,312	11,620	10,470	2,622	893	568	3,059
1939	572	562	781	754	515	1,302	7,618	15,920	7,632	2,727	832	540	3,328
1940	467	477	697	556	579	1,378	4,561	10,560	5,761	1,326	607	499	2,293
1941	508	491	477	465	497	953	3,255	6,613	3,965	1,152	557	785	1,647
1942	1,522	1,192	2,357	958	604	623	5,460	9,266	9,157	3,533	1,014	684	3,039
1943	523	1,084	1,098	751	739	932	9,805	11,120	16,040	8,152	1,670	833	4,397
1944	743	639	616	450	382	450	2,591	8,865	5,414	1,668	754	675	1,941
1945	630	598	590	613	721	745	1,836	11,940	10,810	3,295	912	667	2,807
1946	922	1,916	1,130	877	720	1,326	7,176	14,090	10,850	3,505	1,130	715	3,705
1947	1,539	1,725	1,937	1,474	1,750	1,873	6,516	17,740	11,670	3,728	1,228	978	4,358
1948	2,494	1,429	950	932	693	634	3,972	18,140	15,230	3,018	1,249	638	4,120
1949	482	467	439	356	357	579	5,620	15,950	7,906	1,850	1,622	622	2,962
1950	703	1,394	1,476	967	862	1,097	3,490	12,420	19,940	9,717	2,282	937	4,618

* Not previously published; partly estimated on the basis of records for nearby stations.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	85	122	224	750	952	256	75.2	49.4	-
1912	69.5	82.1	-	-	-	-	\$255	670	744	301	67	95.8	-
1913	57.2	74.4	47.3	-	-	-	\$236	935	1,620	431	232	\$120	-
1914	-	-	-	-	-	-	-	-	-	-	-	-	-
1915	-	-	-	-	-	-	-	-	-	-	-	-	-
1916	-	-	-	-	-	-	-	-	-	-	-	-	-
1923	-	-	-	-	-	-	\$213	713	678	217	75.6	35.8	-
1924	34.9	33.6	-	-	-	\$40	167	935	496	148	55.8	27	-
1925	34	54.3	-	-	-	-	-	-	-	\$236	\$116	\$66	-
1926	45.1	-	-	-	-	-	-	-	-	-	-	-	-
1927	-	-	-	-	-	-	-	787	1,320	381	97.2	91.6	-
1928	208	201	-	-	-	-	-	1,370	726	343	91.6	42.5	-
1929	56.3	44	32.5	27.9	23.9	37.3	126	670	631	153	49.9	29.3	1,880
1930	27.4	23.3	22.9	19	29.9	28.9	505	564	406	114	42.4	33.2	1,820
1931	56.7	59.5	46.6	42.7	41.9	73.8	196	726	337	84.2	38	41.1	1,740
1932	37.8	48.8	48.5	33.9	82.8	131	326	892	732	214	70.1	42.8	2,680
1933	51.1	136	117	71.9	50.5	84	239	682	1,490	\$332	\$87.9	\$51.8	\$3,360
1934	178.3	245.6	215.4	167.8	113.4	181.1	700.3	936.2	411.8	117.2	47.65	32.05	3,347
1935	54.07	122.8	61.29	56.79	57.13	78.73	181.9	784.2	713.5	197.6	59.29	34.14	2,401
1936	27.75	23.55	19.27	21.27	20.08	29.12	429.7	1,074	424.9	95.93	41.56	29.62	2,237
1937	26.58	21.51	25.23	16.35	16.75	24.71	120.2	698.3	522.5	141.2	53.69	29.97	1,697
1938	33.85	49.03	59.1	58.84	52.55	57.74	316.1	714.6	623.1	161.2	54.92	33.78	2,215
1939	35.2	33.47	48.04	46.35	28.82	80.06	453.3	979	454.1	167.7	51.16	32.14	2,409
1940	22.8	28.36	42.83	34.19	33.3	84.71	271.4	649.4	342.8	81.54	37.34	29.72	1,664
1941	31.26	29.21	29.35	28.61	27.59	58.59	193.7	406.6	235.9	70.86	34.22	46.7	1,193
1942	93.58	70.92	144.9	58.93	33.56	38.3	324.9	569.7	544.9	217.2	62.35	40.73	2,200
1943	32.15	64.47	67.54	46.16	41.02	57.32	583.5	683.5	954.3	501.2	102.7	49.57	3,183
1944	45.67	38.01	37.9	27.69	22	27.69	154.2	545.1	322.1	102.5	46.37	40.16	1,409
1945	38.73	35.57	36.28	49.96	40.07	45.83	109.2	734.4	643.4	202.6	56.05	39.68	2,032
1946	56.7	114	69.5	53.94	40.01	81.51	427	866.6	645.8	215.5	69.47	42.57	2,683
1947	94.64	102.6	119.1	90.64	97.19	115.2	397.7	1,091	694.3	229.2	75.53	59.2	3,155
1948	153.4	85.03	58.39	57.33	39.87	38.98	236.4	1,115	906.3	185.6	76.77	37.94	2,991
1949	29.65	27.81	26.98	21.9	19.81	35.58	334.4	980.6	470.4	113.7	46.87	36.98	2,145
1950	43.2	82.92	90.78	59.46	47.9	67.44	207.7	764	1,187	597.5	140.3	55.78	3,344

* Not previously published; partly estimated on the basis of records for nearby stations.

Yearly discharge, in cubic feet per second, of South Fork Flathead River near Columbia Falls, Mont.

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	a21,800	June 13, 1911	-	-	-	-	-	-	-	-
1912	332	a16,000	June 14, 1912	-	-	-	-	-	-	-	-
1913	362	a39,000	June 3, 1913	-	-	-	-	-	-	-	-
1914	392	a22,200	May 17, 1914	-	-	-	-	-	-	-	-
1915	412	a7,300	June 25, 1915	-	-	-	-	-	-	-	-
1916	442	a46,200	June 19, 1916	-	-	-	-	-	-	-	-
1923	572	*21,900	May 26, 1923	-	-	-	-	-	-	-	-
1924	592	*25,400	May 17, 1924	-	-	-	-	-	-	-	-
1925	612	23,200	May 25, 1925	-	-	-	-	-	-	-	-
1926	632	b17,300	-	-	-	-	-	-	-	-	-
1927	652	*38,000	June 9, 1927	-	-	-	-	-	-	-	-
1928	672	34,100	May 25, 1928	-	-	-	-	-	-	-	-
1929	692	24,400	May 4, 1929	375	2,800	1.56	21.17	1,880,000	2,520	20.50	1,820,000
1930	707	14,800	Apr. 25, 1930	243	2,510	1.51	20.45	1,820,000	2,630	21.45	1,910,000
1931	722	22,700	May 16, 1931	409	2,410	1.45	19.61	1,740,000	2,370	19.31	1,720,000
1932	737	*30,000	May 22, 1932	374	3,660	2.20	29.93	2,660,000	3,890	31.84	2,830,000
1933	752	36,800	June 16, 1933	676	*4,650	*2.79	*37.85	*3,360,000	*5,110	*41.61	*3,598,000
1934	767	22,000	Apr. 25, 1934	500	4,623	2.77	37.66	3,347,000	4,069	33.14	2,946,000
1935	792	*26,400	May 23, 1935	461	3,317	1.99	27.00	2,401,000	3,086	25.12	2,234,000
1936	812	*30,900	May 15, 1936	209	3,081	1.85	25.20	2,237,000	3,085	25.22	2,240,000
1937	832	17,000	May 29, 1937	-	2,344	1.41	19.08	1,697,000	2,439	19.85	1,766,000
1938	862	23,100	May 27, 1938	471	3,059	1.84	24.91	2,215,000	3,024	24.64	2,190,000
1939	882	27,000	Apr. 30, 1939	380	3,328	2.00	27.11	2,409,000	3,305	26.91	2,392,000
1940	902	14,700	May 12, 1940	350	2,293	1.38	18.72	1,664,000	2,279	18.61	1,654,000
1941	932	11,200	May 14, 1941	340	1,647	.988	13.44	1,193,000	1,951	15.91	1,412,000
1942	962	23,500	May 27, 1942	400	3,039	1.82	24.74	2,200,000	2,638	23.11	2,055,000
1943	982	25,400	June 19, 1943	485	4,397	2.64	35.80	3,183,000	4,338	35.32	3,141,000
1944	1012	15,100	May 16, 1944	340	1,941	1.16	15.85	1,409,000	1,926	15.73	1,398,000
1945	1042	19,500	June 1, 1945	460	2,807	1.68	22.86	2,032,000	2,966	24.31	2,161,000
1946	1062	25,100	May 29, 1946	550	3,705	2.22	30.16	2,683,000	3,811	31.01	2,759,000
1947	1092	35,800	May 9, 1947	592	4,358	2.61	35.42	3,155,000	4,433	35.22	3,210,000
1948	1122	43,400	May 22, 1948	450	4,120	2.47	33.69	2,991,000	3,828	31.28	2,779,000
1949	1152	27,100	May 15, 1949	270	2,962	1.78	24.12	2,145,000	3,145	25.62	2,277,000
1950	1182	29,400	June 22, 1950	568	4,618	2.77	37.65	3,344,000	-	-	-

* Revised.

* Not previously published.

a Maximum observed.

b From recorded range in stage.

458. Flathead River at Columbia Falls, Mont.

Location--Lat 48°21'50", long. 114°11'10", in NW¼ SE¼ (corrected) sec. 17, T. 30 N., R. 20 W., on right bank 200 ft downstream from county highway bridge at Columbia Falls and 5 miles downstream from South Fork.

Drainage area--4,464 sq mi (revised).

Supplemental records available--Records of chemical analyses and water temperatures for the period January 1949 to September 1950 are published in reports of the Geological Survey.

Gage--Water-stage recorder. Datum of gage is 2,978.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 12, 1928, wire-weight gage 200 ft upstream at datum 0.19 ft higher.

Average discharge--22 years (1928-50), 8,943 cfs.

Extremes--1922-23, 1928-50: Maximum discharge, 102,000 cfs May 23, 1948 (gage height, 19.08 ft); minimum, 798 cfs Dec. 8, 1929 (gage height, -0.08 ft).
Maximum stage known, 22.7 ft in June 1894, from floodmarks (discharge, 135,000 cfs from rating curve extended above 85,000 cfs by logarithmic plotting).

Remarks--No significant diversion.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	-	-	-	-	-	-	-	-	*42,700	7,850	*3,280	-	-
1923	-	-	-	-	-	-	-	*42,000	*52,000	*12,900	*4,370	*2,320	-
1928	-	-	-	-	-	-	-	-	-	16,900	4,980	2,800	-
1929	3,880	2,680	2,010	1,720	1,530	1,930	5,450	29,000	29,000	7,970	3,150	1,970	7,560
1930	1,600	1,290	1,320	1,340	1,670	1,620	20,100	24,300	20,600	6,780	2,840	2,110	7,130
1931	2,580	2,530	1,600	1,710	2,090	2,670	8,040	30,400	15,700	4,690	2,300	2,250	6,420
1932	1,920	2,270	1,820	1,340	2,990	5,510	14,300	42,400	37,800	11,300	4,170	2,680	10,700
1933	2,640	5,220	4,610	2,500	1,160	2,100	10,300	30,500	61,900	16,800	4,890	3,210	12,200
1934	8,117	11,050	9,035	7,264	5,103	6,698	32,210	43,350	20,050	6,754	2,924	1,909	12,900
1935	2,254	6,722	2,892	3,484	3,355	2,816	7,227	34,030	34,910	11,990	3,845	2,210	9,662

* Not previously published; partly estimated on the basis of records for nearby stations.

Monthly and yearly mean discharge, in cubic feet per second, of Flathead River at Columbia Falls, Mont.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	1,657	1,446	1,113	1,132	1,171	1,629	16,680	43,130	19,410	5,180	2,510	1,790	8,089
1937	1,431	1,182	1,178	928	905	1,083	5,028	30,580	27,370	8,145	3,055	1,829	6,920
1938	2,012	3,027	2,332	2,501	2,180	2,461	15,190	35,100	32,610	9,629	3,453	2,273	9,416
1939	2,200	1,946	2,254	2,141	1,302	3,215	18,520	38,960	19,990	8,536	3,016	1,968	8,710
1940	1,582	1,587	2,128	1,544	1,585	3,041	10,570	27,930	16,230	4,434	2,103	1,981	6,236
1941	2,017	1,675	1,559	1,449	1,358	2,202	8,735	18,070	11,260	4,178	1,980	3,174	4,818
1942	4,852	3,620	7,336	3,308	2,158	1,788	13,040	25,540	25,210	12,460	4,046	2,711	8,868
1943	2,063	2,960	3,145	2,355	2,525	2,634	24,530	27,630	38,480	20,290	5,049	2,614	11,190
1944	2,298	1,892	1,655	1,291	1,143	1,260	5,748	21,080	14,390	4,855	2,689	2,248	5,048
1945	2,254	1,937	1,605	1,309	1,787	1,853	3,959	30,000	28,570	9,980	3,147	2,507	7,487
1946	2,746	5,007	3,026	2,383	2,019	3,326	17,540	39,560	30,060	10,960	3,883	2,633	10,290
1947	4,125	4,086	3,800	2,658	3,418	4,186	17,030	46,490	31,100	11,350	4,562	3,591	11,400
1948	8,546	4,803	2,852	2,460	1,893	1,837	10,370	45,840	39,350	9,445	5,347	2,519	11,290
1949	1,837	1,573	1,370	1,269	1,309	1,882	13,140	40,020	22,400	6,758	3,245	2,365	8,117
1950	2,398	4,375	4,271	2,563	2,379	3,128	8,375	32,770	51,670	25,140	6,685	3,210	12,290

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	-	-	-	-	-	-	-	-	#2540	483	#202	-	-
1923	-	-	-	-	-	-	-	#2,580	#3090	#793	#269	#158	-
1928	-	-	-	-	-	-	-	-	-	1,160	306	167	-
1929	239	171	124	106	85	119	324	1,780	1,730	490	194	117	5,480
1930	98.4	76.8	81.2	82.4	92.8	99.6	1,200	1,490	1,230	417	175	126	5,170
1931	159	151	111	105	116	164	478	1,870	934	288	141	154	4,650
1932	118	135	112	82.4	172	339	851	2,610	2,240	695	256	159	7,770
1933	162	311	283	141	104	129	613	1,880	3,680	1,030	301	191	8,820
1934	499.1	657.5	555.5	446.6	285.4	411.8	1,916	2,665	1,193	415.3	179.8	113.6	9,337
1935	138.6	400	177.8	214.2	186.3	173.2	430	2,092	2,077	737	236.4	113.6	6,994
1936	101.9	86.02	68.44	69.63	67.38	100.1	992.7	2,652	1,155	318.5	154.3	106.5	5,872
1937	68.01	70.35	72.42	57.07	50.26	66.59	299.2	1,880	1,628	500.8	187.8	108.8	5,009
1938	123.7	180.1	143.4	153.8	121.1	152.5	903.7	2,158	1,941	592.1	212.3	135.3	6,817
1939	135.3	115.8	138.6	131.6	72.34	197.7	1,102	2,396	1,189	524.9	185.5	117.1	6,306
1940	97.29	94.41	130.8	94.93	91.16	187	629	1,717	965.6	272.6	129.3	117.9	4,527
1941	124	99.69	95.84	89.12	75.39	135.4	519.7	1,111	670.1	256.9	121.8	188.9	3,488
1942	298.3	215.4	451.1	203.1	119.7	110	775.8	1,570	1,500	768	248.8	161.3	6,420
1943	126.8	178.1	193.3	144.8	140.2	162	1,459	1,699	2,290	1,247	310.4	155.6	8,104
1944	141.3	112.6	101.8	79.4	65.73	77.49	342	1,296	856.2	298.6	159.2	133.7	3,664
1945	138.6	115.3	98.68	117.4	99.25	114	235.6	1,845	1,700	613.6	193.5	149.2	5,420
1946	168.9	298	186.1	146.5	112.1	204.5	1,044	2,433	1,789	673.7	238.8	156.7	7,451
1947	253.6	243.1	233.7	163.4	189.8	257.4	1,014	2,859	1,850	698	280.5	213.7	8,256
1948	525.5	285.8	175.3	151.2	108.9	113	616.9	2,819	2,342	580.8	328.8	149.9	8,197
1949	113	92.62	64.22	78.05	72.69	103.4	762	2,460	1,353	415.5	199.5	140.7	5,676
1950	147.5	260.3	262.6	157.6	132.1	192.3	498.3	2,015	2,075	1,546	423.3	191	8,901

* Not previously published; partly estimated on the basis of records for nearby stations.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1922	552	a82,200	June 5, 1922	-	-	-	-	-	-	-	-
1923	572	a88,000	June 1, 1923	-	-	-	-	-	-	-	-
1928	672	#101,000	May 26 or 27, 1928	-	-	-	-	-	-	-	-
1929	692	69,700	May 24, 1929	1,410	7,560	1.69	23.00	5,480,000	7,180	21.83	5,200,000
1930	707	58,800	May 31, 1930	864	7,130	1.60	21.67	5,170,000	7,360	22.36	5,330,000
1931	722	62,300	May 18, 1931	1,320	6,420	1.44	19.55	4,650,000	6,340	19.31	4,600,000
1932	737	69,800	May 22, 1932	1,110	10,700	2.40	32.61	7,770,000	11,200	34.24	8,160,000
1933	752	91,200	June 16, 1933	1,510	12,200	2.73	37.11	8,620,000	13,500	41.14	9,780,000
1934	767	60,200	Apr. 25, 1934	1,680	12,900	2.69	39.25	9,337,000	11,520	35.06	8,341,000
1935	792	71,000	May 24, 1935	1,510	9,662	2.16	29.37	6,994,000	9,026	27.44	6,534,000
1936	812	71,800	May 15, 1936	899	8,089	1.81	24.67	5,872,000	8,054	24.56	5,847,000
1937	832	46,000	May 28, 1937	850	6,920	1.55	21.05	5,009,000	7,219	21.96	5,226,000
1938	862	70,400	May 27, 1938	1,440	9,418	2.11	28.64	6,817,000	9,337	28.40	6,760,000
1939	882	55,600	Apr. 30, 1939	1,000	8,710	1.95	26.48	4,306,000	8,617	26.20	6,239,000
1940	902	41,300	May 12, 1940	900	6,236	1.40	19.03	4,527,000	6,232	19.01	4,524,000
1941	932	26,400	May 14, 1941	1,000	4,818	1.08	14.65	3,488,000	5,709	17.36	4,133,000
1942	962	56,300	May 27, 1942	1,490	8,868	1.99	26.96	6,420,000	8,221	24.99	5,951,000
1943	982	62,800	June 18, 1943	1,600	11,190	2.51	34.06	8,104,000	11,000	33.47	7,964,000
1944	1012	34,700	May 20, 1944	1,050	5,048	1.13	15.39	3,664,000	5,043	15.38	3,661,000
1945	1042	52,700	June 1, 1945	1,200	7,487	1.68	22.77	5,420,000	7,901	24.03	5,721,000
1946	1062	68,400	May 29, 1946	1,500	10,290	2.31	31.30	7,451,000	10,400	31.63	7,529,000
1947	1092	83,700	May 9, 1947	2,200	11,400	2.55	34.67	8,256,000	11,760	35.74	8,512,000
1948	1122	102,000	May 23, 1948	1,500	11,290	2.53	34.46	8,197,000	10,330	31.54	7,501,000
1949	1152	65,200	May 15, 1949	1,100	8,117	1.82	24.68	5,876,000	8,641	26.27	6,255,000
1950	1182	74,600	June 22, 1950	1,810	12,290	2.75	37.41	8,901,000	-	-	-

* Not previously published.
Maximum observed.

459. Logan Creek at Tally Lake, near Whitefish, Mont.

Location.--Lat 48°27'10", long. 114°34'10", in SW¼NW¼ sec. 17, T. 31 N., R. 23 W., on left bank 2½ miles downstream from Tally Lake and 10 miles west of Whitefish.

Drainage area.--183 sq mi. At site prior to September 1934, 179 sq mi.

Gage.--Staff gage. Altitude of gage is 3,340 ft (by barometer). Aug. 20, 1931, to Sept. 16, 1934, water-stage recorder at outlet of Tally Lake 2½ miles upstream at different datum.

Average discharge.--8 years (1936-42, 1945-47), 75.0 cfs.

Extremes.--1931-34, 1936-42, 1945-47: Maximum discharge observed, 1,380 cfs May 11, 1947 (gage height, 4.85 ft); minimum observed, 0.7 cfs Sept. 1, 2, 1940.
Flood of May 28, 29, 1933 reached a stage of 7.22 ft, site and datum then in use (discharge not determined).

Remarks.--Natural storage in Tally Lake. Prior to Sept. 15, 1934, some regulation by small timber dam at outlet used in connection with logging operations on Stillwater River.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	-	-	-	-	-	-	-	-	-	-	\$5	4.05	-
1932	7.80	15.6	\$13	-	-	\$21	\$150	-	-	\$92	20.5	14.4	-
1933	19.4	31.5	24.5	23.1	18.6	20.7	\$84	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	136	41.5	11.6	-	-
1936	-	-	-	-	-	-	-	400	83.4	23.7	6.49	8.52	-
1937	11.5	12.9	15.6	7.37	9.66	13.8	43.3	344	150	50.0	14.2	5.01	56.9
1938	11.8	16.4	19.2	20.0	17.9	19.2	153	383	149	62.8	11.8	14.4	73.5
1939	15.8	20.4	17.5	22.2	19.3	28.0	158	264	91.9	36.0	9.25	7.06	57.6
1940	6.91	14.7	15.3	13.2	10.6	22.3	110	121	34.6	9.14	3.56	1.57	30.3
1941	4.63	11.4	14.7	13.0	11.9	14.3	70.4	66.3	36.0	10.5	4.03	6.90	22.0
1942	17.0	20.6	37.0	27.5	21.8	19.1	181	501	307	162	50.4	26.8	97.7
1945	-	-	-	-	-	-	-	270	117	33.8	9.53	9.13	-
1946	19.2	28.4	22.1	22.0	21.3	24.6	271	434	129	53.3	8.67	16.1	87.8
1947	37.4	37.4	45.8	51.4	54.4	72.9	449	828	322	92.5	49.4	35.7	174

* Not previously published; partly estimated on the basis of records for Logan Creek near Whitefish and Stillwater River near Whitefish.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	-	-	-	-	-	-	-	-	-	-	\$307	241	-
1932	480	928	\$799	-	-	\$1,290	\$8,930	-	-	\$5,680	1,260	857	-
1933	1,190	1,870	1,510	1,420	1,030	1,270	\$5,000	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	8,080	2,550	711	-	-
1936	-	-	-	-	-	-	-	24,570	4,960	1,460	399	507	-
1937	708	770	960	453	537	849	2,580	21,170	8,910	3,070	873	298	41,180
1938	724	974	1,180	1,230	996	1,180	9,090	23,540	8,870	3,860	725	858	53,230
1939	974	1,210	1,080	1,370	1,070	1,720	9,390	16,220	5,470	2,210	568	420	41,700
1940	425	873	942	809	611	1,370	6,560	7,470	2,060	562	219	93	21,990
1941	284	680	902	801	660	879	4,190	4,080	2,140	646	248	411	15,920
1942	1,040	1,220	2,270	1,690	1,210	1,170	10,750	18,490	16,250	9,940	3,100	1,590	70,720
1945	-	-	-	-	-	-	-	16,620	6,940	2,080	586	543	-
1946	1,180	1,690	1,360	1,350	1,180	1,520	16,150	26,660	7,680	3,270	533	956	63,530
1947	2,300	2,230	2,820	3,160	3,020	4,480	26,700	50,910	19,160	5,680	3,040	2,120	125,600

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1931	737	-	-	-	-	-	-	-	-	-	-
1932	737	-	-	-	-	-	-	-	-	-	-
1933	752	-	-	-	-	-	-	-	-	-	-
1934	767	-	-	-	-	-	-	-	-	-	-
1936	812	-	-	-	-	-	-	-	-	-	-
1937	832	a515	May 9, 1937	-	56.9	0.311	4.22	41,180	57.5	4.26	41,620
1938	862	a590	May 5, 1938	5.5	73.5	.402	5.45	53,230	74.0	5.49	53,610
1939	882	a477	May 6, 1939	5.8	57.6	.315	4.27	41,700	56.2	4.17	40,680
1940	902	a165	May 6, 1940	.7	30.3	.166	2.24	21,990	29.8	2.20	21,620
1941	932	a90	May 6, 1941	2.2	22.0	.120	1.64	15,920	25.7	1.92	18,580
1942	962	496	May 29, 1942	11	97.7	.534	7.24	70,720	-	-	-
1945	1042	a381	May 17, 1945	-	-	-	-	-	-	-	-
1946	1062	a650	Apr. 29, 1946	7.3	87.8	.480	6.50	63,530	92.0	6.83	66,650
1947	1092	a1,380	May 11, 1947	18	174	.951	12.86	125,600	-	-	-

a Maximum observed.

460 Logan Creek near Whitefish, Mont.

Location (revised).--Lat 48°29'00", long. 114°32'00", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 4, T. 31 N., R. 23 W., on left bank 100 ft upstream from Good Creek and 10 miles northwest of Whitefish.

Drainage area.--199 sq mi.

Gage.--Staff gage. Altitude of gage is 3,010 ft (by barometer).

Extremes.--April to September 1931: Maximum discharge observed, 240 cfs May 8 (gage height, 2.48 ft); minimum observed, 1.2 cfs Sept. 4, 5 (gage height, 0.34 ft).

Remarks.--Natural storage in Tally Lake. Some regulation by small timber dam at lake outlet used in connection with logging operations on Stillwater River.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1931				-	168	53.6	22.9	5.31	4.02				

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1931				-	10,300	3,190	1,410	326	239				

461 Stillwater River near Whitefish, Mont.

Location.--Lat 48°19'10", long. 114°23'00", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 34, T. 30 N., R. 22 W., on right bank 600 ft downstream from highway bridge, 7 miles southwest of Whitefish, and 10 miles upstream from Whitefish Creek.

Drainage area.--325 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 2,950 ft (by barometer).

Average discharge.--20 years (1930-50), 340 cfs.

Extremes.--1930-50: Maximum discharge, 4,330 cfs May 26, 1948 (gage height, 20.90 ft, from floodmark); minimum daily, 40 cfs Dec. 24, 1944; minimum gage height, 0.59 ft Sept. 15, 1944.

Remarks.--A few diversions for irrigation above station. Some regulation during early years of record by splash dams at lake outlets in upper valley for log drives.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	*5,390	*4,980	4,530	4,840	5,680	8,790	21,800	40,800	19,700	9,530	4,680	3,980	*135,000
1932	5,940	4,180	4,490	5,390	4,290	8,670	42,800	99,000	76,800	27,900	11,900	7,500	297,000
1933	7,130	6,520	7,440	7,500	5,720	7,440	27,700	95,500	93,400	30,600	12,500	9,220	315,000
1934	10,130	17,340	18,130	30,410	15,240	31,530	110,400	95,660	38,730	16,290	7,360	5,570	396,800
1935	7,050	11,120	8,390	7,800	7,210	8,460	25,850	105,200	68,670	28,880	11,440	6,820	296,900
1936	5,900	5,830	5,550	5,810	3,820	5,240	39,100	73,520	31,260	11,600	5,510	4,550	197,700
1937	4,400	4,080	4,640	3,740	4,110	4,790	12,730	64,280	42,490	16,820	7,970	4,860	174,900
1938	4,790	5,800	5,790	5,700	5,240	6,570	31,240	65,780	46,170	22,060	9,540	6,910	215,400
1939	7,120	6,200	5,420	5,020	4,460	7,380	38,620	59,400	30,860	16,170	6,980	4,950	192,600
1940	4,500	4,740	4,570	3,640	3,740	7,200	22,600	34,900	21,620	7,970	4,540	3,460	123,500
1941	3,660	4,090	4,370	4,070	3,840	6,350	14,070	22,240	15,440	6,520	3,410	4,200	92,260
1942	7,170	6,920	10,980	7,610	5,600	6,270	27,410	53,120	66,170	38,090	14,660	9,120	253,100
1943	6,740	7,270	7,700	5,990	5,770	6,500	84,830	83,190	73,370	35,350	13,160	8,010	337,900
1944	7,400	6,660	6,060	4,530	4,140	4,970	9,870	16,290	16,390	6,750	3,880	3,260	90,200
1945	3,250	3,210	3,120	4,130	3,540	4,830	8,190	43,430	34,640	17,510	6,970	5,040	137,900
1946	4,850	7,750	5,570	5,560	4,790	7,640	47,810	87,470	52,980	23,750	9,520	7,590	265,300
1947	8,610	7,490	8,790	5,030	5,160	12,570	71,880	34,300	68,310	26,800	14,360	11,630	372,900
1948	16,670	15,340	10,980	8,660	6,290	8,470	43,090	53,400	85,750	29,130	20,160	9,510	405,400
1949	8,230	5,950	4,330	3,690	3,590	8,750	49,220	15,400	43,010	16,940	9,720	7,060	275,900
1950	6,710	8,170	8,900	6,910	6,630	8,820	31,410	95,470	100,400	44,750	17,340	9,530	345,000

* Not previously published; estimated on the basis of records for Stillwater River near Kalispell.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	*87.6	*82.0	73.6	78.7	102	143	366	663	331	155	76.1	67.0	*186
1932	64.0	70.2	73.1	87.6	74.5	141	720	1,610	1,290	454	194	126	409
1933	116	160	121	122	103	121	466	1,570	1,570	497	203	155	435
1934	165	291	295	495	274	513	1,855	1,556	651	265	120	93.5	548
1935	115	188	137	127	130	138	434	1,711	1,154	470	186	115	410
1936	96.0	98.0	90.3	94.4	66.4	85.3	657	1,196	525	189	89.7	76.5	272
1937	71.6	68.6	75.5	60.3	74.1	78.0	214	1,045	714	274	130	81.7	242
1938	77.6	94.1	94.2	92.7	94.3	107	825	1,070	776	359	155	116	297
1939	116	104	88.2	81.6	80.4	120	649	966	519	263	114	82.9	266
1940	73.2	79.6	74.3	59.2	65.0	117	380	568	363	130	73.8	58.2	170

* Not previously published; estimated on the basis of records for Stillwater River near Kalispell.

Yearly discharge, in cubic feet per second, of Stillwater River near Kalispell, Mont.											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1907	214	-	-	-	-	-	-	-	-	-	
1922	552	2,750	May 22, 1922	-	-	-	-	-	-	-	
1928	672	-	-	-	-	-	-	-	-	-	
1929	692	1,190	May 26, 1929	-	-	-	-	-	-	-	
1930	707	1,410	June 4, 1930	31	192	0.568	7.70	139,000	-	-	
1931	722	-	-	-	-	-	-	-	-	-	

463. Whitefish Creek near Kalispell, Mont.

Location.--Lat 48°19'10", long. 114°16'30", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ (revised) sec. 34, T. 30 N., R. 21 W., on left bank 8 miles upstream from mouth and 8 miles north of Kalispell.

Drainage area.--170 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 2,969.7 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 16, 1930, staff gage 200 ft downstream at datum 10.00 ft lower.

Average discharge.--21 years (1929-50), 191 cfs.

Extremes.--1928-50: Maximum discharge, 1,290 cfs May 30, 1948; maximum gage height, 4.45 ft June 26, 1950; minimum discharge, 4.5 cfs Oct. 18, 1934 (gage height, 0.83 ft).

Remarks.--Diversion for Whitefish municipal water supply and for irrigation of about 120 acres above station. Some regulation by Whitefish Lake.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	145	102	-
1929	76.0	82.1	-	-	-	-	89.0	397	563	213	39.7	54.3	-
1930	19.7	29.2	44.4	35.9	45.0	58.6	141	295	406	128	61.5	39.1	106
1931	8.36	29.8	42.6	40.8	41.5	95.3	163	463	326	148	29.5	23.9	118
1932	68.6	78.1	56.6	71.6	64.8	78.1	275	799	914	318	117	102	245
1933	54.8	59.7	86.2	86	67	105	186	504	970	379	169	119	232
1934	110	177	331	209	157	151	549	868	551	222	64.5	59.3	280
1935	40.0	117	101	74.2	85.1	81.2	144	566	823	393	99.8	91.8	218
1936	81.6	42.2	23.0	29.7	25.5	212	249	693	391	120	53.2	82.7	167
1937	46.2	20.1	32.5	26.5	37.9	137	113	388	520	235	98.3	62.0	143
1938	24.7	95.1	32.6	13.9	15.5	63.0	158	496	660	226	118	111	168
1939	107	70.2	50.4	61.1	55.2	79.4	256	653	457	244	49.8	26.8	177
1940	84.2	36.3	56.5	60.1	92.2	115	228	398	369	93.7	68.8	59.0	138
1941	51.5	47.6	53.7	48.4	52.4	71.2	155	372	260	88.5	52.7	81.3	111
1942	79.5	97.3	131	127	87.7	208	467	566	311	134	69.7	161	201
1943	122	90.1	84.9	65.6	58.5	62.6	369	439	626	370	113	81.4	207
1944	77.2	72.0	56.1	42.7	42.1	48.9	142	214	326	99.4	53.0	51.5	102
1945	46.8	54.5	53.7	88.9	73.3	57.9	88.4	426	591	265	73.6	65.8	157
1946	59.5	68.3	65.5	74.9	81.5	211	331	716	860	310	107	118	251
1947	124	110	91.2	64.7	88.3	137	382	887	790	296	113	149	270
1948	150	167	128	72.3	48.0	72.3	266	756	915	265	141	109	257
1949	94.9	77.0	62.6	44.3	45.2	85.3	316	743	583	170	103	86.7	202
1950	43.6	64.3	81.8	85.1	88.9	98.0	239	485	804	626	200	114	253

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	8,920	6,070	-
1929	4,670	4,890	-	-	-	-	5,300	24,400	33,500	13,100	2,440	3,230	-
1930	1,210	1,740	2,730	2,210	2,500	3,600	8,390	18,100	24,200	7,870	3,780	2,330	78,700
1931	514	1,770	2,620	2,510	2,300	5,860	9,700	28,500	19,400	9,100	1,810	1,420	85,500
1932	4,220	4,650	3,480	4,400	3,730	4,800	16,400	49,100	54,400	19,600	7,190	6,070	178,000
1933	3,370	3,550	5,300	5,290	3,720	6,460	11,100	51,000	57,700	23,300	10,400	7,080	168,000
1934	6,750	10,520	14,220	12,870	8,720	9,300	32,680	53,400	32,760	13,670	3,970	3,530	202,400
1935	2,480	8,950	6,200	4,560	4,720	4,990	8,560	34,820	48,940	24,180	6,140	5,460	158,000
1936	5,020	2,510	1,410	1,820	1,470	13,050	14,790	42,590	23,250	7,350	3,270	4,920	121,400
1937	2,840	1,200	2,000	1,630	2,100	8,410	6,710	23,840	30,960	14,440	6,040	3,690	103,900
1938	1,520	5,660	2,010	853	863	3,880	9,370	30,500	39,300	13,870	7,270	6,610	121,700
1939	6,570	4,180	3,100	3,760	3,060	4,880	15,230	40,150	27,170	15,020	3,060	1,590	127,800
1940	5,170	2,160	3,480	3,700	5,310	7,090	13,580	24,990	21,960	5,760	4,230	3,510	100,400
1941	3,170	2,830	3,300	2,970	2,910	4,380	9,230	22,870	15,470	5,440	3,240	4,840	80,650
1942	4,890	5,780	8,070	7,780	7,070	5,400	12,370	28,700	33,650	19,130	8,260	4,150	145,200
1943	7,480	5,360	5,220	4,040	3,250	3,850	21,950	26,970	37,270	22,730	6,960	4,840	149,900
1944	4,750	4,290	3,450	2,630	2,420	3,000	8,430	13,160	19,420	6,110	3,260	3,070	73,990
1945	2,880	3,240	3,300	5,470	4,070	3,560	5,260	26,200	35,150	16,320	4,530	3,800	113,800
1946	3,660	4,070	4,030	4,610	4,530	12,950	19,720	44,050	51,160	19,070	6,550	7,020	181,400
1947	7,600	6,550	5,610	3,980	4,930	8,400	22,710	54,550	47,000	18,190	6,940	8,860	195,300
1948	9,210	9,920	7,980	4,440	2,780	4,440	15,840	46,460	54,470	16,270	9,690	6,500	186,900
1949	5,830	4,580	5,850	2,730	2,510	5,250	18,790	45,710	34,710	10,460	6,360	5,160	145,900
1950	2,680	3,820	5,030	5,230	4,930	6,030	14,200	29,810	53,800	38,500	12,300	6,770	183,100

Yearly discharge, in cubic feet per second, of Whitefish Creek near Kalispell, Mont.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1928	672	-	-	-	-	-	-	-
1929	692	a684	June 4, 1929	-	-	-	-	-
1930	707	a827	June 9, 1930	7.2	106	78,700	108	77,900
1931	722	648	May 19, 1931	7.2	118	85,500	128	93,000
1932	737	*1,270	June 3, 1932	27	245	178,000	245	178,000
1933	752	1,140	June 18, 1933	24	232	168,000	259	187,500
1934	767	982	May 1, 1934	7.5	280	202,400	258	186,500
1935	792	905	June 16, 17, 1935	5.0	218	158,000	209	151,300
1936	812	858	May 17, 1936	7.5	167	121,400	163	118,600
1937	832	861	June 8, 1937	13	143	103,900	148	107,000
1938	862	782	May 31, 1938	5.2	168	121,700	175	126,400
1939	882	757	May 20, 1939	22	177	127,800	172	124,700
1940	902	552	May 26, 1940	11	138	100,400	136	98,930
1941	932	488	May 6, 1941	24	111	80,650	125	90,090
1942	962	682	June 6, 1942	15	201	145,200	200	144,600
1943	982	709	June 23, 1943	30	207	149,900	199	144,400
1944	1012	408	May 20, 1944	30	102	73,990	97.7	70,920
1945	1042	710	June 5-8, 1945	40	157	113,800	160	116,100
1946	1062	1,110	(b)	50	251	181,400	262	189,400
1947	1092	1,170	May 12, 1947	45	270	195,300	280	202,600
1948	1122	1,290	May 30, 1948	40	257	186,900	240	174,100
1949	1152	982	May 18, 1949	35	202	145,900	198	143,200
1950	1182	1,280	June 26, 1950	19	253	183,100	-	-

* Revised.

a Maximum observed.

b May 31, June 1-3, 1946.

464. Ashley Creek near Kila, Mont.

Location.--Lat 48°10', long. 114°36', in NW $\frac{1}{4}$ sec. 25, T. 28 N., R. 24 W., on upstream end of right abutment of bridge, about $1\frac{1}{2}$ miles downstream from Ashley Lake, and 7 miles northwest of Kila.

Drainage area.--44.2 sq mi.

Gage.--Staff gage. Altitude of gage is 3,850 ft (by barometer).

Extremes.--July to December 1916: Maximum discharge observed, 20 cfs Aug. 9 (gage height, 1.82 ft); minimum observed, 4.2 cfs Sept. 29 (gage height, 1.14 ft).

Remarks.--No diversion above station. Flood water stored in Ashley Lake (usable capacity, 20,000 acre-feet) for release during irrigation seasons.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1916							-	15.7	14.2	17.4	15.1	-

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1916							-	965	845	1,070	898	-

465. Ashley Creek near Kalispell, Mont.

Location.--Lat 48°10'00", long. 114°26'00", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29, T. 28 N., R. 22 W., on left bank $2\frac{1}{2}$ miles downstream from Smith Lake, $1\frac{1}{2}$ miles upstream from headgate of Ashley Irrigation District canal, and 5 miles west of Kalispell.

Drainage area.--201 sq mi.

Gage.--Wire-weight gages and Cippoletti weir. Altitude of gage is 3,130 ft (by barometer). Prior to Sept. 13, 1938, wire-weight gage 75 feet upstream at datum 3.86 ft lower.

Average discharge.--17 years (1931-32, 1934-50), 30.4 cfs.

Extremes.--1931-50: Maximum discharge, 749 cfs May 27, 1948 (gage height, 7.58 ft, from graph based on gage readings); no flow at times.

Remarks.--Diversion for irrigation of about 100 acres above station. Floodwater stored in Ashley Lake (usable capacity, 20,000 acre-feet) for release during irrigation seasons.

PEND OREILLE RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Ashley Creek near Kalispell, Mont.											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	The year
1931	-	-	-	-	-	-	-	26.7	17.1	11.7	0.94
1932	0	0	0	0	0	7.1	50.7	97.1	40.2	11.9	2.70
1933	3.32	6.72	1.28	0	0	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	63.6	35.6	26.7
1935	15.8	15.6	12.7	21.2	19.6	23.0	58.0	130	58.1	36.9	15.0
1936	10.1	6.95	5.98	4.89	1.15	18.6	66.6	104	42.2	18.0	3.01
1937	2.71	1.68	1.90	1.50	.98	3.94	35.2	35.0	42.5	32.4	8.27
1938	1.02	.99	2.5	3.0	2.0	8.90	32.4	44.8	39.5	21.7	9.65
1939	6.72	4.12	1.74	3.81	1.78	10.8	21.7	30.8	29.9	21.7	5.68
1940	.59	1.12	2.41	.71	.06	9.57	15.8	22.0	8.04	.31	0
1941	0	0	0	0	0	6.61	5.67	3.89	1.32	.22	0
1942	0	.13	.80	0	0	1.73	24.6	43.7	80.6	37.8	8.47
1943	3.46	5.73	4.78	2.28	.99	5.15	171	184	173	107	30.0
1944	10.4	12.4	8.32	5.60	6.64	14.1	22.0	27.6	33.4	17.5	21.3
1945	4.01	3.91	2.15	2.72	3.76	9.33	16.5	43.7	29.7	15.8	6.77
1946	4.45	5.60	2.91	3.01	2.09	16.3	36.4	50.1	33.4	25.2	3.43
1947	4.59	4.05	6.19	6.39	15.5	65.5	157	276	160	66.4	17.7
1948	16.9	19.6	15.4	14.1	14.1	26.3	160	484	368	115	52.4
1949	12.8	17.6	19.1	11.3	11.8	28.1	141	176	74.3	37.7	7.55
1950	2.96	8.23	4.98	2.51	2.06	17.5	118	183	190	86.1	27.1

Monthly and yearly runoff, in acre-feet											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	The year
1931	-	-	-	-	-	-	-	1,640	1,020	720	58
1932	0	0	0	-	-	437	3,020	5,970	2,390	732	161
1933	204	400	78	0	0	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	3,790	2,190	2,210
1935	971	928	778	1,300	1,090	1,420	3,450	7,990	3,460	2,270	907
1936	621	413	368	300	66	1,140	3,960	6,370	2,510	1,110	82
1937	167	100	117	92	54	242	2,090	2,150	2,530	1,990	509
1938	63	59	154	184	111	547	1,930	2,760	2,350	1,330	608
1939	413	245	107	234	99	665	1,290	1,890	1,780	1,550	349
1940	36	67	148	43	36	588	938	1,350	478	19	0
1941	0	0	0	0	0	406	338	239	79	13	0
1942	0	7.9	49	0	0	107	1,460	2,690	4,800	2,320	521
1943	213	341	294	140	55	317	10,160	11,300	10,510	6,610	1,850
1944	641	738	512	344	382	870	1,310	1,700	1,990	1,080	1,310
1945	247	233	132	167	209	573	981	2,690	1,770	970	416
1946	274	333	179	185	116	1,000	2,160	3,080	1,990	1,550	211
1947	292	241	381	393	863	4,030	9,330	16,950	9,530	4,080	1,090
1948	1,040	1,170	944	867	808	1,610	9,540	29,780	21,880	7,090	3,220
1949	785	1,050	1,170	696	655	1,730	8,420	10,840	4,420	2,320	465
1950	182	490	306	154	114	1,070	6,990	11,240	11,330	5,290	1,660

Yearly discharge, in cubic feet per second							
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1931	722	a124	-	0	-	-	-
1932	737	a124	May 14, 1932	0	17.9	13,000	18.8
1933	752	-	-	0	-	-	-
1934	767	-	-	0	-	-	-
1935	792	a166	May 24, 25, 1935	3.5	35.2	25,460	33.4
1936	812	a154	May 5, 1936	0	23.6	17,120	22.2
1937	832	a60	Apr. 5, 1937	0	13.9	10,050	13.7
1938	862	a64	June 1, 1938	0	14.7	10,670	15.4
1939	882	a46	(b)	.1	11.6	8,420	10.9
1940	902	a28	May 34, 1940	0	5.06	3,670	4.72
1941	932	a19	Mar. 18, 19, 1941	0	1.49	1,080	1.56
1942	962	a100	June 10, 1942	0	16.8	12,170	17.9
1943	982	a264	Apr. 23, 1943	.2	58.5	42,370	59.9
1944	1012	a45	June 2, 3, 4, 1944	3.8	16.1	11,690	14.3
1945	1042	a57	May 19, 1945	.2	11.8	8,550	12.0
1946	1062	a68	Mar. 22, 1946	.9	15.5	11,260	15.7
1947	1092	a374	May 12, 1947	.2	66.3	47,980	69.4
1948	1122	749	May 27, 1948	7.0	109	78,940	108
1949	1152	192	May 14-16, 1949	1.4	45.2	32,690	42.4
1950	1182	a221	May 25, 1950	.5	54.3	39,310	-

a Maximum observed.

b Mar. 26, 28, 29, 1939.

466. Swan River near Bigfork, Mont.

Location.--Lat 48°01'30", long. 113°58'40", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 11 (revised), T. 26 N., R. 19 W., on left bank at outlet of Swan Lake, about 1,000 ft downstream from Johnson Creek, and 5 miles southeast of Bigfork.

Drainage area.--671 sq mi (revised).

Supplemental records available.--October 1910 to May 1911, gage heights only.

Gage.--Water-stage recorder. Datum of gage is 3,062.6 ft (from river-profile survey).

Prior to May 22, 1911, staff gage about 10 miles upstream at different datum. Apr. 28, 1922, to Oct. 14, 1930, staff gage 800 ft upstream at datum 1.9 ft higher.

Average discharge.--28 years (1922-50), 1,086 cfs.

Extremes.--1922-50: Maximum discharge, 8,400 cfs May 24, 1948 (gage height, 7.12 ft, from graph based on gage readings); minimum observed, 193 cfs (revised) Jan. 26-29, 1930 (gage height 0.04 ft, site and datum then in use).

Remarks.--Diversion for irrigation of about 360 acres above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	-	-	-	-	-	-	-	2,910	3,770	1,240	646	498	-
1923	397	366	358	478	510	280	1,090	2,520	3,120	1,600	681	435	2972
1924	397	372	385	300	435	435	1,120	3,660	2,270	1,050	517	389	946
1925	381	517	410	380	330	620	3,230	4,470	3,380	1,700	885	716	1,420
1926	562	512	595	520	450	660	1,870	2,590	1,680	810	442	603	2942
1927	977	912	1,210	630	570	580	1,530	3,180	5,170	2,570	1,050	682	1,610
1928	998	1,510	1,280	670	570	1,050	2,060	5,470	3,960	2,830	1,150	712	1,860
1929	726	607	479	423	300	407	938	2,900	3,400	4,460	583	390	1,050
1930	366	308	404	271	236	244	1,730	2,210	2,220	887	390	319	798
1931	495	495	386	354	382	545	949	2,930	2,210	705	399	421	858
1932	401	414	358	348	315	587	1,940	3,460	3,680	1,800	699	516	1,210
1933	792	751	792	653	503	386	437	1,200	2,230	5,750	2,150	765	1,330
1934	1,137	938	1,798	1,298	839	1,027	2,661	3,027	2,053	928	485	394	1,385
1935	457	728	504	474	477	520	1,110	2,655	3,183	1,358	591	391	1,038
1936	348	355	324	349	298	391	2,109	3,973	2,708	847	418	356	1,040
1937	312	290	307	289	262	277	675	2,217	2,443	982	440	290	734
1938	308	394	428	379	334	395	1,232	2,277	2,777	1,078	472	367	871
1939	363	392	367	370	320	419	1,355	3,302	2,210	1,137	491	370	929
1940	329	349	386	333	359	704	1,355	2,466	2,268	819	420	346	845
1941	362	358	361	347	302	384	746	1,670	1,433	609	322	374	607
1942	516	494	586	382	338	343	1,375	1,988	2,605	1,571	578	415	926
1943	358	465	480	425	411	379	2,703	2,288	3,735	2,543	856	529	1,265
1944	479	460	404	341	321	329	684	1,891	1,650	705	388	350	667
1945	380	356	333	411	360	370	686	2,297	2,958	1,657	573	417	902
1946	504	676	502	484	410	586	1,875	2,923	3,126	1,520	851	462	1,145
1947	616	686	818	570	588	907	1,739	3,672	3,320	1,571	750	597	1,322
1948	955	738	604	626	473	511	1,624	4,536	4,843	1,556	864	484	1,485
1949	401	436	392	307	359	414	1,325	3,236	2,235	820	463	408	902
1950	401	516	499	407	398	619	1,605	2,480	4,106	3,310	1,225	601	1,351

* Revised.

* Not previously published; partly estimated on the basis of weather records and records for nearby streams.

a Only monthly figures revised; revised daily figures not available.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1922	-	-	-	-	-	-	-	179,000	224,000	76,200	39,700	29,600	-
1923	24,400	21,800	22,000	29,400	17,200	17,200	64,900	155,000	186,000	98,400	41,900	25,900	8704,000
1924	24,400	22,100	23,700	18,400	25,000	26,700	66,600	225,000	35,000	64,800	31,800	23,100	686,000
1925	23,400	30,800	25,200	23,400	18,900	38,100	92,000	275,000	201,000	105,000	54,400	42,600	1,030,000
1926	34,600	30,500	36,600	32,000	25,000	40,600	11,000	159,000	100,000	49,800	27,200	35,900	682,000
1927	60,100	54,300	74,400	38,700	31,700	35,700	31,000	196,000	508,000	158,000	64,600	52,500	1,180,000
1928	61,400	89,800	78,700	41,200	32,800	64,600	23,000	336,000	236,000	74,000	70,700	42,400	1,350,000
1929	44,600	36,100	29,500	26,000	16,700	25,000	55,800	178,000	202,000	89,800	35,800	23,200	762,000
1930	22,400	18,500	24,000	16,700	13,100	15,000	103,000	136,000	32,000	54,500	24,000	19,000	578,000
1931	30,400	29,500	23,700	21,800	21,200	33,500	56,500	180,000	32,000	43,330	24,500	25,100	622,000
1932	24,700	24,600	22,100	21,400	18,100	36,100	15,000	213,000	19,000	111,000	43,000	30,700	879,000
1933	33,900	47,100	40,200	30,900	21,400	26,900	71,400	137,000	45,000	132,000	47,000	34,000	984,000
1934	69,930	55,840	10,400	79,800	46,600	63,160	158,300	186,100	22,200	56,970	29,800	23,430	1,003,000
1935	28,090	43,300	30,990	29,130	26,500	31,990	66,050	163,300	189,400	83,510	36,350	23,240	751,800
1936	21,420	21,140	19,950	21,480	17,180	24,030	25,500	244,300	161,200	52,060	25,700	21,190	755,100
1937	19,180	17,270	18,880	17,770	14,530	17,050	40,150	136,300	30,450	80,400	27,030	17,250	531,100
1938	18,950	23,420	26,340	23,520	18,570	24,280	73,290	140,000	65,200	68,280	29,009	21,850	630,500
1939	22,340	23,320	22,660	22,720	17,760	25,740	80,600	203,000	31,500	69,890	30,170	22,030	671,600
1940	20,210	20,790	23,730	20,460	20,640	43,290	80,650	151,600	34,900	50,370	25,820	20,580	613,000

* Revised.

* Not previously published; see footnote to preceding table.

a Only monthly figures revised; revised daily figures not available.

Monthly and yearly runoff, in acre-feet, of Swan River near Bigfork, Mont.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	22,280	21,330	22,170	21,330	18,790	23,620	44,370	102,700	85,260	37,460	19,800	22,230	439,300
1942	31,710	29,400	36,040	23,500	18,780	21,090	81,800	16,100	155,000	96,690	35,560	24,680	670,200
1943	22,010	27,640	29,510	26,130	22,850	23,330	60,900	140,600	222,300	56,400	52,650	31,450	915,700
1944	29,430	27,390	24,860	20,960	18,480	20,230	40,710	116,300	98,180	43,350	23,850	20,850	484,600
1945	23,370	21,200	20,490	25,300	19,970	22,750	40,790	141,200	176,000	101,900	35,250	24,800	653,000
1946	30,990	40,230	30,900	29,770	22,740	36,060	11,600	179,700	186,000	93,470	40,020	27,470	829,900
1947	37,850	40,850	50,320	35,020	22,630	55,740	103,500	225,800	197,500	96,600	46,100	35,530	957,400
1948	56,730	43,900	37,150	38,550	27,200	31,440	96,640	278,300	286,200	95,660	53,160	28,790	1,078,000
1949	24,680	25,920	24,120	19,860	19,960	25,440	78,830	199,000	153,000	50,410	28,470	24,250	652,900
1950	24,660	30,690	30,650	25,000	22,120	38,080	95,520	152,500	244,300	203,500	75,350	35,760	978,100

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1922	552	5,500	June 8, 1922	-	-	-	-	-	-	-	-	
1923	572	*4,780	June 14, 1923	-	*972	*1.45	*19.65	*704,000	*975	*19.70	*706,000	
1924	592	*5,380	May 19, 20, 1924	280	946	1.41	19.18	686,000	*959	*19.43	*696,000	
1925	612	6,760	May 23, 1925	-	*1,420	*2.12	*28.76	*1,030,000	*1,450	*29.39	*1,050,000	
1926	632	3,860	Apr. 21, 1926	-	*942	*1.40	*19.07	*682,000	*1,060	*21.51	*769,000	
1927	652	7,060	June 13, 1927	-	*1,610	*2.40	*32.51	*1,160,000	*1,660	*33.55	*1,210,000	
1928	672	7,820	May 28, 1928	-	*1,860	*2.77	*37.71	*1,350,000	*1,700	*34.55	*1,230,000	
1929	692	5,300	May 26, 1929	273	1,050	1.56	21.33	762,000	992	20.09	717,000	
1930	1246, 707	2,920	June 1, 2, 1930	193	*798	*1.19	*16.17	*578,000	*825	*16.67	*597,000	
1931	722	5,140	May 18, 1931	306	858	1.28	17.35	622,000	841	17.02	609,000	
1932	737	5,710	May 24, 1932	279	1,210	1.80	24.55	879,000	1,280	25.94	928,000	
1933	752	8,280	June 18, 1933†	310	1,330	1.98	26.94	964,000	1,430	30.15	1,079,000	
1934	767	4,750	Dec. 25, 1933	362	1,385	2.06	27.99	1,003,000	1,200	24.25	868,700	
1935	792	4,650	May 25, 1935	356	1,038	1.55	20.99	751,800	983	19.88	712,000	
1936	812	6,180	May 17, 1936	279	1,040	1.55	21.09	755,100	1,030	20.89	747,900	
1937	832	3,360	May 30, 1937	252	754	1.09	14.85	551,100	752	15.22	544,500	
1938	862	4,350	May 30, 1938	284	871	1.30	17.63	630,500	870	17.61	630,000	
1939	882	4,350	May 6, 19, 1939	281	929	1.38	18.75	671,600	923	18.65	668,100	
1940	902	3,650	May 27, 1940	296	845	1.26	17.13	613,000	846	17.17	614,100	
1941	932	2,120	June 3, 1941	284	607	.905	12.29	439,300	650	13.17	470,700	
1942	962	3,980	May 28, 1942	305	926	1.38	18.73	670,200	901	18.22	652,300	
1943	982	5,570	June 21, 1943	327	1,265	1.89	25.60	915,700	1,268	25.67	918,200	
1944	1012	3,120	May 20, 1944	269	667	.994	13.54	484,600	645	13.07	468,000	
1945	1042	3,940	June 4, 5, 1945	264	902	1.34	18.24	653,000	953	19.29	690,100	
1946	1062	4,610	May 30, 1946	387	1,145	1.71	23.19	829,000	1,182	23.94	855,800	
1947	1092	5,960	May 11, 1947	418	1,322	1.97	26.76	957,400	1,337	27.06	968,200	
1948	1122	8,400	May 24, 1948	399	1,485	2.21	30.15	1,078,000	1,396	28.33	1,013,000	
1949	1152	5,130	May 17, 1949	278	902	1.34	18.26	652,900	917	18.58	664,220	
1950	1182	5,900	June 23, 1950	346	1,351	2.01	27.35	978,100	-	-	-	

* Revised.

† Corrected.

* Not previously published.

467. Big Creek near Polson, Mont.-/

Location.--Lat 47°42'10", long. 114°02'50", in NW¹/₄ NW¹/₄ sec. 4, T. 22 N., R. 19 W., on left bank just downstream from power plant, three-quarters of a mile upstream from mouth, and 7 miles east of Polson.

Drainage area.--6.41 sq mi (revised).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 3,150 ft (by barometer).

Average discharge.--15 years (1917-32), 6.64 cfs.

Extremes.--1917-32: Maximum discharge observed, 104 cfs June 9, 1917 (gage height, 2.4 ft); no flow at times during November and December 1922, when power plant was shut down.

Remarks.--Records include water diverted by the Flathead irrigation project canal for irrigation of lands downstream, and the Polson municipal water-supply pipeline. Flow regulated by power plant and two reservoirs with a combined capacity of about 200 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1917	-	-	-	-	-	-	-	-	33.2	14.3	9.15	7.25	-
1918	8.44	4.42	8.21	*7.05	*5.19	6.34	14.4	*15.9	19.5	8.23	6.08	5.66	*9.13
1919	6.92	6.40	4.15	*4.51	*5.19	4.54	8.15	18.1	17.0	4.05	4.56	4.06	*7.31
1920	4.74	4.90	4.69	4.01	3.58	3.21	3.55	6.77	6.12	4.30	3.51	3.11	4.38
1921	3.81	5.44	5.69	5.16	4.60	4.73	2.93	5.70	9.20	4.77	4.64	4.33	5.08
1922	4.14	5.32	5.10	4.59	4.68	4.09	4.55	14.2	15.3	5.06	5.30	4.11	6.38
1923	4.47	5.82	6.55	6.44	5.80	5.22	5.78	7.57	9.76	8.08	6.52	6.23	6.52
1924	5.63	4.24	4.09	3.39	4.41	3.99	3.58	15.7	7.63	5.12	4.51	5.41	5.33
1925	2.99	3.91	2.11	3.68	3.46	3.42	11.4	25.2	13.3	3.11	4.25	4.74	6.74

* Not previously published; records partly estimated on the basis of weather records and records for Revals Creek near Dixon.

/ Hell Roaring Creek, by decision of the U. S. Geographic Board Oct. 5, 1932.

Monthly and yearly mean discharge, in cubic feet per second, of Big Creek near Polson, Mont.--Con.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	4.23	4.59	5.03	4.02	4.04	3.95	9.52	9.94	4.11	4.52	5.21	5.03	5.36
1927	4.95	5.11	4.34	4.00	4.26	4.18	10.9	15.1	32.4	10.9	6.31	5.81	9.01
1928	4.32	4.96	4.64	4.53	4.22	3.55	9.91	32.0	25.5	18.1	6.17	4.69	10.2
1929	4.5	4.64	5.3	4.3	3.84	3.57	4.54	19.6	19.9	8.4	4.37	4.47	7.12
1930	44.56	4.54	4.53	4.53	4.37	3.90	7.07	5.15	4.56	5.35	5.79	6.04	55.03
1931	6.42	6.83	6.18	4.47	5.22	4.34	5.36	5.41	5.64	5.82	6.12	5.85	5.64
1932	6.73	6.34	6.02	5.61	4.71	5.44	6.42	6.02	6.92	7.18	7.51	7.56	6.37

* Not previously published; records partly estimated on the basis of weather records and records for Reavis Creek near Dixon.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1917	-	-	-	-	-	-	-	-	1,980	879	563	431	-
1918	519	263	505	4433	2288	390	857	4978	1,160	506	374	337	48,610
1919	426	381	255	277	288	279	485	1,110	1,010	249	280	242	45,280
1920	291	292	288	247	206	197	211	416	364	264	216	185	3,180
1921	234	324	350	317	255	291	174	350	547	293	285	258	3,680
1922	255	317	314	282	260	251	271	873	910	311	330	245	4,620
1923	275	346	403	396	322	321	344	465	581	497	401	371	4,720
1924	236	252	251	208	254	245	213	942	454	315	277	322	3,870
1925	184	235	259	226	192	210	678	1,560	791	204	261	282	4,880
1926	260	273	309	247	224	243	566	611	245	278	320	299	3,880
1927	304	304	267	246	237	257	649	928	1,930	670	388	346	6,530
1928	266	295	285	279	243	208	590	1,970	1,520	1,110	379	279	7,420
1929	277	276	326	264	213	220	270	1,210	1,180	394	269	266	5,160
1930	280	270	279	279	243	240	421	317	271	329	356	359	43,640
1931	395	408	380	275	290	267	319	333	336	358	376	348	4,080
1932	414	377	370	345	271	334	382	370	412	441	462	450	4,930

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1917	462	-	-	-	-	-	-
1918	482	38	Junell-14, 1918	1.6	49.13	46,610	48.82
1919	512	69	May 27, 1919	1.4	47.31	45,280	47.04
1920	512	29.4	May 14, 1920	1.7	4.38	3,180	4.43
1921	532	25.3	June 7, 1921	1.6	5.08	3,680	5.05
1922	552	49	May 20, 1922	2.7	6.38	4,620	6.37
1923	572	29.7	June 22, 1923	3.0	6.52	4,720	6.13
1924	612	27.2	May 17, 1924	2.4	5.33	3,870	5.24
1925	612	61	May 22, 1925	-	6.74	4,880	6.97
1926	632	34	May 1, 1926	2.7	5.36	3,880	5.40
1927	652	61	June 11, 1927	2.3	9.01	6,530	8.97
1928	672	39.5	May 23, 1928	3.0	10.2	7,420	10.3
1929	692	33.3	K-y 25, 1929	2.9	7.13	5,160	47.08
1930	707	14.1	May 25, 1930	43.3	45.03	43,640	5.52
1931	722	-	-	2.7	5.64	4,080	5.61
1932	737	-	-	1.7	6.37	4,930	-

* Not previously published.

468. Flathead Lake at Somers, Mont.1/

Location.--Lat 48°04'30", long. 114°13'30", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 26, T. 27 N., R. 21 W., at steamboat dock at Somers.

Drainage area.--7,086 sq mi.

Supplemental records available.--Apr. 24 to Aug. 5, 1900, daily lake elevations only, at site near Holt, 6 miles east of Somers (datum unknown), and April 1923 to Dec. 12, 1926, June 29, 1928, to Sept. 30, 1941, daily lake elevations at Polson published in reports of Geological Survey. Oct. 1, 1941, to Sept. 30, 1950, unpublished daily lake elevations at Polson are available in files of Helena District Office.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (Somers datum). Prior to April 1923, staff gages at Polson about 25 miles downstream at approximately same datum.

Extremes.--1908-50: Maximum contents, 2,208,000 acre-ft June 19, 1933 (elevation, 2,896.26 ft); minimum, 347,000 acre-ft Dec. 5, 1936 (elevation, 2,881.07 ft).

Remarks.--Elevation of water surface subject to regulation by Kerr Dam since April 1938. Month-end lake contents computed as follows: Prior to 1942, by using mean of lake elevations on last day of month and first day of following month; 1942-47, by computing mean for the last two days of month and first two days of following month; 1948-50, by using elevation of lake at 12 p.m. on the last day of month. Contents shown is that above 2,878 ft.

1/ Published as Flathead Lake at Polson prior to April 1923.

Contents, in thousands of acre-feet, on last day of month, of Flathead Lake at Somers, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1908	-	-	-	-	-	-	-	-	-	-	667	-
1909	-	-	-	-	-	-	539.4	1,284	1,628	-	702.6	572.3
1910	519.5	780.2	-	531.1	519.5	744.4	1,399	1,467	1,061	732.5	572.3	525.3
1911	637.4	744.4	601.9	537.1	490.1	548.8	888.2	1,136	1,504	688.2	661.1	607.8
1912	572.3	525.3	490.1	472.2	466.6	443.3	852.2	1,405	1,245	870.2	655.2	625.6
1913	584.1	601.9	531.2	408.5	408.5	466.6	900.2	1,753	1,609	924.3	684.8	572.3
1914	548.8	572.3	507.7	496	478.4	501.9	894.2	1,356	1,130	744.4	598	560.6
1915	649.3	726.5	584.1	525.3	490.1	501.9	900.2	1,003	1,015	876.2	655.2	596
1916	584.1	584.1	548.8	501.9	501.9	750.4	990.6	1,209	2,129	1,251	828.1	756.4
1917	678.9	518.2	537.1	490.1	466.6	466.6	613.7	1,640	1,741	21,003	2,684.8	572.3
1918	496	472.5	586.4	693.1	578.2	586.5	990.6	1,215	1,547	840.2	655.2	548.8
1919	525.3	501.9	494.2	490.1	478.4	484.2	906.3	1,634	1,166	702.6	578.2	478.4
1920	431.7	443.3	431.7	437.5	443.3	443.3	612.9	1,243	1,461	924.3	643.3	584.1
1921	619.7	572.3	531.2	525.3	554.7	643.3	930.3	1,760	1,460	876.2	625.6	525.3
1922	501.9	501.9	537.1	501.9	454.9	454.9	607.8	1,491	1,343	786.2	598.3	504.2
1923	472.5	449.1	420.1	466.6	431.7	449.1	812.5	1,544	1,405	870.2	655.2	523
1924	484.2	466.6	644.3	645.6	647.1	648.6	672.9	1,481	1,184	765.9	617.3	5508.9
1925	490.1	501.9	625.6	6520.6	6580.6	6626.8	1,211	1,902	1,485	932.7	690.7	625.6
1926	543	6492.5	6476	6443.3	6476	6537.1	1,097	1,073	836.5	613.7	6499.5	6610.2
1927	748	667	6896.7	6584.1	6564.1	6550	891.8	1,526	1,923	1,041	736.1	728.9
1928	813.7	708.6	6654	6605.5	6597.2	6657.5	908.7	2,130	1,470	995.5	680	555.9
1929	570	533.6	4487.8	445.6	436.3	461.9	636.2	1,402	1,189	736.1	548.8	456.1
1930	422.4	386.5	418.9	387.6	416.6	435.2	1,113	1,188	1,022	700.3	519.5	480.7
1931	488.9	490.1	443.3	434	452.6	506.6	709.8	1,266	932.7	632.7	494.8	483.1
1932	437.5	447.9	447.9	425.9	485.4	609	973.8	1,565	1,467	843.8	627.9	515.9
1933	501.9	627.9	607.8	544.1	487.8	487.8	894.2	1,477	1,887	958.1	662.3	570
1934	810.1	791	973.8	738.5	662.3	755.2	1,605	1,648	1,063	714.6	541.8	461.9
1935	490.1	632.7	555.9	553.5	545.3	534.7	775.5	1,596	1,363	858.2	606.8	494.8
1936	438.7	422.4	408.5	396.9	394.6	421.3	1,107	1,613	1,029	665.8	511.3	431.7
1937	401.5	384.1	381.8	373.7	373.7	389.9	596	1,356	1,231	744.4	550	464.3
1938	452.6	493.6	492.5	478.4	461.9	494.8	1,014	1,620	1,341	1,294	1,299	1,053
1939	927.9	903.9	889.4	760	570	578	1,126	1,499	1,292	1,287	1,170	983.4
1940	817.3	734.9	717	611.4	565.3	655.2	889.4	1,380	1,541	1,566	1,439	1,336
1941	1,228	1,133	1,050	840.2	657.5	578.2	819.7	1,688	1,794	1,753	1,628	1,602
1942	1,658	1,547	1,352	734.9	572.3	503	950.8	1,373	1,739	1,768	1,638	1,542
1943	1,434	1,403	1,289	914.7	616.1	545.3	1,274	1,481	1,659	1,760	1,732	1,510
1944	1,283	1,133	971.3	807.7	696.7	560.6	740.8	1,601	1,751	1,763	1,673	1,558
1945	1,453	1,343	1,164	985.8	793.4	596	632.7	1,650	1,736	1,778	1,722	1,632
1946	1,578	1,640	1,474	1,184	849.8	656.4	1,153	1,661	1,748	1,785	1,676	1,610
1947	1,665	1,684	1,410	1,092	785	688.3	1,128	1,641	1,728	1,778	1,771	1,749
1948	1,693	1,526	1,308	971.3	682.4	560.6	938.7	2,100	1,553	1,782	1,780	1,728
1949	1,666	1,587	1,356	797	651.6	561.7	1,020	1,661	1,791	1,773	1,724	1,718
1950	1,562	1,504	1,327	958.1	654	609	829.3	1,563	1,904	1,795	1,783	1,757

a Computed from elevations estimated by Corps of Engineers.

b Computed from elevations at Polson.

Note.--Prior to April 1923 contents obtained from elevations at Polson. Prior to 1942 figures of contents not previously published.

469. Flathead River near Polson, Mont.

Location.--Lat 47°40'50", long. 114°15'10", in NW 1/4 sec. 11, T. 22 N., R. 21 W., on left bank half a mile downstream from Kerr Dam, 4 miles west of Polson, and 5 miles downstream from Flathead Lake.

Drainage area.--7,096 sq mi (revised). At sites prior to Oct. 1, 1941, 7,117 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 2,693.70 ft above mean sea level (levels by Montana Power Co.). Prior to Nov. 24, 1928, staff and chain gages and Nov. 24, 1928, to Sept. 30, 1941, water-stage recorder, at sites 6 miles downstream all at datum 2,629.20 ft above mean sea level (river profile survey).

Average discharge.--43 years (1907-50), 11,230 cfs.

Extremes.--1907-50: Maximum discharge, 82,100 cfs May 29, 30, 1928 (gage height, 17.1 ft, site and datum then in use, from graph based on gage readings); minimum, probably less than 5 cfs Apr. 13, 1938; minimum daily, 32 cfs Apr. 12, 1938.

Remarks.--Diversion for irrigation of about 10,000 acres above station. Flathead Project pumps can divert up to 12,000 acre-ft per month when required for irrigation of lands downstream from station. Flow regulated since April 1938 by Flathead Lake (see above).

PEND OREILLE RIVER BASIN

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Monthly and yearly mean discharge, in cubic feet per second, of Flathead River near Polson, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	13,900	8,290	-
1908	5,520	3,620	3,000	12,540	2,420	2,460	7,040	29,000	48,800	27,100	9,570	4,940	12,200
1909	4,090	4,060	3,480	3,270	2,810	2,550	2,780	11,000	50,800	31,800	12,100	5,840	11,200
1910	4,320	6,320	8,330	5,080	4,030	5,290	17,200	38,000	31,100	15,200	6,410	4,270	12,200
1911	5,010	7,160	7,180	4,140	3,270	2,960	6,320	24,800	38,300	26,100	8,750	5,770	11,700
1912	4,840	3,730	3,260	2,660	2,690	2,380	5,890	24,800	34,000	19,300	9,900	6,210	9,980
1913	5,150	5,260	4,190	3,450	3,020	2,850	6,510	24,400	64,400	28,600	10,800	5,540	13,700
1914	3,800	4,240	3,690	3,120	3,000	2,890	7,100	26,700	30,000	15,400	6,670	4,040	9,250
1915	5,320	8,370	5,640	3,630	2,790	2,490	6,510	18,200	18,100	16,200	9,740	5,260	8,560
1916	4,820	4,760	4,490	3,520	3,040	4,770	11,900	25,800	48,000	55,600	17,500	11,100	16,300
1917	6,730	4,600	5,630	2,670	2,470	2,240	2,960	22,400	31,700	35,500	11,400	4,770	12,600
1918	3,070	2,610	2,580	8,720	4,130	3,770	10,300	29,700	44,200	23,000	5,430	4,690	12,100
1919	3,360	3,230	2,630	2,250	2,400	2,340	5,350	24,900	34,900	14,500	5,410	3,110	8,720
1920	2,300	2,220	1,670	1,560	1,600	1,510	2,630	18,200	36,200	27,000	9,900	5,160	9,180
1921	5,120	4,310	3,860	3,480	3,250	5,800	12,000	33,700	54,000	25,900	9,670	4,810	13,900
1922	3,690	3,420	3,810	4,070	3,120	2,770	3,460	22,600	49,500	20,900	8,100	4,740	10,900
1923	3,400	2,880	2,650	2,740	2,760	2,460	5,090	29,300	47,800	26,400	9,970	4,900	11,700
1924	3,100	2,960	2,670	2,640	2,910	3,120	4,060	31,500	37,000	18,000	7,700	4,490	10,000
1925	3,190	3,200	3,170	3,100	3,500	4,740	20,800	46,700	50,700	27,100	10,400	6,420	15,300
1926	4,620	3,550	3,300	2,600	2,200	3,200	9,210	26,000	17,300	9,060	4,230	4,420	7,500
1927	7,690	8,450	8,400	5,810	4,380	4,020	5,470	32,800	63,000	42,200	14,100	9,580	17,200
1928	10,100	8,600	7,900	6,000	5,300	5,700	8,340	48,900	53,000	31,700	12,500	6,090	17,100
1929	4,950	4,560	5,630	3,090	2,730	2,830	3,650	20,400	39,600	16,800	6,520	3,630	9,380
1930	2,630	2,210	2,180	1,870	2,150	2,470	10,200	25,900	27,100	13,100	5,860	3,530	8,290
1931	3,250	3,390	3,110	2,540	2,660	2,920	5,580	24,800	24,700	10,400	4,730	3,130	7,630
1932	2,750	2,530	2,560	2,480	2,260	4,320	11,200	35,300	42,900	23,400	6,490	4,660	11,900
1933	3,380	4,210	5,980	4,570	3,670	3,190	4,940	24,800	63,100	34,300	10,900	5,500	14,100
1934	5,223	13,420	10,940	12,050	7,920	7,316	22,310	49,210	35,020	14,310	6,221	3,600	15,660
1935	2,792	5,277	5,174	4,043	4,566	4,101	5,279	25,080	45,260	22,520	8,555	4,329	11,430
1936	2,886	2,362	2,155	2,150	1,912	2,165	7,507	40,200	33,940	11,900	5,060	3,003	9,617
1937	2,277	1,897	1,680	1,713	1,738	1,828	2,710	20,740	33,390	17,260	6,556	3,528	7,968
1938	2,706	2,889	3,062	3,132	2,981	2,931	7,547	27,220	41,720	11,430	3,350	6,674	9,637
1939	4,480	2,649	2,861	4,860	5,460	3,927	10,580	38,780	27,300	9,825	4,810	5,051	10,060
1940	4,384	3,342	2,988	3,517	3,272	2,822	8,708	23,040	16,340	4,763	4,005	4,015	6,771
1941	4,006	3,863	3,466	5,538	5,377	4,332	5,859	5,961	11,290	5,064	3,975	3,778	5,197
1942	4,584	6,510	11,600	14,270	9,937	3,673	7,888	22,750	25,030	14,710	6,727	4,729	10,740
1943	4,264	4,337	6,136	9,508	8,581	4,255	17,410	29,140	42,800	23,400	6,263	6,667	13,560
1944	6,827	5,404	4,925	4,597	3,654	4,159	4,003	9,630	14,780	14,976	3,903	4,028	5,912
1945	4,362	4,375	5,173	5,580	5,853	5,937	4,540	16,740	32,550	11,490	3,970	4,084	8,713
1946	4,327	4,676	7,033	8,174	9,181	7,778	12,300	36,950	34,820	12,780	6,071	4,389	12,380
1947	4,172	4,745	9,837	9,106	9,748	7,685	12,410	45,670	36,330	12,730	5,873	5,018	13,620
1948	10,930	9,270	7,713	9,477	8,391	5,277	6,976	34,530	58,170	9,463	6,823	3,968	14,220
1949	3,559	3,946	6,016	11,200	5,252	4,758	8,488	34,920	24,300	8,164	4,364	2,689	9,641
1950	5,253	6,368	7,840	9,622	9,166	6,104	7,805	24,970	54,250	33,960	9,277	4,130	14,910

† Corrected.

Monthly and yearly runoff, in thousands of acre-feet, of Flathead River near Polson, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	-	-	-	-	-	-	-	-	-	-	855	493	-
1908	339	215	184	156	139	151	419	1,780	2,900	1,670	588	294	8,840
1909	251	242	214	201	156	157	165	676	3,020	1,940	744	348	8,110
1910	266	376	512	312	224	325	1,020	2,340	1,850	935	394	254	8,810
1911	308	468	441	255	182	182	376	1,520	2,280	1,600	538	343	8,490
1912	298	222	200	184	155	146	350	1,520	2,020	1,190	609	370	7,240
1913	317	313	258	212	168	175	387	1,500	3,830	1,760	664	330	9,910
1914	234	252	227	192	167	178	422	1,640	1,790	947	410	240	6,700
1915	327	498	347	223	155	153	367	1,120	1,080	996	599	313	6,200
1916	296	283	276	216	175	293	708	1,590	2,860	3,420	1,080	660	11,900
1917	414	274	223	164	137	138	176	1,380	3,080	2,180	701	284	9,150
1918	189	155	159	536	229	232	613	1,830	2,630	1,410	518	279	8,780
1919	207	192	162	138	133	144	518	1,530	2,080	892	333	185	6,310
1920	141	132	103	95.9	92	92.8	156	1,120	2,150	1,660	609	307	6,660
1921	315	256	237	214	180	357	714	2,070	3,210	1,590	595	286	10,000
1922	227	204	234	250	173	170	206	1,390	2,950	1,290	498	282	7,870
1923	209	171	163	168	153	151	303	1,800	2,840	1,620	613	292	8,480
1924	191	172	164	162	167	192	242	1,920	2,200	1,110	473	267	7,260
1925	196	190	195	191	194	291	1,240	2,870	3,020	1,670	640	382	11,100
1926	284	211	203	160	122	197	548	1,600	1,030	557	260	263	5,440
1927	475	503	516	357	243	247	325	2,020	3,750	2,590	867	570	12,500
1928	621	512	486	369	305	350	496	3,010	3,150	1,950	739	362	12,400
1929	304	271	223	190	152	174	217	1,250	2,360	1,030	401	216	6,790
1930	162	132	134	115	119	152	607	1,590	1,610	806	360	210	6,000
1931	200	202	191	156	148	180	332	1,520	1,470	640	291	186	5,520
1932	169	151	157	152	130	284	666	2,170	2,550	1,440	522	277	8,670
1933	208	251	368	281	204	196	294	1,520	3,750	2,110	670	327	10,200
1934	321.2	798.7	672.6	741	459.9	449.8	1,327	3,026	2,084	880	382.5	214.2	11,340
1935	171.6	314	318.1	248.6	253.6	252.1	314.1	1,542	2,693	1,385	526.1	257.6	8,776
1936	177.5	140.6	132.5	132.2	110	133.1	446.72	472	2,019	727.7	311.1	178.7	6,981
1937	140	112.9	103.3	105.3	96.5	112.4	161.31	275	1,987	1,061	403.1	210	5,768
1938	166.5	171.9	188.3	192.6	165.5	180.2	449.11	674	2,483	702.9	206	397.1	6,977
1939	275.5	157.6	175.9	298.8	303.2	241.5	617.72	385	1,625	604.1	295.8	300.6	7,281
1940	269.5	198.9	183.7	216.2	188.2	173.5	518.2	417	972.3	292.9	246.3	238.9	4,916

Monthly and yearly runoff, in thousands of acre-feet, of Flathead River near Polson, Mont.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	246.3	229.8	213.1	340.5	298.6	266.3	348.6	366.5	672	311.4	244.4	224.8	3,762
1942	281.9	387.4	713.1	877.3	329.7	225.8	469.4	399	1,490	904.5	413.6	281.4	7,773
1943	262.2	258.1	377.3	584.6	476.5	261.6	1,036	1,791	2,547	1,439	385.1	396.7	9,815
1944	419.8	321.5	302.9	282.7	210.2	255.7	238.2	592.1	879.5	306	240	243	4,292
1945	269.4	260.3	318.1	343.1	325.1	365.1	270.1	1,029	1,937	705.3	244.1	239.7	6,307
1946	266.1	278.2	432.4	502.6	509.9	478.3	732.2	2,272	2,072	784.5	373.3	261.1	8,963
1947	256.5	282.3	604.9	559.9	541.4	472.5	738.3	2,802	2,162	782.5	361.1	298.6	9,962
1948	671.9	551.6	474.2	582.7	482.7	324.5	415.1	1,123	3,461	581.9	419.5	236.1	10,320
1949	218.8	234.8	369.9	688.4	291.7	292.5	505.1	1,147	1,466	502	268.3	160	7,124
1950	323	378.9	482.1	591.6	509.1	375.3	464.4	1,535	3,228	2,088	570.4	245.8	10,790

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Runoff in acre-feet		Mean	Runoff in inches
		Discharge	Date								
1907	252	-	-	-	-	-	-	-	-	-	-
1908	252	62,100	June 13, 1908	2,280	12,200	1.71	23.27	8,840,000	12,100	23.18	8,860,000
1909	272	58,800	June 22, 1909	2,530	11,200	1.57	21.41	8,110,000	11,800	22.59	8,560,000
1910	292	42,800	May 15, 1910	3,640	12,200	1.71	23.23	8,810,000	12,300	23.39	8,870,000
1911	312	44,200	June 20, 1911	2,690	11,700	1.64	22.38	8,490,000	11,100	21.07	8,000,000
1912	332	36,500	June 15, 1912	2,310	9,980	1.40	19.07	7,240,000	10,200	19.51	7,410,000
1913	362	75,400	June 10, 1913	2,150	13,700	1.92	28.12	9,910,000	13,500	25.67	9,740,000
1914	392	41,000	May 26, 1914	2,400	9,250	1.30	17.63	6,700,000	9,880	18.84	7,160,000
1915	412	21,000	May 18, 1915	2,310	8,560	1.20	16.32	6,200,000	8,140	15.49	5,880,000
1916	442	74,700	July 4, 1916	2,900	16,300	2.29	31.20	11,900,000	16,400	31.34	11,900,000
1917	462	59,100	June 23, 1917	2,000	12,600	1.77	24.08	9,150,000	12,100	23.01	8,740,000
1918	482	58,400	June 20, 1918	2,310	12,100	1.70	23.14	8,780,000	12,200	23.29	8,840,000
1919	512	48,200	June 1, 1919	2,070	8,720	1.23	16.84	6,310,000	8,770	16.15	6,130,000
1920	512	44,200	June 24, 1920	1,360	9,180	1.29	17.54	6,660,000	8,770	18.68	7,090,000
1921	532	62,000	June 11, 1921	3,010	13,900	1.95	26.45	10,000,000	13,700	26.08	9,880,000
1922	552	56,400	June 10, 1922	2,700	10,900	1.53	20.74	7,870,000	10,700	20.41	7,750,000
1923	572	*55,700	June 15, 1923	2,330	11,700	1.64	22.38	8,480,000	11,700	22.33	8,470,000
1924	592	47,000	May 26, 1924	2,420	10,000	1.41	19.12	7,260,000	10,100	19.27	7,310,000
1925	612	*67,000	May 25, 1925	-	15,300	2.15	29.15	11,100,000	15,400	29.46	11,200,000
1926	652	*29,200	May 8, 1926	-	7,510	1.06	14.29	5,440,000	8,600	16.38	6,230,000
1927	652	75,000	June 19, 1927	3,800	17,200	2.42	32.84	12,500,000	17,400	33.18	12,600,000
1928	672	*82,800	May 29, 1928	-	17,100	2.40	32.61	12,400,000	15,900	30.45	11,600,000
1929	692	45,500	June 13, 1929	2,660	9,380	1.32	17.90	6,790,000	8,870	16.92	6,420,000
1930	707	31,700	June 11, 1930	1,540	8,290	1.16	15.81	6,000,000	8,520	16.24	6,160,000
1931	722	35,400	May 20, 1931	2,400	7,630	1.07	14.52	5,520,000	7,470	14.22	5,400,000
1932	752	*51,800	May 24, 1932	2,140	11,900	1.67	22.84	8,670,000	12,400	23.76	9,020,000
1933	752	*78,100	June 19, 1933	3,020	14,100	1.98	26.84	10,200,000	15,420	29.40	11,140,000
1934	767	52,200	June 12, 1934	2,760	15,660	2.20	29.88	11,340,000	14,290	27.26	10,350,000
1935	792	50,200	June 5, 1935	2,420	11,430	1.61	21.79	8,276,000	10,940	20.86	7,923,000
1936	812	50,900	May 19, 1936	1,840	9,617	1.35	18.39	6,981,000	9,487	18.14	6,887,000
1937	832	35,800	June 4, 1937	1,430	7,968	1.12	15.20	5,768,000	8,203	-	5,938,000

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30								Calendar year			
		Observed					Adjusted			Observed		Adjusted	
		Discharge	Date	Minimum day	Mean	Runoff in acre-feet	Mean	Per square mile	Runoff in inches	Mean	Runoff in acre-feet	Mean	Runoff in inches
1938	862	*49,200	June 7, 1938	32	9,637	8,977,000	10,450	1.47	19.94	9,750	7,059,000	10,300	19.68
1939	882	45,900	May 20, 1939	140	10,060	7,281,000	9,961	1.40	19,010	10,120	7,324,000	9,878	18.85
1940	902	38,400	May 27, 1940	738	6,771	4,916,000	7,257	1.02	13.89	6,822	4,953,000	7,281	13.92
1941	932	22,200	June 4, 1941	400	5,197	3,762,000	5,584	.782	10.58	6,154	4,456,000	6,574	12.50
1942	962	53,500	June 10, 1942	910	10,740	7,773,000	10,650	1.50	20,380	10,070	7,288,000	9,980	19.18
1943	982	*49,300	June 24, 1943	480	13,560	9,815,000	13,510	1.90	25,850	13,760	9,962,000	13,320	25.47
1944	1012	24,500	June 6, 1944	470	5,912	4,292,000	5,979	.642	11.47	5,641	4,095,000	5,907	11.34
1945	1042	58,400	June 3, 1945	460	8,713	6,307,000	8,814	1.24	16.87	8,891	6,436,000	9,318	17.83
1946	1062	50,500	June 7, 1946	980	12,380	8,963,000	12,350	1.74	23,612	12,610	9,130,000	12,520	23.94
1947	1092	*56,600	May 15, 1947	1,800	13,620	9,862,000	13,810	1.95	26,434	14,390	10,420,000	14,550	22.17
1948	(a)	73,200	June 6, 1948	1,580	14,220	10,320,000	14,190	2.00	27,240	13,020	9,450,000	13,080	25.20
1949	1152	51,500	May 19, 1949	1,440	9,841	7,124,000	9,828	1.38	18,790	10,340	7,485,000	10,300	19.70
1950	1182	67,000	June 25, 1950	1,700	14,910	10,790,000	14,960	2.11	28.63	-	-	-	-

* Revised.

a 1122, 1182.

470. Little Bitterroot Lake near Marion, Mont.

Location.--Lat 48°05'30", long. 114°41'50", in NW¼ sec. 21, T. 27 N., R. 24 W., at dam on Little Bitterroot River 2 miles southwest of Marion.

Drainage area.--31.8 sq mi.

Gage.--Staff gage. Datum of gage is at mean sea level (levels by Office of Indian Affairs).

Extremes.--1940-50: Reservoir has been filled to capacity of 24,000 acre-ft at times in 1948, 1949 and 1950; no storage at times in some years.

Remarks.--Usable capacity of 24,000 acre-ft at elevation 3,895.4 ft, sea level datum. Storage began in 1918.

Cooperation.--Records furnished by Office of Indian Affairs.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	-	-	0	-	-	-	0	-	-	-	-	0
1941	0	0	0	0	0	0	0	0	0	0	0	0
1942	0	0	0	0	0	0	0	0	0	0	0	0
1943	0	0	0	0	0	0	2,100	4,000	6,900	a6,210	a5,520	a5,070
1944	4,800	a4,800	4,500	4,500	4,500	4,800	a4,500	4,200	3,540	2,100	1,740	1,200
1945	500	0	0	0	0	900	1,550	2,280	2,100	450	0	0
1946	0	0	0	0	600	1,350	2,850	3,060	2,760	1,200	300	0
1947	300	600	670	2,400	-	5,100	7,800	10,500	12,300	11,700	11,700	11,460
1948	11,850	12,100	12,150	12,600	b13,200	13,400	13,400	24,000	24,000	24,000	24,000	24,000
1949	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
1950	24,000	23,480	22,800	22,600	22,600	24,000	24,000	24,000	24,000	24,000	24,000	24,000

a Interpolated on the basis of weekly or less-frequent gage readings.

b Interpolated on the basis of gage readings within 2 days of last day of month.

471. Little Bitterroot River near Marion, Mont.

Location (revised).--Lat 48°05'40", long. 114°41'50", in SE¼ SW¼ sec. 16, T. 27 N., R. 24 W., at log bridge 70 ft downstream from outlet of Little Bitterroot Lake and 2 miles southwest of Marion.

Drainage area.--31.8 sq mi.

Gage.--Staff gage. Altitude of gage is 3,880 ft (by barometer).

Extremes.--1910-16: Maximum discharge observed, 53 cfs Apr. 27, 1916 (gage height, 3.05 ft); no flow Jan. 19-23, 1915.

Remarks.--Natural storage in Little Bitterroot Lake (see above). Some regulation by temporary dams at lake outlet.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	4	4	28	28.4	22	26	20	3.7	8.3	-
1911	6.4	3.3	2.8	-	-	-	-	15.2	16.1	10.6	3.43	2.60	-
1912	2.60	2.60	3.14	-	-	-	5.10	10.8	6.95	7.21	2.15	2.39	-
1913	1.56	-	-	-	-	-	-	19.7	23.3	2.82	1.14	1.76	-
1914	1.90	1.50	1.18	-	-	-	6.94	10.5	7.43	4.54	.62	.85	-
1915	2.81	.87	1.32	.29	.37	.74	.51	1.06	1.23	1.35	1.14	3.83	1.30
1916	2.15	.66	.63	1.52	12.7	11.5	34.4	38.7	38.5	27.2	.94	.75	14.1

Monthly and yearly runoff, in a re-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	246	222	1,720	1,690	1,350	1,550	1,230	228	494	-
1911	394	196	172	-	-	-	-	935	958	652	211	155	-
1912	150	155	193	-	-	-	-	303	664	414	445	132	-
1913	96	-	-	-	-	-	-	1,210	1,390	173	70	105	-
1914	117	89	73	-	-	-	413	646	442	279	58	51	-
1915	173	52	81	18	21	46	30	65	73	83	70	228	940
1916	132	39	38	94	730	707	2,050	2,380	2,290	1,670	58	45	10,200

Yearly discharge, in cubic feet per second, of Little Bitterroot River near Marion, Mont.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1910	292	-	-	-	-	-	†13.1	9,490
1911	312	19	June 27, 1911	-	-	-	-	-
1912	332	14	May25,26,1912	-	-	-	-	-
1913	362	25	(a)	-	-	-	-	-
1914	392	12	May10-14,1914	-	-	-	-	-
1915	412	-	-	0	1.30	940	1.17	843
1916	442	53	Apr. 27, 1916	.2	14.1	10,200	-	-

† Corrected.

a May 31 to June 4, June 8, 1913.

472. Hubbard Reservoir near Niarada, Mont.

Location.--Lat 47°55'40", long. 114°43'50", in NE¼ sec. 18, T. 25 N., R. 24 W., at dam on Little Bitterroot River 9 miles northwest of Niarada.

Drainage area.--114 sq mi.

Gage.--Elevations determined by measuring from crest of dam.

Extremes.--1940-50: Reservoir has been filled to capacity of 12,100 acre-ft at times in 1943, 1948, 1949, and 1950; minimum contents observed, 57 acre-ft July 31, 1941.

Remarks.--Storage began in 1924. Reservoir has usable capacity of 12,100 acre-ft at spillway crest elevation of 3,219.0 ft, sea level datum.

Cooperation.--Records furnished by Office of Indian Affairs.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	-	-	1,340	-	-	-	a2,280	-	-	-	-	289
1941	396	511	678	825	981	1,100	1,300	430	592	57	323	452
1942	550	723	971	1,010	1,050	a1,180	2,050	3,210	4,510	5,060	3,290	3,090
1943	3,310	3,500	3,890	3,350	4,130	4,600	9,680	12,120	12,120	11,440	9,220	7,930
1944	8,290	8,510	8,770	8,880	9,030	9,260	9,800	5,610	4,870	2,940	1,660	1,250
1945	1,570	1,510	1,590	1,720	1,860	2,100	2,710	3,690	2,310	575	305	430
1946	592	710	830	1,100	1,250	1,510	2,560	2,810	1,570	440	295	480
1947	675	905	1,260	1,480	1,680	3,660	7,640	10,790	11,580	8,360	8,020	8,220
1948	8,920	9,340	9,870	10,180	a10,540	10,960	12,120	12,120	12,120	12,120	11,660	10,500
1949	10,420	11,120	11,360	12,090	12,120	12,120	12,120	12,120	11,010	8,100	5,020	2,300
1950	2,000	3,700	3,900	3,900	a5,400	5,000	8,560	12,120	10,790	8,810	7,480	-

a Interpolated on the basis of gage readings within 2 days of last day of month.

473. Little Bitterroot River near Hubbard, Mont.

Location (revised).--Lat 47°55', long. 114°43', in sec. 17, T. 25 N., R. 24 W., on left bank upstream from canyon leading to second fall of Little Bitterroot River, 1½ miles west of Hubbard, and 15 miles south of Marion.

Drainage area.--134 sq mi. At site prior to Oct. 17, 1909, 137 sq mi.

Gage.--Staff gage. Altitude of gage is 3,340 ft (by barometer). Prior to Oct. 17, 1909, staff gage about one mile downstream at different datum.

Extremes.--1909-16: Maximum discharge observed, 340 cfs May 6, 1916 (gage height, 4.0 ft); minimum observed, 1.4 cfs Oct. 20-27, Nov. 10, 1914 (gage height, 0.9 ft).

Remarks.--No diversion. Natural storage in Little Bitterroot Lake (see p.381). Some regulation by temporary dams at lake outlet.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	*47	*102	*100	*38	22	13	-
1910	13	24	-	18	18	133	133	80	47	29	12	13	-
1911	16	17	16	-	-	-	42.8	65.1	50.0	28.3	17.4	10.5	-
1912	6.72	-	-	-	-	-	72.4	70.6	30.4	16.3	12.5	11.0	-
1913	10.4	-	-	-	-	-	-	-	-	-	11.2	9.4	-
1914	10.5	-	-	-	-	-	47.0	46.6	22.9	12.6	4.4	2.6	-
1915	1.90	3.13	-	-	-	-	37.0	33.4	20.5	13.2	9.38	10.2	-
1916	8.61	-	-	-	-	-	187	177	118	58.4	16.7	13.1	-

* Not previously published; estimated on the basis of records for station near Niarada.

Monthly and yearly runoff, in acre-feet, of Little Bitterroot River near Hubbard, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	#2,800	#6,270	#5,950	#2,340	1,350	774	-
1910	799	1,430	-	1,110	1,000	8,180	7,910	4,920	2,800	1,780	740	774	-
1911	984	1,010	984	-	-	-	2,550	4,000	2,980	1,740	1,070	625	-
1912	413	-	-	-	-	-	4,310	4,340	1,810	1,000	769	655	-
1913	640	-	-	-	-	-	-	-	-	-	689	559	-
1914	646	-	-	-	-	-	2,800	2,870	1,360	775	271	155	-
1915	117	186	-	-	-	-	2,200	2,050	1,220	812	577	607	-
1916	529	-	-	-	-	-	11,100	10,900	7,020	3,590	1,030	780	-

* Not previously published; estimated on the basis of records for station near Niarada.

Yearly discharge, in cubic feet per second

Yearly discharge, in cubic feet per second								
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1909	272	-	-	-	-	-	-	-
1910	292	-	-	-	-	-	44.3	32,200
1911	312	-	-	-	-	-	-	-
1912	332	-	-	-	-	-	-	-
1913	362	-	-	-	-	-	-	-
1914	392	-	-	-	-	-	-	-
1915	412	-	-	-	-	-	-	-
1916	442	-	-	-	-	-	-	-

474. Little Bitterroot River near Niarada, Mont. 1/

Location.--Lat 47°47'40", long. 114°39'10", in SE $\frac{1}{4}$ sec. 34, T. 24 N., R. 24 W., on upstream side of footbridge at Angus McDonald's ranch, 2 miles southwest of Niarada.

Drainage area.--223 sq mi.

Gage.--Staff gage. Altitude of gage is 2,800 ft (by barometer). Apr. 8, 1908, to Dec. 2, 1909, staff gage at different datum.

Extremes.--1908-09, 1916-17: Maximum discharge observed, 412 cfs May 7, 1916 (gage height, 5.30 ft); minimum observed, 3.0 cfs Aug. 28, 1917 (gage height, 0.60 ft).

Remarks.--Several small diversions for irrigation above station. Natural storage in Little Bitterroot Lake (see p. 381). Some regulation by temporary dams at lake outlet.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1908	-	-	-	-	-	-	-	134	124	61.3	29.5	19.3	-
1909	23.3	-	-	-	-	-	65.8	143	129	44.1	26.3	21.0	-
1910	20.4	37.2	-	-	-	-	-	-	-	-	-	-	-
1916	-	-	-	-	-	-	#240	239	174	82.8	23.1	16.5	-
1917	17.2	15.6	-	-	-	-	62.6	163	78.9	19.6	9.10	5.30	-

* Not previously published; partly estimated on the basis of records for station near Hubbard.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1908	-	-	-	-	-	-	-	8,240	7,380	3,770	1,810	1,150	-
1909	1,430	-	-	-	-	-	3,920	8,790	7,680	2,710	1,620	1,250	-
1910	1,250	2,210	-	-	-	-	-	-	-	-	-	-	-
1916	-	-	-	-	-	-	#14,300	14,700	10,400	5,090	1,420	982	-
1917	1,060	925	-	-	-	-	3,720	10,000	4,690	1,200	558	315	-

* Not previously published; partly estimated on the basis of records for station near Hubbard.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1908	252	344	June 2, 1908	-	-	-	-	-
1909	272	-	-	-	-	-	-	-
1910	272	-	-	-	-	-	-	-
1916	442	a412	May 7, 1916	-	-	-	-	-
1917	462	-	-	-	-	-	-	-

a Maximum observed.

1/ Published as Little Bitterroot River near Dayton, Apr. 8, 1908, to Dec. 2, 1909.

475. Upper Dry Fork Reservoir near Lonepine, Mont.

Location.--Lat 47°45', long. 114°41', in sec. 16, T. 23 N., R. 24 W., at outlet works on Dry Fork Creek 4 miles northwest of Lonepine.

Drainage area.--8.53 sq mi.

Gage.--Elevations determined from reference points. Datum is at mean sea level (levels by Office of Indian Affairs).

Extremes.--1940-50: Maximum contents observed, 2,660 acre-ft June 30, 1948 and June 30, 1950; no storage at times in 1940, 1942 and 1943.

Remarks.--Storage began in 1940; usable capacity is 2,700 acre-ft at elevation 2,928.1 ft, sea level datum. Natural flow of Alder Creek is diverted in SW $\frac{1}{4}$ sec. 16, T. 23 N., R. 25 W., and carried by interbasin canal to Upper Dry Fork for storage in Upper Dry Fork Reservoir.

Cooperation.--Records furnished by Office of Indian Affairs.

Contents, in acre-feet, on last day of month												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	-	-	-	-	-	-	a375	-	-	-	-	50
1941	0	25	31	31	60	67	90	195	176	42	78	118
1942	142	184	950	343	343	a413	988	1,650	2,160	312	217	0
1943	0	0	0	b0	145	700	1,880	2,140	2,290	345	177	101
1944	148	164	164	164	164	177	190	412	620	350	50	105
1945	165	220	260	260	260	265	343	1,130	995	120	101	134
1946	185	265	265	265	265	355	844	1,570	1,940	775	50	155
1947	232	258	493	585	655	1,260	2,000	2,080	2,510	1,710	890	510
1948	675	785	785	877	a970	1,120	2,070	2,400	2,660	1,450	1,350	1,030
1949	1,060	1,110	1,110	1,110	1,270	1,350	1,920	2,570	2,300	1,880	1,590	1,420
1950	1,400	1,440	1,460	1,610	1,650	2,110	2,520	2,000	2,660	2,550	2,400	1,580

a Interpolated on the basis of gage reading within 2 days of last day of month.

b Interpolated on the basis of weekly or less-frequent gage readings.

476. Dry Fork Reservoir near Lonepine, Mont.

Location.--Lat 47°42', long. 114°40', in NW $\frac{1}{4}$ sec. 3, T. 22 N., R. 24 W., at dam on Dry Fork Creek 1 mile west of Lonepine.

Drainage area.--17.8 sq mi.

Gage.--Staff gage. Datum of gage is at mean sea level (levels by Office of Indian Affairs).

Extremes.--1939-49: Maximum contents observed, 4,080 acre-ft Apr. 30, 1942; no storage Aug. 31, 1944, Aug. 31, 1946, Sept. 30, 1946.

Remarks.--Storage began in 1921. Reservoir has usable capacity of 4,000 acre-ft at elevation 2,856.7 ft, sea level datum.

Cooperation.--Records furnished by Office of Indian Affairs.

Contents, in acre-feet, on last day of month												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1939	-	-	392	-	-	-	a2,510	-	-	-	-	162
1940	239	315	315	315	440	815	1,210	843	191	40	175	175
1941	175	376	306	950	1,020	a1,880	4,080	3,990	3,880	2,340	1,650	1,410
1942	1,550	1,980	2,000	b2,000	2,000	3,400	3,520	4,000	4,040	2,510	636	150
1943	b230	315	315	315	315	752	1,180	2,310	2,550	1,240	0	112
1944	112	175	240	340	570	1,260	1,940	3,210	2,050	215	135	135
1945	135	160	160	370	530	1,070	2,570	1,760	1,980	660	0	0
1946	315	513	1,140	1,360	1,500	3,570	3,600	2,970	3,540	2,400	1,480	1,230
1947	1,470	1,690	1,690	1,880	a2,240	2,570	3,490	3,550	3,750	2,940	2,240	1,100
1948	1,150	1,530	1,620	1,620	2,240	2,460	3,500	3,470	2,420	950	880	1,020
1949	1,260	1,590	1,630	1,820	1,950	2,800	3,500	3,150	3,840	3,440	2,860	1,960

a Interpolated on the basis of gage readings within 2 days of last day of month.

b Interpolated on the basis of weekly or less-frequent gage readings.

477. Crow Creek near Ronan, Mont.

Location.--Lat 47°29'10", long. 114°05'40", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 13, T. 20 N., R. 20 W., 500 ft upstream from bridge on former St. Ignatius-Ronan highway, a quarter of a mile upstream from bridge on present route, and 3 miles south of Ronan.

Drainage area.--46.1 sq mi.

Gage.--Staff gage. Altitude of gage is 3,010 ft (by barometer). Prior to August 13, 1917, staff gage 500 ft downstream at different datum.

Extremes.--Maximum discharge observed, 1,400 cfs June 6, 1908 (gage height, 10.85 ft, from Floodmark), from rating curve extended above 400 cfs; minimum observed, 2.0 cfs Apr. 4-9, 1913.

Remarks.--Divisions above station for irrigation on lands below (no water bypassed station during 1907-12; 6,550 acre-ft bypassed in 1913; 12,000 acre-ft in 1914; 7,820 acre-ft in 1915; 12,000 acres irrigated in 1916; 12,400 acres in 1917).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	29.9	51.5	34.2	-	-	39.8	43.7	148	306	196	62.8	41.1	-
1908	27.5	21.2	20.0	-	-	21.5	57.0	179	536	109	37.5	42.0	-
1909	34.0	24.2	-	-	-	-	-	76.7	274	133	30.9	25.8	-
1910	21.6	53.4	-	-	-	46.8	105	197	127	33.4	22.9	20.0	-
1911	23.9	31.8	23.7	-	-	-	33.9	105	339	146	43.5	33.5	-
1912	35.0	22.2	-	-	-	-	*26.4	130	227	117	49.5	27.1	-
1913	15.4	-	-	-	-	-	36.7	115	369	87.2	39.3	36.0	-
1914	39.6	31.9	23.1	19.9	-	19.3	35.9	152	164	46.9	14.9	5.74	-
1915	45.6	47.4	-	-	-	60.6	110	187	194	188	35.1	47.6	-
1916	52.8	42.1	33.9	-	-	*72.4	57.7	150	435	299	21.0	78.2	-
1917	25.6	8.07	-	-	-	-	53	279	526	126	12.5	4.29	-

* Revised.

* Not previously published; partly estimated on the basis of weather records and records for Crow Creek at Lozeau's ranch, near Ronan.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	1,840	3,060	2,100	-	-	2,450	2,600	9,100	18,200	12,100	3,860	2,450	-
1908	1,690	1,260	1,230	-	-	1,320	3,390	11,000	31,900	6,700	2,310	2,500	-
1909	2,090	1,440	-	-	-	-	4,720	16,300	8,180	1,900	1,540	1,540	-
1910	1,350	3,180	-	-	-	2,880	6,250	12,100	7,560	2,050	1,410	1,190	-
1911	1,470	1,890	1,460	-	-	-	2,020	6,460	20,200	8,980	2,670	1,990	-
1912	2,150	1,320	-	-	-	-	*1,570	7,990	13,500	7,190	3,040	1,610	-
1913	947	-	-	-	-	-	2,180	7,070	22,000	5,360	2,420	2,140	-
1914	2,430	1,900	1,420	1,220	-	1,190	2,140	9,350	9,760	2,880	916	342	-
1915	2,800	2,820	-	-	-	3,730	6,550	11,500	11,500	11,600	2,160	2,830	-
1916	3,250	2,510	2,080	-	-	*4,450	3,430	9,220	25,900	18,400	1,290	4,650	-
1917	1,570	480	-	-	-	-	3,150	17,200	31,300	7,750	769	255	-

* Revised.

* Not previously published; partly estimated on the basis of weather records and records for Crow Creek at Lozeau's ranch, near Ronan.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1907	214,252	-	-	-	-	-	-
1908	252	1,400	June 6, 1908	-	-	-	-
1909	272	a426	June 21, 1909	-	-	-	-
1910	292	a300	May 10-12, 1910	-	-	-	-
1911	312	475	(b)	-	-	-	-
1912	1246,332	-	-	-	-	-	-
1913	362	a474	June 1-3, 1913	-	-	-	-
1914	392	a367	June 2, 1914	-	-	-	-
1915	412	a408	July 18, 1915	-	-	-	-
1916	442	a682	June 21, 1916	-	-	-	-
1917	462	a700	June 23, 1917	-	-	-	-

a Maximum observed.

b About June 3, 1914.

PEND OREILLE RIVER BASIN

478 Mud Creek near Ronan, Mont.

Location.--Lat 47°33', long. 114°08', in NW $\frac{1}{4}$ sec. 26, T. 21 N., R. 20 W., on right bank at Jeffrey's ranch, 3 miles northwest of Ronan.

Drainage area.--30.4 sq mi.

Gage.--Staff gage. Altitude of gage is 3,000 ft (by barometer).

Extremes.--1908-10: Maximum discharge observed (revised), 40 cfs June 27, 1908 (gage height 4.40 ft), discharge measurement; minimum observed, 1.6 cfs Apr. 7, 8, 1909.

Remarks.--Diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	The year
1908	-	-	-	-	-	-	-	-	-	9.77	5.30
1909	8.10	7.60	-	-	-	4.10	2.85	4.96	16.5	24.7	9.56
1910	6.27	5.60	4.37	4	5	10.7	7.56	12.7	12.4	5.12	3.65
1911	3.46	3.82	3.48	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	The year
1908	-	-	-	-	-	-	-	-	-	601	315
1909	498	452	-	-	-	252	170	305	982	1,520	873
1910	386	333	269	246	278	658	450	781	738	315	256
1911	213	227	214	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second							
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1908	252	-	-	-	-	-	-
1909	272	39	(a)	-	-	-	-
1910	292	20	(b)	-	6.81	4,930	6.34
1911	292	-	-	-	-	-	-

a June 23, 27-30, 1909.

b Mar. 10-14, May 3-5, 1910.

479. Crow Creek at Lozeau's ranch, near Ronan, Mont.

Location.--Lat 47°29'50", long. 114°14'50", in NE $\frac{1}{4}$ sec. 15, T. 20 N., R. 21 W., at private bridge about 1 mile downstream from Mud Creek, $2\frac{1}{2}$ miles upstream from mouth, and 8 miles southwest of Ronan.

Drainage area.--139 sq mi.

Gage.--Chain gage. Altitude of gage is 2,740 ft (from river profile map). Prior to May 10, 1915, staff gage 75 ft upstream at different datum. May 10, 1915, to June 17, 1916, staff gage 100 ft downstream at different datum.

Extremes.--1911-16: Maximum discharge observed, 960 cfs June 29, 1911, (gage height, 3.4 ft, site and datum then in use); minimum observed, 4 cfs Mar. 21, 1913 (gage height, 0.8 ft, site and datum then in use).

Remarks.--Diversions above station for irrigation on lands below. Practically no water bypassed station in 1911-12; 8,720 acre-ft in 1913; 12,000 acre-ft in 1914; 10,200 acre-ft in 1915.

Monthly and yearly mean discharge, in cubic feet per second											
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	The year
1911	-	-	-	-	-	-	\$55.0	156	413	181	48.6
1912	63.1	48.6	41.8	44.4	52.2	41.2	52.8	136	284	173	88.7
1913	55.2	50.7	42.1	-	-	70.8	66.8	155	299	101	55.8
1914	62.7	64.3	55.0	49.1	44.6	65.9	69.5	120	207	85.2	45.1
1915	105	101	-	-	-	-	153	209	206	187	72.1
1916	92.5	67.5	57.6	-	-	149	85.6	130	\$466	\$428	79.7

* Not previously published; partly estimated on the basis of records for Crow Creek near Ronan.

Monthly and yearly runoff, in acre-feet, of Crow Creek at Lozeau's ranch, near Ronan, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	*3,270	9,590	24,600	11,100	2,990	3,310	-
1912	3,880	2,890	2,570	2,730	3,000	2,530	3,140	8,360	16,900	10,600	5,450	4,080	66,100
1913	3,390	3,020	2,590	-	-	4,210	3,980	9,530	17,800	6,210	3,430	3,360	-
1914	3,860	3,830	3,380	3,020	2,480	4,050	4,140	7,380	12,300	5,240	2,770	3,100	55,600
1915	6,460	6,010	-	-	-	-	9,100	12,900	12,300	11,500	4,430	3,700	-
1916	5,690	4,020	3,540	-	-	9,160	5,090	7,990	27,700	26,300	4,900	7,800	-

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1911	312	960	June 29, 1911	-	-	-	-
1912	332	527	June 15, 1912	14	91.2	66,100	90.7
1913	362	628	May 29, 1913	-	-	-	-
1914	392	355	June 6, 1914	-	76.8	-	-
1915	412	-	-	-	-	-	-
1916	442	-	-	-	-	-	-

480. Dry Creek near St. Ignatius, Mont.

Location (revised).--Lat 47°16'30", long 114°00'20", in SW 1/4 sec. 34, T. 18 N., R. 19 W., on left bank at Felsman Ranch, 4 miles downstream from St. Marys Lake, and 5 miles southeast of St. Ignatius.

Drainage area.--19.5 sq mi.

Gage.--Staff gage. Altitude of gage is 3,500 (by barometer).

Extremes.--1909-16: Maximum discharge observed, 220 cfs June 19, 1916 (gage height, 2.80 ft), but was higher on June 6 or 7, 1908, when water was over gage; no flow during most winters.

Remarks.--One small diversion for irrigation above station. Flow regulated by Tabor Reservoir (St. Marys Lake).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1908	-	-	-	-	-	-	-	27.3	119	54.7	11.5	6.93	-
1909	5.16	3.13	-	-	-	-	-	-	75.0	49.4	8.97	2.35	-
1910	3.54	.99	-	0	0	0	3.70	28.7	27.2	10.1	0	0	-
1911	0	0	0	0	0	0	0	*3.4	77.2	41.0	4.9	0	*10.5
1912	0	0	0	0	0	0	*3.5	23.6	56.9	42.3	16.2	4.4	12.3
1913	.13	0	0	0	0	0	*1.98	15.3	53.2	30.7	13.8	3.70	*9.93
1914	0	0	0	0	0	0	2.39	33.7	66.0	39.6	9.48	4.93	13.1
1915	15.6	7.87	-	-	-	-	20.3	36.9	62.8	66.1	25.8	16.1	-
1916	10.2	-	-	-	-	-	9.87	23.8	72.6	61.5	7.84	11.2	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1908	-	-	-	-	-	-	-	1,680	7,080	3,360	707	412	-
1909	317	186	-	-	-	-	-	4,460	3,040	552	140	-	-
1910	218	58.9	-	0	0	0	220	1,760	1,620	621	0	0	-
1911	0	0	0	0	0	0	0	206	4,590	2,520	301	0	7,620
1912	0	0	0	0	0	0	*208	1,450	3,390	2,600	996	262	*8,910
1913	8.0	0	0	0	0	0	*118	941	3,170	1,890	848	220	*7,200
1914	0	0	0	0	0	0	142	2,070	3,930	2,430	583	293	9,450
1915	959	468	-	-	-	-	1,210	2,270	3,740	4,060	1,590	958	-
1916	627	-	-	-	-	-	587	1,460	4,320	3,780	482	666	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1908	252	-	-	0	-	-	-
1909	272	144	June 18-20, 1909	0	-	-	-
1910	292	48	(a)	0	-	-	5.83

a May 10-12, 26, June 10, 11, 18, 1910.

Yearly discharge, in cubic feet per second, of Dry Creek near St. Ignatius, Mont.--Continued								
Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1911	916,312	150	June 15, 1911	0	*10.5	*7,620	*10.5	*7,620
1912	916,332	78	(a)	0	12.3	*8,910	12.3	*8,910
1913	916,362	72	June 12, 1913	0	*9.93	*7,200	*9.92	*7,190
1914	392	202	May 24, 1914	0	13.1	9,450	-	-
1915	412	113	June 25, 1915	-	-	-	-	-
1916	442	220	June 19, 1916	-	-	-	-	-

* Revised.

a June 22-27, July 1, 2, 1912.

481. Mission Creek near St. Ignatius, Mont.

Location.--Lat 47°19'40", long. 114°07'20", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ (revised) sec. 10, T. 18 N., R. 20 W., on left bank 1 mile northwest of St. Ignatius.

Drainage area.--74.8 sq mi.

Gage.--Staff gage. Altitude of gage is 2,790 ft (by barometer). Prior to Jan. 29, 1912, staff gages at several sites and datums within about 300 ft downstream.

Average discharge.--9 years (1906-11, 1912-14, 1915-17), 71.7 cfs.

Extremes.--1906-17: Maximum discharge (revised), 1,700 cfs June 10, 1908 (gage height, 6.9 ft, from floodmark at site established June 26, 1908), from rating curve extended above 340 cfs; minimum observed (revised), 5 cfs Mar. 2, 3, 1911 (gage height, 1.90 ft, site and datum then in use).

Remarks.--Several diversions for irrigation above station (see published reports for amount of diversions in some years).

Monthly and yearly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1907	50.5	48.1	36.5	16.9	14.4	20.2	36.7	103	236	293	107	70.9
1908	38.5	21.1	11.8	9.87	9.03	9.97	29.7	120	*671	*217	73.5	58.6
1909	47.7	41.3	29.5	29.3	19.0	16.0	15.0	49.7	275	191	81.6	51.8
1910	47.5	41.3	24.4	14.5	*12.2	*17.3	37.3	98.0	120	48.8	28.0	22.1
1911	27.9	28.6	19.1	14.7	11.0	14.0	16.3	47.0	234	171	77.6	52.6
1912	45.0	30.5	-	-	12.4	12.0	23.8	96.3	223	a195	109	61.5
1913	46.7	31.3	23.2	16.3	16.0	14.0	26.5	91.6	262	160	82.1	38.8
1914	30.3	25.8	15.8	15.7	12.7	11.9	15.4	91.4	209	137	37.8	33.2
1915	52.0	36.8	26.4	-	-	-	55.9	120	226	295	167	61.1
1916	54.2	40.5	33.2	23.2	16.7	17.1	36.4	70.9	228	332	121	80.8
1917	38.2	29.2	22.8	16.0	13.7	12.0	21.9	85.2	253	206	80.7	77.1

* Revised.

a Only monthly figures revised; revised daily figures not available.

Monthly and yearly runoff, in acre-feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1907	3,110	2,860	2,240	1,040	800	1,240	2,180	6,330	14,000	18,000	6,580	4,220
1908	2,370	1,260	726	607	519	613	1,770	7,380	*39,900	*13,300	4,520	3,490
1909	2,930	2,460	1,810	1,800	1,060	984	893	3,060	16,400	11,700	5,020	3,080
1910	2,920	2,460	1,500	892	*678	*1,060	2,220	6,030	7,140	3,000	1,720	1,320
1911	1,720	1,700	1,170	904	611	861	970	2,890	13,900	10,500	4,770	3,130
1912	2,750	1,810	-	-	713	739	1,420	5,920	12,400	12,000	6,700	3,660
1913	2,870	1,860	1,430	1,000	889	861	1,580	5,630	15,600	9,840	5,050	2,310
1914	1,860	1,540	972	965	705	732	816	5,620	12,400	8,420	2,320	1,980
1915	3,200	2,180	1,620	-	-	-	3,320	7,380	14,600	18,100	10,300	3,640
1916	3,330	2,410	2,040	1,430	961	1,050	2,170	4,360	13,600	20,400	7,440	4,810
1917	2,350	1,740	1,400	984	761	738	1,300	5,240	15,100	12,700	4,960	4,590

* Revised.

a Only monthly figures revised; revised daily figures not available.

Yearly discharge, in cubic feet per second								
Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1907	252	-	-	-	86.5	82,600	80.8	58,700
1908	1246,252	*1,700	June 10, 1908	8	*105	*78,500	*109	*79,300
1909	272	602	June 21, 1909	13	70.7	51,200	70.5	50,900
1910	1246,292	-	-	-	*42.7	*30,900	39.5	28,600
1911	312	-	-	-	59.6	43,100	-	-
1912	332	343	June 22, 1912	-	-	-	-	-
1913	362	-	-	14	67.5	48,900	65.1	47,100
1914	392	358	June 19, 20, 1914	10	53.2	39,400	56.7	41,100
1915	412	385	June 26, 1915	-	-	-	-	-
1916	442	590	June 19, 1916	14	88.1	64,000	85.0	61,700
1917	462	426	June 17, 1917	11	71.6	51,900	-	-

* Revised.

482. Post Creek at Fitzpatrick's ranch, near Ronan, Mont. 1/

Location.--Lat 47°26'20", long. 114°02'20", in SW 1/4 NE 1/4 sec. 5, T. 19 N., R. 19 W., at right end of bridge near the house of J. G. Fitzpatrick, 2 miles upstream from Marsh Creek (formerly North Fork Post Creek), 7 miles (revised) southeast of Ronan, and 9 miles (revised) north of St. Ignatius.

Drainage area.--28.4 sq mi.

Gage.--Staff gage. Altitude of gage is 3,100 ft (by barometer).

Extremes.--1906-11: Maximum discharge, 2,800 cfs about June 10, 1908 (gage height, 8.48 ft from flood mark), from rating curve extended above 210 cfs; minimum not determined, probably occurred during period of ice effect or no gage-height record.

Remarks.--Two small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	55.5	65.5	50.3	40.0	40.0	37.2	45.4	108	281	259	116	55.7	94.5
1908	33.7	28.6	26.8	22.6	25.1	30.7	53.7	123	1,030	253	79.5	67.2	147
1909	35.3	36.0	32.5	26.5	24	29.1	28.1	66.3	304	210	78	62.2	77.8
1910	52.5	55.7	43.9	28.8	31.2	37.2	59.3	165	172	93.8	55.2	35.9	69.3
1911	38.5	52.5	31.9	20.0	20.0	26.4	36.8	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	3,410	3,900	3,090	2,460	2,220	2,290	2,700	6,520	15,500	15,900	7,130	3,310	68,400
1908	2,070	1,700	1,650	1,390	1,440	1,890	3,200	7,560	61,300	15,600	4,890	4,000	107,000
1909	2,170	2,140	2,000	1,830	1,330	1,790	1,670	4,080	18,100	12,900	4,800	3,700	56,300
1910	3,230	3,310	2,700	1,770	1,730	2,290	3,530	10,100	10,200	5,770	3,390	2,140	50,200
1911	2,370	3,120	1,960	1,230	1,110	1,620	2,190	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1907	252	a412	June 29, 30, 1907	-	94.5	68,400	†87.6	†63,400	
1908	272	2,800	June 10, 1908	20	147	107,000	†148	108,000	
1909	272	-	-	24	77.8	56,300	†81.8	59,200	
1910	292	a356	June 2, 1910	24	69.3	50,200	†66.8	48,400	
1911	312	-	-	-	-	-	-	-	

† Corrected.

a Maximum observed.

483. Post Creek at Deschamps' ranch, near Ronan, Mont.

Location (revised).--Lat 47°25', long. 114°02', in W 1/2 sec. 7, T. 19 N., R. 19 W., on right bank 600 ft upstream from Marsh Creek (formerly North Fork Post Creek), 7 1/2 miles southeast of Ronan, and 6 1/2 miles northeast of St. Ignatius.

Drainage area.--29.7 sq mi.

Gage.--Staff gage. Altitude of gage is 2,850 ft (by barometer).

Extremes.--April to November 1911: Maximum discharge observed, 546 cfs June 25 (gage height, 2.95 ft); minimum observed, 16 cfs Apr. 20.

Remarks.--A few small diversions for irrigation above station.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1911				†30	69.3	329	184	87.5	40.0	35.5	†30		

† Not previously published; partly estimated on the basis of discharge measurements and records for nearby stations.

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1911				†1,790	4,260	19,600	11,300	5,380	2,380	2,180	†1,790		

† Not previously published; see footnote to preceding table.

1/ Published as Post Creek near St. Ignatius, 1906-1909 and as Post Creek near Ronan, 1910-11.

484. Post Creek near St. Ignatius, Mont.

Location (revised).--Lat 47°24', long. 114°06', on line between NW $\frac{1}{4}$ sec. 24 and NE $\frac{1}{4}$ sec. 23, T. 19 N., R. 20 W. on highway bridge on road between St. Ignatius and Ronan, 2 miles downstream from Marsh Creek (formerly North Fork Post Creek), and 5 miles north of St. Ignatius.

Drainage area.--47.6 sq mi.

Gage.--Chain gage. Altitude of gage is 2,730 ft (by barometer).

Extremes.--1911-17: Maximum discharge observed, 680 cfs June 29, 1916 (gage height, 5.20 ft); minimum observed, 20 cfs Sept. 3, 1914 (gage height, 2.0 ft).

Flood of June 10, 1908, was estimated to be 2,800 cfs at station at Fitzpatrick's ranch, about 2 miles upstream from Marsh Creek.

Remarks.--Diversions above station for irrigation of several hundred acres above and below station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	72.3	53.1	48.4	-	-	-	49.4	111	289	196	101	95.2	-
1913	-	60.6	52.9	45.8	45.9	43.7	58.5	120	335	192	116	33.3	-
1914	40.6	49.3	43.8	43.1	42.2	41.3	32.8	125	244	180	32.2	25.7	75.1
1915	32.5	71.0	-	-	-	-	89.5	189	228	223	132	85.1	-
1916	43.3	61.7	55.4	47.5	55.6	62.8	71.0	96.7	328	378	152	116	122
1917	50.5	25.6	*25	32.6	30.7	30.7	39.5	79.3	275	161	29.3	30	67.7

* Revised; supersedes estimate made in Water-Supply Paper 316.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	4,450	3,160	2,980	-	-	-	2,940	6,820	17,200	12,100	6,210	5,660	-
1913		3,610	3,250	2,820	2,550	2,690	3,480	7,380	19,900	11,800	7,130	1,980	-
1914	2,500	2,930	2,690	2,650	2,340	2,540	1,950	7,690	14,500	11,100	1,980	1,530	54,400
1915	2,000	4,220			-	-	5,530	11,600	13,600	13,700	8,120	5,060	-
1916	2,660	3,670	3,410	2,920	3,200	3,660	4,220	5,950	19,500	23,200	9,350	6,900	88,800
1917	3,100	1,770	*1,540	2,000	1,700	1,880	2,550	4,860	16,300	9,850	1,800	1,780	*48,900

* Revised; supersedes estimate made in Water-Supply Paper 316.

Yearly discharge, in cubic feet per second								
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Maximum observed	Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
1912	332	-	-	-	-	-	-	-
1913	362	-	-	31	-	93.7	-	67,800
1914	392	431	June 4, 1914	20	75.1	-	54,400	-
1915	412	-	-	-	-	-	-	-
1916	442	680	June 29, 1916	32	122	-	88,800	118
1917	916,462	466	June 18, 19, 1917	-	67.7	-	*48,900	-

* Revised.

485. Mission Valley Reservoirs, Mont.

A group of eight reservoirs in area east of and tributary to Flathead River and Jocko River, operated for irrigation. Gages are nonrecording set to approximate sea level datum. Records furnished by Office of Indian Affairs.

Twin Reservoir.--Lat 47°40', long. 114°05', in sec. 18, T. 22 N., R. 19 W., at outlet works 4 miles southeast of Polson, fed entirely by various canals; storage began in 1932; usable capacity of 1,210 acre-ft at elevation 3,095 ft.

Extremes.--1940-50: Maximum contents observed, 800 acre-ft June 30, 1947; no storage at times in July 1941, August, September 1944.

Pablo Reservoir.--Lat 47°38', long. 114°08', in sec. 27, T. 22 N., R. 20 W., at outlet works 3 miles south of Polson, fed entirely by various canals, some water supplied by Flathead pumping plant; storage began in 1914; usable capacity of 25,000 acre-ft, at elevation 3,211.3 ft.

Extremes.--1940-50: Maximum contents observed, 25,170 acre-ft June 1, 4, 1948; minimum observed, 680 acre-ft Aug. 31, 1949.

Lower Crow Reservoir.--Lat 47°30'00", long. 114°14'10", in S $\frac{1}{2}$ sec. 11, T. 20 N., R. 21 W., at outlet works on Crow Creek 6 miles west of Ronan; storage began in 1933; usable capacity of 10,350 acre-ft at elevation 2,877 ft.

Extremes.--1940-50: Maximum contents observed, 10,770 acre-ft May 21, 22, 1948; minimum observed, 1,150 acre-ft Oct. 31, 1945, Oct. 31, 1946.

Kicking Horse Reservoir.--Lat 47°27'10", long. 114°04'40", in sec. 31, T. 20 N., R. 19 W., at outlet works 5 miles south of Ronan, fed entirely by various canals; storage began in 1930; usable capacity of 8,350 acre-ft at elevation 3,061.94 ft.

485. Mission Valley Reservoirs, Mont.--Continued

Extremes.--1940-50: Maximum contents observed, 8,080 acre-ft May 22, 1948; minimum observed, 560 acre-ft Sept. 30, 1944.

Ninepipe Reservoir.--Lat 47°28', long. 114°08', in sec. 27, T. 20 N., R. 20 W., at outlet works 2 miles northeast of Charlo, fed entirely by various canals; storage began in 1911; usable capacity of 14,870 acre-ft at elevation 3,010 ft.

Extremes.--1940-50: Maximum contents observed, 15,540 acre-ft June 8, 13, 14, 1948; minimum observed, 231 acre-ft Sept. 30, 1947.

McDonald Reservoir.--Lat 47°26'00", long. 113°59'30", in NE $\frac{1}{4}$ sec. 10, T. 19 N., R. 19 W., at outlet works on Post Creek 9 miles east of Charlo; storage began in 1919; usable capacity of 8,220 acre-ft at elevation 3,598 ft.

Extremes.--1940-50: Maximum contents observed, 8,160 acre-ft June 30, 1942, May 28, June 11, 1948; minimum observed, 185 acre-ft Oct. 31, 1943.

Mission Reservoir.--Lat 47°18'50", long. 114°01'20", in S $\frac{1}{2}$ sec. 16, T. 18 N., R. 19 W., at outlet works on Mission Creek 4 miles east of St. Ignatius, fed by water diverted from Jocko River; storage began in 1935; usable capacity of 7,250 acre-ft at elevation 3,406 ft.

Extremes.--1940-50: Maximum contents observed, 7,720 acre-ft May 29, June 11, 1948; no storage at times during September 1949.

Tabor Reservoir.--Lat 47°15'50", long. 113°56'10", in N $\frac{1}{2}$ sec. 6, T. 17 N., R. 18 W., at outlet works on Dry Creek 8 miles southeast of St. Ignatius, fed by water diverted from Jocko River; storage began in 1919; usable capacity of 23,000 acre-ft at elevation 4,024 ft.

Extremes.--1940-50: Maximum contents observed, 23,310 acre-ft July 8, 1948; minimum observed, 150 acre-ft Sept. 30, 1949.

Combined contents in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	-	-	18,960	-	-	-	-	-	-	-	-	17,250
1941	21,010	23,940	24,980	28,650	32,280	36,040	43,440	55,730	69,170	36,120	16,320	18,140
1942	27,320	33,540	39,420	41,150	43,200	47,940	63,320	90,560	93,590	78,020	39,000	16,030
1943	14,480	17,980	23,140	26,280	27,360	31,230	46,460	73,240	92,140	70,340	28,540	10,830
1944	11,710	13,700	16,300	20,070	23,080	33,340	41,370	53,140	77,160	48,260	23,900	10,820
1945	15,820	20,440	24,600	29,700	37,040	44,040	45,060	62,450	78,060	61,530	26,900	13,330
1946	21,360	29,880	35,140	35,020	40,880	43,110	52,140	56,040	72,160	62,890	29,380	16,160
1947	21,620	24,350	27,040	31,530	37,730	39,880	47,670	76,520	92,790	59,560	27,420	23,250
1948	36,650	34,420	38,900	44,100	49,720	51,650	60,720	89,950	92,770	79,220	65,140	30,190
1949	23,210	21,400	22,880	22,380	28,900	32,290	39,810	55,850	36,600	20,690	9,680	8,510
1950	13,630	16,360	21,070	24,070	28,650	27,000	32,310	23,600	68,950	78,280	55,400	23,710

Note.--Figures of contents for some reservoirs occasionally interpolated from readings made within 2 days from end of month.

486. Lower Jocko Lake near Arlee, Mont.

Location.--Lat 47°12'20", long. 113°45'40", in NE $\frac{1}{4}$ sec. 28, T. 17 N., R. 17 W., at dam on Middle Fork Jocko River 15 miles east of Arlee.

Drainage area.--7.39 sq mi.

Gage.--Staff gage. Datum of gage is at mean sea level (levels by Office of Indian Affairs).

Extremes.--1940-50: Maximum contents observed, 6,700 acre-ft June 8, 1948; no storage during winter months of most years.

Remarks.--Storage began in 1937 for irrigation. Reservoir has a usable capacity of 7,600 acre-ft at elevation 4,350 ft. Transmountain diversion takes water from Flaid Creek in SE $\frac{1}{4}$ sec. 29, T. 17 N., R. 16 W., to Upper Jocko Lake, thence to Lower Jocko Lake.

Cooperation.--Records furnished by Office of Indian Affairs.

Contents in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	-	-	0	-	-	-	1,060	-	-	-	-	1,440
1941	-	0	0	0	0	0	780	1,480	1,980	920	860	0
1942	0	0	0	0	0	0	640	3,180	3,480	2,230	1,100	210
1943	20	0	0	0	0	0	780	4,780	5,760	3,950	2,150	420
1944	30	20	0	-	-	-	-	2,230	2,720	1,360	-	560
1945	120	-	0	0	0	0	0	4,130	4,770	2,370	1,110	980
1946	810	30	0	0	0	0	1,250	5,020	4,320	2,670	1,140	180
1947	250	40	-	0	0	0	1,060	4,940	4,970	3,340	1,500	1,320
1948	1,160	-	-	-	-	-	-	6,150	5,240	3,640	2,300	1,100
1949	850	710	-	-	-	-	500	4,730	4,340	1,140	60	120
1950	60	60	-	-	-	-	0	3,460	6,500	4,470	3,180	2,150

487. Middle Fork Jocko River near Jocko, Mont.

Location (revised).--Lat 47°11'50", long. 113°50'50", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 26, T. 17 N., R. 18 W., on right bank 300 ft upstream from South Fork, 10 miles northeast of Jocko, and 11 $\frac{1}{2}$ miles east of Arlee.

Drainage area.--14.9 sq mi.

Gage.--Staff gage. Altitude of gage is 3,920 ft (by barometer).

Extremes.--1912-16: Maximum discharge observed, 134 cfs June 1, 1912 (gage height, 1.4 ft); minimum not determined.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	81.5	92.1	58.3	38.7	29.0	-
1913	21.6	18.6	15.1	-	-	-	-	65.1	81.0	51.5	33.2	21.2	-
1914	16.9	11.4	-	-	-	-	19.7	52.0	43.9	30.8	23.8	18.4	-
1915	32.7	14.9	-	-	-	-	32.8	37.3	36.5	34.1	23.6	21.6	-
1916	*16.0	*13.1	-	-	-	-	*47	*67	*87	*79	*54	*37	-

* Not previously published; partly estimated on the basis of gage heights and records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	5,010	5,480	3,580	2,380	1,730	-
1913	1,330	1,110	928	-	-	-	-	3,880	4,820	3,170	2,040	1,280	-
1914	1,040	678	-	-	-	-	1,170	3,200	2,610	1,890	1,460	1,090	-
1915	2,010	887	-	-	-	-	1,950	2,290	2,170	2,100	1,450	1,290	-
1916	*984	*780	-	-	-	-	*2,800	*4,120	*5,180	*4,860	*3,320	*2,200	-

* Not previously published; see footnote to preceding table.

488. South Fork Jocko River near Jocko, Mont.

Location.--Lat 47°11'50", long. 113°50'50", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 26 (revised), T. 17 N., R. 18 W., on right bank 300 ft downstream from Middle Fork, 10 miles northeast of Jocko, and 11 $\frac{1}{2}$ miles east of Arlee.

Drainage area.--72.3 sq mi.

Gage.--Staff gage. Altitude of gage is 3,900 ft (by barometer).

Extremes.--1912-16: Maximum discharge observed, 782 cfs (corrected) May 31, 1913 (gage height, 4.15 ft); minimum observed, 28 cfs Dec. 7, 1912 (gage height, 1.93 ft), but may have been less during periods of no record.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	-	*412	182	126	80.0	-
1913	47.5	52.0	33.2	-	-	-	-	328	506	167	*106	*47.4	-
1914	*39.8	-	-	-	-	-	67.9	285	265	120	56.0	48.7	-
1915	116	50.1	-	-	-	-	125	198	214	138	84.1	64.3	-
1916	*50.6	*42.9	-	-	-	-	*143	*300	*492	*341	*143	*84.6	-

* Revised; see Water-Supply Paper 1246.

* Not previously published; partly estimated on the basis of gage heights, weather records, and records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	-	*24,500	11,200	7,750	4,760	-
1913	2,920	3,090	2,040	-	-	-	-	20,200	30,100	10,300	*6,520	*2,820	-
1914	*2,450	-	-	-	-	-	4,040	17,500	15,800	7,380	3,440	2,900	-
1915	7,130	2,980	-	-	-	-	7,440	12,200	12,700	8,480	5,170	3,830	-
1916	*3,110	*2,550	-	-	-	-	*8,510	*18,400	*29,300	*21,000	*8,790	*5,030	-

* Revised; see Water-Supply Paper 1246.

* Not previously published; see footnote to preceding table.

489. North Fork Jocko River near Jocko, Mont.

Location (revised).--Lat 47°13'20", long. 113°51'00", in W¹NE¹ sec. 23, T. 17 N., R. 18 W., on left bank three-quarters of a mile upstream from Falls Creek, 11 miles northeast of Jocko, and 11½ miles northeast of Arlee.

Drainage area.--19.5 sq mi.

Gage.--Staff gage. Altitude of gage is 3,970 ft (by barometer).

Extremes.--1912-16: Maximum discharge observed, 492 cfs May 31, 1913 (gage height, 3.4 ft); minimum not determined, probably occurred during winter period.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	*215	*252	75.2	29.5	25.3	-
1913	24.4	28.8	15.5	-	-	-	-	231	305	60.3	27.8	13.9	-
1914	13.0	9.30	-	-	-	-	47.8	252	162	54.6	13.8	13.3	-
1915	61.5	29.1	-	-	-	-	114	159	123	71.0	24.5	25.8	-
1916	*24.2	*20.6	-	-	-	-	*58.6	*142	*333	*185	*34.6	*27.4	-

* Revised; see Water-Supply Paper 1246.

* Not previously published; partly estimated on the basis of gage readings and records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	*13,200	*15,000	4,620	1,810	1,510	-
1913	1,500	1,710	953	-	-	-	-	14,200	18,100	3,710	1,710	827	-
1914	779	553	-	-	-	-	2,840	15,500	9,640	3,360	848	785	-
1915	3,780	1,730	-	-	-	-	6,780	9,780	7,320	4,370	1,510	1,540	-
1916	*1,490	*1,230	-	-	-	-	*3,490	*8,730	*19,800	*11,400	*2,130	*1,630	-

* Revised; see Water-Supply Paper 1246.

* Not previously published; see footnote to preceding table.

490. Falls Creek near Jocko, Mont.

Location.--Lat 47°13'30", long. 113°52'00" (revised), in NE¹NE¹ sec. 22, T. 17 N., R. 18 W., on right bank a quarter of a mile upstream from mouth, 10 miles northeast of Jocko, and 11 miles northeast of Arlee.

Drainage area.--3.57 sq mi.

Gage.--Staff gage. Altitude of gage is 4,080 ft (by barometer).

Extremes.--1912-16: Maximum discharge observed, 110 cfs June 17, 1916 (gage height, 14.5 ft); minimum not determined.

Remarks.--No diversion or regulation during period of record. Tabor Feeder Canal built in 1923 crosses Falls Creek just above station site and diverts entire flow into Tabor Reservoir (see p. 391).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	*62.7	*70.9	14.6	7.29	7.00	-
1913	5.46	-	-	-	-	-	-	34.1	49.0	13.2	5.35	3.11	-
1914	3.13	2.02	-	-	-	-	5.68	49.0	31.7	11.4	3.87	4.50	-
1915	16.00	6.19	-	-	-	-	29.5	46.8	41.9	21.4	6.79	10.8	-
1916	*7.34	*4.58	-	-	-	-	*8.43	*14.9	*62.7	*41.5	*10.7	*8.06	-

* Revised; see Water-Supply Paper 1246.

* Not previously published; partly estimated on the basis of gage heights and records for nearby stations.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	*3,860	*4,220	898	448	417	-
1913	336	-	-	-	-	-	-	2,100	2,920	812	329	185	-
1914	192	120	-	-	-	-	338	3,010	1,890	701	238	268	-
1915	984	368	-	-	-	-	1,760	2,880	2,490	1,320	418	643	-
1916	*451	*273	-	-	-	-	*383	*916	*3,730	*2,550	*858	*480	-

* Revised; see Water-Supply Paper 1246.

* Not previously published; see footnote to preceding table.

491. Jocko River near Jocko, Mont.1/

Location.--Lat 47°09'30", long. 113°59'20", in W $\frac{1}{2}$ sec. 10, T. 16 N., R. 19 W., on right bank 500 ft upstream from headworks of Jocko "K" Canal, 800 ft upstream from Big Knife Creek, 2 miles northeast of Jocko, and $4\frac{1}{2}$ miles east of Arlee.

Drainage area.--140 sq mi.

Gage.--Staff gage. Altitude of gage is 3,390 ft (by barometer).

Extremes.--1918-19: Maximum discharge observed, 2,720 cfs June 11, 1918 (gage height, 7.5 ft); minimum observed, 48 cfs Mar. 7, 1919 (gage height, 3.04 ft).

Flood on June 6, 1908 reached a discharge of 6,200 cfs, estimated from floats at site 2 miles downstream; flood of May-June, 1948 reached a discharge of 2,660 cfs, from slope-area determination.

Remarks.--No diversion above station. Jocko "K" Canal diverts 500 ft below gage.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	-	-	-	-	-	-	-	845	1,370	264	168	111	-
1919	99.9	-	64.6	56.0	54.0	55.9	199	467	308	149	95.0	71.2	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1918	-	-	-	-	-	-	-	52,000	81,500	16,200	10,300	6,600	-
1919	6,140	-	3,970	3,440	3,000	3,440	11,800	28,700	18,300	9,160	5,840	4,240	-

492. Big Knife Creek above Big Knife Canal, near Jocko, Mont.2/

Location.--Lat 47°09'00", long. 113°58'20" (revised), in NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 14, T. 16 N., R. 19 W., on right bank 200' ft upstream from Big Knife Canal headgate, 1 mile upstream from mouth, $2\frac{1}{2}$ miles northeast of Jocko, and $5\frac{1}{2}$ miles east of Arlee.

Drainage area.--7.16 sq mi.

Gage.--Staff gage. Altitude of gage is 3,700 ft (by barometer).

Extremes.--1910-16: Maximum discharge observed, 78 cfs June 30, 1916 (gage height, 3.65 ft); minimum observed, 4.3 cfs April 17, 1911 (gage height 1.83 ft), but may have been less during periods of no gage-height record.

Remarks.--No diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	*9.25	7.83	-
1911	6.58	5.99	-	-	-	-	-	8.98	32.0	20.6	13.4	10.7	-
1912	8.88	-	-	-	-	-	4.70	*18.2	37.5	26.5	15.6	10.7	-
1913	8.45	-	-	-	-	-	-	15.1	34.2	20.2	14.8	11.8	-
1914	10.2	8.40	-	-	-	-	5.46	16.1	26.7	17.6	11.8	10.5	-
1915	-	-	-	-	-	-	-	-	31.0	24.7	16.5	12.5	-
1916	10.4	-	-	-	-	-	-	17.1	47.0	*55.2	27.6	17.8	-

* Revised; see Water-Supply Paper 1246.

* Not previously published; estimated on the basis of records for Agency Creek near Jocko.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1910	-	-	-	-	-	-	-	-	-	-	*569	466	-
1911	405	356	-	-	-	-	280	552	1,900	1,270	824	637	-
1912	546	-	-	-	-	-	-	*1,120	2,230	1,630	959	637	-
1913	520	-	-	-	-	-	-	928	2,040	1,240	910	702	-
1914	627	500	-	-	-	-	325	990	1,590	1,080	726	625	-
1915	-	-	-	-	-	-	-	-	1,640	1,520	1,010	744	-
1916	640	-	-	-	-	-	-	1,050	2,800	*3,390	1,700	1,060	-

* Revised; see Water-Supply Paper 1246.

* Not previously published; estimated on the basis of records for Agency Creek near Jocko.

Note.--Records for December 1910 to March 1911, November, December 1911, October 1914, November, December 1915 published in Water-Supply Papers 292, 312, 332, 412, 442, and 916 have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. Those records are not published herein and should not be used.

1/ Records collected at station of same name August 1908 to September 1916 at site 2 miles downstream are not equivalent and are published on following page as Jocko River below Big Knife Creek, near Jocko.

2/ Previously published as Big Knife Creek near Jocko, Mont.

493. Big Knife Creek near Jocko, Mont.1/

Location.--Lat 47°09', long. 113°59', near center of sec. 10, T. 16 N., R. 19 W., on right bank 25 ft upstream from county highway bridge, about a quarter of a mile upstream from mouth, and 2 miles northeast of Jocko.

Drainage area.--7.44 sq mi.

Supplemental records available.--August to November 1908, fragmentary gage-height record only.

Gage.--Staff gage. Altitude of gage is 3,460 ft (by barometer).

Extremes.--1909-10: Maximum discharge, 52 cfs June 19, 1909 (gage height, 1.15 ft); minimum observed, 0.9 cfs Sept. 28, Oct. 24, 29, 31, 1910 (gage height, 0.29 ft).

Remarks.--Water diverted above station for irrigation by Big Knife Canal since Aug. 1, 1910.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	12.0	37.4	27.9	18.0	14.4	-
1910	11.7	10.3	-	-	-	7.62	12.3	19.1	17.1	13.0	9.38	1.31	-
1911	.99	8.95	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	738	2,230	1,720	1,110	857	-
1910	719	613	-	-	-	461	732	1,170	1,020	799	577	78	-
1911	61	533	-	-	-	-	-	-	-	-	-	-	-

Note.--Records for January, February, December 1910, published in Water-Supply Papers 292 and 916 have been found in error on the basis of restudy of the original data. These records are not published herein and should not be used.

494. Jocko River below Big Knife Creek, near Jocko, Mont.2/

Location.--Lat 47°09'30", long. 114°01'30", in NW¼ SE¼ sec. 8, T. 16 N., R. 19 W., on downstream side of right bridge pier, 1 mile north of Jocko, about 2 miles downstream from Big Knife Creek, and 3 miles east of Arlee.

Drainage area.--154 sq mi.

Supplemental records available.--August to November 1908, fragmentary gage-height record only.

Gage.--Staff gage. Altitude of gage is 3,210 ft (by barometer).

Extremes.--1909-16: Maximum discharge observed, 1,630 cfs June 20, 1916 (gage height, 9.55 ft); minimum observed, 21 cfs (revised) Aug. 1, 1910 (gage height, 6.17 ft), result of diversions above station.

Flood of June 6, 1908, reached a stage of 12.25 ft (discharge, 6,200 cfs, by float method).

Flood of May-June 1948 reached a discharge of 2,660 cfs, from slope-area determination at site 2 miles upstream.

Remarks.--Several diversions for irrigation above station.

1/ Records collected at station of same name August 1910 to September 1916 at site 1 mile upstream are not equivalent and are published on preceding page as Big Knife Creek above Big Knife Canal, near Jocko.

2/ Previously published as Jocko River near Jocko, Mont.

Monthly and yearly mean discharge, in cubic feet per second, of Jocko River below Big Knife Creek, near Jocko, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	369	946	355	194	140	-
1910	117	123	-	85	85	110	327	551	511	55.3	32.3	58.8	-
1911	67.2	104	75	70	65	80	176	408	724	243	118	109	187
1912	107	96	75	70	60	65	244	700	808	301	162	157	237
1913	135	120	89.6	-	-	-	-	619	1,040	297	185	137	-
1914	137	137	-	-	-	-	241	608	493	134	89.7	87.7	-
1915	-	-	-	-	-	-	317	485	499	308	154	160	-
1916	140	-	-	-	-	-	309	514	1,080	760	248	169	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	22,700	56,300	21,800	11,900	8,330	-
1910	7,190	7,320	-	5,230	4,720	6,780	19,500	33,900	18,500	3,400	1,990	3,500	-
1911	4,130	6,190	4,610	4,300	3,610	4,920	10,500	25,100	43,100	14,900	7,260	6,490	135,000
1912	6,580	5,710	4,610	4,300	3,450	4,000	14,500	43,000	48,100	18,500	9,960	9,340	172,000
1913	8,300	7,140	5,510	-	-	-	-	38,100	61,900	18,300	11,400	8,150	-
1914	8,420	8,150	-	-	-	-	14,300	37,400	29,300	8,240	5,520	5,220	-
1915	-	-	-	-	-	-	18,900	29,800	29,700	18,900	9,470	9,520	-
1916	8,610	-	-	-	-	-	18,400	31,600	64,300	46,700	15,200	10,100	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1909	272	1,480	June 5, 1909	-	-	-	-	-	-
1910	292	-	-	-	-	-	155	112,000	-
1911	312	-	-	-	187	135,000	189	137,000	-
1912	332	-	-	-	237	172,000	243	176,000	-
1913	362	-	-	-	-	-	-	-	-
1914	392	-	-	-	-	-	-	-	-
1915	412	-	-	-	-	-	-	-	-
1916	442	1,630	June 20, 1916	-	-	-	-	-	-

Note.--Records for October 1914 published in Water-Supply Papers 392 and 916 have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. Those records are not published herein and should not be used.

495. Agency Creek near Jocko, Mont.

Location (revised).--Lat 47°07'20", long. 113°59'40", in NW¼ NW¼ sec. 27, T. 16 N., R. 19 W., on left bank just above intake of Matt ditch, 1½ miles southeast of Jocko, and 5 miles southeast of Arlee.

Drainage area.--4.00 sq mi.

Supplemental records available.--August to November 1908, occasional gage heights only.

Gage.--Staff gage. Altitude of gage is 3,710 ft (by barometer). Prior to May 13, 1913, staff gage 150 ft downstream at different datum.

Extremes.--1909-16: Maximum discharge observed, 228 cfs June 20, 1916 (gage height, 3.3 ft), from rating curve extended above 110 cfs; minimum observed, 2.0 cfs Dec. 12, 1913 (gage height, 1.38 ft), but may have been less during periods of no gage-height record.

Remarks.--No diversion or regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	22.9	69.8	34.0	12.1	8.51	-
1910	6.58	5.95	-	-	-	-	17.6	38.0	23.5	9.12	5.61	5.24	-
1911	4.83	5.46	-	-	-	-	5.16	17.8	45.7	18.5	8.49	8.03	-
1912	7.79	4.73	-	-	-	-	7.19	28.4	44.8	27.0	11.6	9.56	-
1913	6.97	-	-	-	-	-	-	28.8	47.2	20.8	9.65	5.03	-
1914	5.66	3.99	-	-	-	-	5.90	42.8	39.2	17.8	7.36	5.70	-
1915	-	-	-	-	-	-	-	-	37.2	29.7	11.8	10.6	-
1916	13.7	-	-	-	-	-	-	19.9	94.6	58.5	12.0	8.08	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	1,410	4,150	2,090	744	506	-
1910	405	354	-	-	-	-	1,050	2,340	1,390	561	345	312	-
1911	297	325	-	-	-	-	307	1,090	2,720	1,140	522	478	-
1912	479	261	-	-	-	-	428	1,750	2,670	1,660	713	569	-
1913	429	-	-	-	-	-	-	1,770	2,610	1,280	593	299	-
1914	348	237	-	-	-	-	351	2,630	2,350	1,090	453	339	-
1915	-	-	-	-	-	-	-	-	2,210	1,630	726	631	-
1916	842	-	-	-	-	-	-	1,220	5,630	3,600	738	481	-

Note.--Records for January to March, December 1910, January to March, December 1911, published in Water-Supply Papers 292, 312, 332 and 916, have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. These records are not published herein and should not be used.

496. Blodgett Creek near Jocko, Mont.

Location.--Lat 47°09', long. 114°00' (revised), in SW¼ sec. 10, T. 16 N., R. 19 W., on left bank a third of a mile upstream from mouth, 1½ miles northeast of Jocko, and 4 miles east of Arlee.

Drainage area.--5.48 sq mi.

Supplemental records available.--March to November 1910, gage heights only.

Gage.--Staff gage. Altitude of gage is 3,600 ft (by barometer).

Extremes (revised).--June to November 1909: Maximum discharge observed, 3.5 cfs June 11 (gage height, 0.95 ft), discharge measurement; minimum observed, 0.4 cfs at times in November.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909						2.61	1.72	1.03	0.69	0.55	0.44	

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1909						155	106	63	41	34	26	

497. East Finley Creek near Jocko, Mont.

Location.--Lat 47°05'50", long. 114°01'50", in SW $\frac{1}{4}$ sec. 32, T. 16 N., R. 19 W., on left bank 100 ft upstream from intake of Indian ditch, 200 ft downstream from crossing of Jocko "N" Canal, 3 miles southwest of Jocko, and 5 miles southeast (revised) of Arlee.

Drainage area.--5.48 sq mi.

Gage.--Staff gage. Altitude of gage is 3,600 ft (by barometer).

Extremes.--1909-16: Maximum discharge observed, 165 cfs June 20, 1916 (gage height, 3.35 ft), from rating curve extended above 65 cfs; no flow at times during irrigation season.

Remarks.--Jocko "N" Canal diverts entire flow at times for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	26	67.5	25.5	9.69	6.97	-
1910	5.18	5.21	-	-	-	6.52	20.7	40.3	21.8	7.92	4.35	4.63	-
1911	5.07	5.76	5.0	3.00	3.00	3.10	6.52	25.5	53.6	14.0	-	-	-
1912	-	-	-	3.0	2.5	2.5	*6.15	*32.3	41.5	17.8	8.68	7.60	-
1913	6.28	4.0	3.5	-	-	-	-	35.6	53.2	19.1	8.95	5.26	-
1914	7.11	6.60	-	-	-	-	6.56	39.6	34.8	13.6	5.79	5.53	-
1915	9.06	-	-	-	-	-	-	-	47.0	28.5	10.5	9.14	-
1916	#10	-	-	-	-	-	-	*36	#73	*38	*9.5	#10	-

* Revised; see Water-Supply Paper 1246.

Not previously published; estimated on the basis of records for Agency Creek near Jocko.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	1,600	4,020	1,570	596	415	-
1910	318	310	-	-	-	401	1,230	2,480	1,300	481	267	276	-
1911	312	343	307	184	167	191	388	1,570	3,190	861	-	-	-
1912	-	-	-	184	144	154	*366	*1,980	2,470	1,090	534	452	-
1913	386	238	215	-	-	-	-	2,190	3,170	1,170	550	313	-
1914	437	393	-	-	-	-	390	2,430	2,070	836	356	329	-
1915	557	-	-	-	-	-	-	-	2,800	1,750	646	544	-
1916	#615	-	-	-	-	-	-	*2,210	*4,340	*2,340	*584	*595	-

* Revised; see Water-Supply Paper 1246.

Not previously published; estimated on the basis of records for Agency Creek near Jocko.

Note.--Records for January, February 1910 published in Water-Supply Papers 292 and 916 have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. These records are not published herein and should not be used.

498. Indian ditch near Jocko, Mont.

Location.--Lat 47°05'50", long. 114°01'50", in SW $\frac{1}{4}$ sec. 32, T. 16 N., R. 19 W., on left bank 100 ft downstream from headgate, 3 miles (revised) southwest of Jocko, and 5 miles (revised) southeast of Arlee.

Supplemental records available.--Aug. 18 to Nov. 5, 1908, occasional gage heights and discharge measurements only.

Gage.--Staff gage. Prior to May 14, 1913, staff gage 100 ft upstream at different datum.

Extremes.--Not determined.

Remarks.--Ditch diverts from right bank East Finley Creek in SW $\frac{1}{4}$ sec. 32, T. 16 N., R. 19 W. Flow completely regulated by height of diversion dam, no headgate. Water used for stock and irrigation.

Monthly and yearly runoff, in acre-feet, of Indian ditch near Jocko, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	520	637	873	417	304	-
1910	251	237	-	-	-	-	613	898	1,140	509	238	264	-
1911	291	320	-	-	-	-	310	640	982	590	-	-	-
1912	-	-	-	123	66	92	217	646	1,140	346	173	302	-
1913	-	-	-	-	-	-	-	491	1,200	359	403	245	-
1914	364	327	-	-	-	-	354	990	666	477	301	371	-
1915	3426	-	-	-	-	-	-	-	330	432	329	414	-
1916	259	-	-	-	-	-	-	*84	452	*327	*191	218	-

* Revised; see Water-Supply Paper 1246.

a Only monthly figures revised; revised daily figures not available.

Note.--Records for October 1912, published in Water-Supply Papers 362 and 916 have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. Those records are not published herein and should not be used.

499. Finley Creek near Jocko, Mont.

Location.--Lat 47°06'00", long. 114°03'10", in NE 1/4 SW 1/4 sec. 31, T. 16 N., R. 19 W., on right bank an eighth of a mile downstream from confluence of East and West Forks, 4 miles southwest of Jocko, and 5 miles southeast of Arlee.

Drainage area.--36.7 sq mi.

Supplemental records available.--August to November 1908, occasional gage heights and discharge measurements only.

Gage.--Staff gage. Altitude of gage is 3,520 ft (by barometer).

Extremes.--1909-16: Maximum discharge observed, 518 cfs June 20, 1916 (corrected) (gage height, 2.96 ft), from rating curve extended above 170 cfs; minimum not determined.

Remarks.--Jocko "N" Canal, Indian ditch (see page 398) and several smaller irrigation ditches divert water above station, part of which is used on lands below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	70.5	147	35.0	15.0	12.2	-
1910	9.39	11.1	-	-	-	-	55.3	60.2	23.1	8.45	5.38	6.97	-
1911	8.22	9.23	-	6.10	8.00	10.0	11.6	38.6	81.9	24.9	10.1	8.12	-
1912	9.90	7.32	7.00	7.0	8.0	9.0	23.1	76.8	88.8	41.1	16.4	14.4	25.7
1913	11.0	8.0	7.0	-	-	-	-	73.5	77.8	29.1	8.90	5.82	-
1914	9.04	7.34	-	-	-	-	20.2	69.5	66.6	21.7	8.54	6.22	-
1915	-	-	-	-	-	-	-	*73	75.4	38.1	14.7	9.53	-
1916	*125	-	-	-	-	-	-	*69.3	*207	*96.7	*21.0	*18.0	-

* Not previously published; estimated on the basis of discharge measurements, gage heights and records for Agency Creek near Jocko and Revals Creek near Dixon.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	4,330	8,750	2,150	922	726	-
1910	577	660	-	-	-	-	3,290	3,700	1,370	520	331	415	-
1911	505	549	-	375	444	615	690	2,370	4,870	1,530	621	483	-
1912	609	436	430	430	460	553	1,370	4,720	5,280	2,530	1,010	857	18,700
1913	676	476	430	-	-	-	-	4,520	4,630	1,790	547	346	-
1914	556	437	-	-	-	-	1,200	4,270	3,960	1,330	525	370	-
1915	-	-	-	-	-	-	-	*4,490	4,370	2,340	904	567	-
1916	*76.9	-	-	-	-	-	-	*4,260	*12,300	*5,950	*1,290	*1,070	-

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1909	272	269	June 3, 1909	-	-	-	-	-	-
1910	292	-	-	-	-	-	-	-	-
1911	312	-	-	-	-	-	18.6	13,500	-
1912	332	-	-	-	25.7	18,700	25.9	18,800	-
1913	362	-	-	-	-	-	-	-	-
1914	392	-	-	-	-	-	-	-	-
1915	412	-	-	-	-	-	-	-	-
1916	442	-	-	-	-	-	-	-	-

500. Valley Creek near Ravalli, Mont.

Location.--Lat 47°14'40", long. 114°10'30", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 8, T. 17 N., R. 20 W., on left bank 25 ft upstream from highway bridge near mouth, 2 miles south of Ravalli, and 7 miles northwest of Arlee (corrected).

Drainage area.--64.1 sq mi.

Supplemental records available.--August to November 1908, several gage heights and discharge measurements. January to July 1911, discharge measurements only.

Gage.--Staff gage. Altitude of gage is 2,750 ft (by barometer).

Extremes.--1909-10: Maximum discharge observed, 302 cfs (revised) June 3, 1909 (gage height, 2.75 ft); minimum not determined.

Remarks.--A few small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	116	169	52.6	24.3	21.9	-
1910	20.2	24.0	-	-	-	-	98.7	107	42.3	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1909	-	-	-	-	-	-	-	7,130	10,100	3,230	1,490	1,300	-
1910	1,240	1,430	-	-	-	-	6,870	6,580	2,520	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year			
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1909	272	*502	June 3, 1909	-	-	-	-	-	-
1910	292	172	Apr. 26-28, 1910	-	-	-	-	-	-

* Not previously published.

501. Jocko River at Ravalli, Mont.

Location.--Lat 47°16'30", long. 114°11'20", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 31 (revised), T. 18 N., R. 20 W., on right bank near railroad station at Ravalli.

Drainage area.--348 sq mi.

Gage.--Chain gage. Altitude of gage is 2,680 ft (by barometer). Prior to Feb. 1, 1911, staff gage several hundred feet downstream at different datum.

Extremes.--1906-11: Maximum discharge, 7,500 cfs June 10, 1908 (gage height, 7.63 ft, from high water mark), from rating curve extended above 1,900 cfs; minimum not determined.

Remarks.--Several diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	*163	224	188	166	200	246	344	842	1,190	585	312	245	*393
1908	208	177	167	125	*100	114	238	550	2,410	479	302	286	*428
1909	220	200	172	-	-	181	187	486	914	406	255	195	-
1910	185	185	165	130	130	170	602	942	392	138	125	167	a278
1911	180	191	148	114	110	131	-	-	-	-	-	-	-

* Revised.

* Not previously published; partly estimated on the basis of weather records and records for Mission Creek near St. Ignatius.

a Only monthly figures revised; revised daily figures not available.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1907	*10,000	13,300	11,600	10,200	11,100	15,100	20,500	51,800	70,800	36,000	19,200	14,600	*284,000
1908	12,800	10,500	9,650	7,690	*5,750	7,010	14,200	33,800	43,000	29,500	18,600	17,000	*310,000
1909	13,500	11,900	10,600	-	-	11,100	11,100	29,900	54,400	25,000	15,700	11,600	-
1910	11,300	11,000	10,100	7,790	7,220	10,500	35,800	57,900	23,300	8,480	7,690	9,940	a201,000
1911	11,100	11,400	9,100	7,010	6,110	8,060	-	-	-	-	-	-	-

* Revised.

* Not previously published; see footnote to preceding table.

a Only monthly figures revised; revised daily figures not available.

Yearly discharge, in cubic feet per second, of Jocko River at Ravalli, Mont.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1907	252	al,860	June 8, 1907	-	*393	*284,000	389	282,000
1908	1246 252	7,500	June 10, 1908	*90	*428	*310,000	*432	*313,000
1909	272	al,540	June 3, 1909	-	-	-	-	-
1910	292	al,590	May 11, 1910	-	*278	*201,000	276	200,000
1911	312	-	-	-	-	-	-	-

* Revised.

* Not previously published.

a Maximum observed.

Note.--Records for January, February 1909, January to March, 1910, published in Water-Supply Paper 916 have been found in error on the basis of restudy of original data. These records are not published herein and should not be used.

502. Revals Creek near Dixon, Mont.

Location (revised).--Lat 47°19'00", long. 114°23'10", in E½ SW¼ sec. 15, T. 18 N., R. 22 W., on right bank 100 ft downstream from highway bridge, 0.7 mile upstream from mouth, and 3 miles west of Dixon.

Drainage area.--35.0 sq mi.

Gage.--Staff gage. Altitude of gage is 2,640 ft (from river profile survey).

Average discharge.--5 years (1911-14, 1915-16, 1917-18), 36.1 cfs.

Extremes.--1911-16, 1917-19: Maximum discharge observed, 512 cfs June 19, 1916 (gage height, 3.7 ft); minimum not determined.

Remarks.--A few small diversions for irrigation and mining above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	69.3	102	32.1	13.8	13.6	-
1912	14.8	11.3	10.4	8.9	8.0	8.5	40.8	130	87.1	24.2	11.9	11.0	30.6
1913	8.0	8.7	8.0	7.6	7.8	7.4	41.4	*161	*130	27.9	10.7	8.2	*35.7
1914	8.3	12.2	7.8	6.5	6.5	8.5	42.6	118	65.5	17.1	7.5	6.5	25.6
1915	9.8	15.6	*8.1	-	-	*8.32	38.9	74.8	42.3	19.9	10.6	8.86	-
1916	8.76	7.73	6.95	6.68	7.95	36.9	73.8	114	238	81.2	16.4	9.85	50.5
1918	8.26	8.00	18.7	46.5	3.00	8.55	69.6	122	132	22.3	9.94	4.93	37.9
1919	-	-	-	-	-	-	42.0	92.1	43.6	9.97	5.42	4.37	-

* Revised.

* Not previously published; partly estimated on the basis of weather records and records for Flathead River near Polson.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	4,260	6,070	1,970	848	809	-
1912	910	672	640	547	460	523	2,430	7,990	5,180	1,490	732	655	22,200
1913	492	518	492	467	433	455	2,460	*9,900	*7,740	1,720	658	488	*25,800
1914	510	726	480	400	361	523	2,530	7,260	3,900	1,050	461	387	18,600
1915	603	928	*498	-	-	*512	2,310	4,600	2,520	1,220	652	527	-
1916	539	460	427	411	457	2,270	4,390	7,010	14,200	4,990	1,010	586	36,800
1918	508	476	1,150	2,860	167	526	4,140	7,500	7,860	1,370	611	293	27,500
1919	-	-	-	-	-	-	2,500	5,660	2,590	613	333	260	-

* Revised.

* Not previously published; partly estimated on the basis of weather records and records for Flathead River near Polson.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1911	312	154	June 2, 1911	-	-	-	-	-
1912	332	226	May 22, 1912	8	30.6	22,200	*29.6	*21,500
1913	1246,362	*413	May 27, 1913	7	*35.7	*25,800	*36.0	*26,000
1914	392	202	May 24, 1914	6	25.6	18,600	*26.1	*18,900
1915	412	139	May 22, 1915	-	-	-	-	-
1916	442	512	June 19, 1916	6.6	50.5	36,800	-	-
1918	482	204	June 10, 11, 1918	3	37.9	27,500	-	-
1919	512	144	May 23, 1919	-	-	-	-	-

* Revised.

* Not previously published.

503. Clark Fork near Plains, Mont.

Location.--Lat 47°25'50", long. 114°51'20", on lot 7, SW 1/4 sec. 1, T. 19 N., R. 26 W., on right bank 2 miles upstream from Plains and 6 miles downstream from Flathead River.

Drainage area.--19,958 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 2,449.34 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 28, 1911, wire-weight gage 50 ft upstream at same datum.

Average discharge.--40 years (1910-50), 19,020 cfs.

Extremes.--1910-50: Maximum discharge, 134,000 cfs June 5, 1948 (gage height, 19.17 ft); minimum, 3,200 cfs Feb. 8, 1936, Dec. 10, 1940; minimum gage height, 2.85 ft Dec. 10, 1940.

Remarks.--Flow partly regulated by Flathead Lake (see p. 377). Diversions for irrigation of about 335,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	10,000	12,400	10,500	8,010	6,440	8,070	17,000	44,100	64,000	35,800	14,400	9,570	20,100
1912	9,520	7,770	6,450	5,500	6,000	5,860	15,500	49,300	65,200	32,400	13,100	10,100	18,900
1913	8,840	9,040	7,500	7,360	7,940	7,030	18,800	53,900	98,200	42,800	17,000	10,100	24,100
1914	8,740	9,070	8,940	7,410	7,360	8,590	16,900	48,900	49,200	25,800	10,600	8,480	17,300
1915	9,850	14,200	9,510	7,970	7,350	7,180	15,500	31,200	35,400	26,500	14,400	9,960	15,800
1916	9,360	8,560	8,660	6,500	6,400	15,100	29,200	52,100	80,700	76,900	24,800	15,300	27,900
1917	12,000	9,000	7,200	6,200	6,700	6,200	13,800	54,900	91,900	55,300	17,700	9,910	24,300
1918	8,190	7,390	11,600	21,300	13,000	12,600	26,100	56,600	73,300	32,600	15,700	10,300	24,100
1919	8,660	7,970	6,870	6,180	6,320	6,650	15,200	42,600	46,700	18,400	9,170	6,020	15,100
1920	5,100	5,200	4,150	5,030	5,550	6,280	10,700	43,100	61,700	37,700	14,000	9,590	17,400
1921	11,200	9,760	8,650	8,390	8,510	11,800	20,700	60,600	80,800	31,500	12,200	8,000	22,700
1922	6,810	6,790	8,140	6,980	5,640	8,220	10,600	46,700	86,900	28,100	12,400	8,710	19,500
1923	6,970	6,560	5,870	6,790	6,870	6,720	14,600	49,900	73,300	34,800	13,800	8,260	19,500
1924	7,290	6,930	6,360	5,810	6,760	6,530	10,800	55,900	46,600	21,300	10,400	6,640	16,000
1925	6,390	6,750	7,000	8,420	12,600	10,500	37,800	75,700	69,400	32,600	13,700	10,900	24,400
1926	8,420	7,250	7,000	6,360	6,820	7,750	19,300	39,700	22,800	12,100	6,500	7,300	12,600
1927	11,100	12,200	14,300	9,580	8,420	9,170	13,800	55,200	101,000	52,800	18,200	14,300	26,700
1928	15,100	21,200	17,900	13,500	11,200	14,000	20,700	89,800	74,000	44,400	18,900	10,900	29,400
1929	9,240	8,560	7,380	5,480	4,970	6,430	8,420	34,700	57,300	24,300	9,250	5,870	15,200
1930	5,330	4,820	5,160	4,340	6,040	5,780	22,800	41,400	39,100	18,100	8,460	6,330	14,000
1931	6,930	6,830	5,920	5,190	5,060	5,550	9,200	35,100	32,400	13,300	6,150	4,770	11,400
1932	4,760	4,760	4,930	4,540	5,230	8,300	19,500	59,300	64,000	31,200	11,800	7,480	18,800
1933	6,020	8,000	8,660	7,390	6,050	6,420	11,300	42,600	49,900	45,200	14,900	9,320	22,200
1934	10,160	20,630	21,430	22,320	16,390	17,850	47,830	69,540	46,400	17,920	9,031	5,718	25,460
1935	6,051	9,337	8,665	7,655	8,055	7,890	11,460	41,110	61,830	29,530	11,500	6,533	17,490
1936	5,341	4,872	4,224	4,063	4,231	6,923	20,040	63,300	49,720	16,520	7,710	5,734	16,080
1937	5,010	4,588	4,075	3,344	3,940	4,636	6,112	32,630	44,430	21,950	9,092	5,360	12,130
1938	5,014	5,218	5,825	5,769	5,354	6,289	16,780	48,050	65,810	22,550	6,606	9,662	16,920
1939	7,903	6,074	6,087	7,716	7,984	8,260	19,150	58,780	38,590	14,630	7,001	7,325	15,830
1940	7,257	6,278	6,000	6,034	6,265	7,073	16,230	36,090	24,900	7,843	5,845	5,899	11,310
1941	7,137	6,655	6,034	7,815	7,681	6,962	9,377	13,010	19,380	8,840	6,160	7,215	8,945
1942	8,432	10,589	15,893	17,450	8,964	7,796	17,150	37,500	45,970	25,090	9,994	7,656	17,590
1943	7,286	8,136	9,697	12,330	13,250	10,250	39,530	52,240	77,660	40,950	11,840	10,600	24,470
1944	10,680	9,356	7,793	7,068	6,320	7,048	8,014	19,250	28,790	11,770	7,165	6,729	10,830
1945	7,193	7,337	7,157	8,486	8,516	8,639	8,401	31,850	51,570	18,820	6,633	6,593	14,270
1946	7,341	7,901	9,991	11,220	11,960	11,620	21,530	54,480	50,270	19,770	9,050	8,107	18,620
1947	9,695	10,760	17,400	13,770	15,100	15,060	24,820	79,930	60,610	21,740	9,969	9,051	24,040
1948	16,650	14,810	12,640	14,490	12,950	10,020	19,540	72,230	101,600	21,180	13,380	8,228	26,470
1949	7,795	8,037	8,742	13,660	9,111	9,283	19,720	67,260	44,520	14,170	7,844	6,269	18,090
1950	9,315	10,670	12,200	11,940	13,100	12,250	17,350	43,950	91,800	53,290	16,050	8,852	24,910

* Not previously published; estimated on the basis of records for other Clark Fork and Pend Oreille River stations.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	615	738	646	493	358	496	1,010	2,710	3,810	2,200	885	569	14,500
1912	585	462	397	339	358	460	922	3,030	3,880	1,990	806	601	13,700
1913	544	538	461	453	441	432	1,120	3,310	5,840	2,630	1,050	601	17,400
1914	537	540	494	456	409	528	1,010	3,010	2,930	1,460	652	505	12,500
1915	604	845	585	490	408	441	922	1,920	2,110	1,630	885	593	11,400
1916	576	509	532	400	368	928	1,740	3,200	4,800	4,730	1,520	910	20,200
1917	7358	5356	4443	381	372	381	821	3,380	5,470	3,400	1,030	590	17,600
1918	504	440	713	1,310	722	775	1,550	3,480	4,360	2,000	965	613	17,400
1919	532	474	422	360	351	409	904	2,620	2,760	1,130	564	358	10,900
1920	314	309	255	309	319	356	637	2,650	3,670	2,320	861	571	12,600
1921	689	581	532	516	473	726	1,230	3,730	4,810	1,940	750	476	16,500
1922	419	404	501	429	313	382	631	2,870	5,170	1,730	762	518	14,100
1923	429	390	361	418	337	413	869	3,070	4,360	2,140	848	492	14,100
1924	448	412	391	357	389	402	643	3,440	2,770	1,310	640	395	11,600
1925	393	402	430	518	700	646	2,250	4,650	4,130	2,000	842	649	17,600

* Not previously published; see footnote to preceding table.

Monthly and yearly runoff, in thousands of acre-feet, of Clark Fork near Plains, Mont.--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	518	431	430	391	379	477	1,150	2,440	1,360	744	400	434	9,150
1927	682	726	879	589	467	564	821	3,390	6,010	3,250	1,120	851	19,300
1928	928	1,260	1,100	830	644	861	1,230	5,520	4,400	2,730	1,160	849	21,300
1929	568	509	454	337	276	399	501	2,130	3,410	1,490	569	349	11,000
1930	328	287	317	267	335	355	1,360	2,550	2,330	1,110	520	377	10,100
1931	426	406	364	319	281	341	547	2,160	1,930	818	378	284	8,250
1932	293	283	303	279	304	510	1,160	3,650	3,810	1,920	726	445	13,700
1933	370	476	532	454	336	395	672	2,620	5,940	2,780	916	555	16,000
1934	625	1,228	1,318	1,372	910.2	1,098	2,846	4,276	2,761	1,102	555.3	340.3	18,430
1935	370.8	555.6	532.8	469.5	447.2	485.1	682	2,528	3,679	1,815	707.1	388.7	12,660
1936	328.4	289.9	259.7	251	243.4	425.7	1,192	3,892	2,959	1,016	474.1	341.2	11,670
1937	308.1	273	250.6	205.6	218.8	285.1	363.7	2,006	2,644	1,350	559	320.1	8,784
1938	308.3	310.5	358.2	354.7	297.3	386.7	998.2	2,955	3,916	1,387	406.2	574.9	12,250
1939	486	361.4	374.3	474.4	443.4	507.9	1,140	5,614	2,296	899.3	430.5	435.9	11,460
1940	446.2	373.5	368.9	371	360.4	434.9	965.6	2,219	1,481	482.2	359.4	351	8,213
1941	438.8	396	371	480.5	426.6	428.1	558	800.1	1,153	543.6	378.7	429.3	6,404
1942	522.2	630.3	982.6	1,073	497.9	479.4	1,020	2,306	2,735	1,420	614.5	455.5	12,740
1943	448	484.1	596.2	757.9	735.7	630.5	352	5,212	4,621	2,518	727.7	630.7	17,710
1944	656.5	556.7	479.2	434.6	363.5	433.4	476.9	1,184	1,713	723.4	440.5	400.4	7,862
1945	442.3	436.6	440.1	521.8	473	531.2	499.9	1,959	3,069	1,157	407.8	392.3	10,330
1946	451.4	470.1	614.3	689.9	664.3	714.6	1,281	3,350	2,991	1,216	556.5	482.4	13,480
1947	596.1	640.5	1,070	846.9	838.6	926.1	1,477	4,915	3,607	1,337	613	538.6	17,410
1948	1,024	881.3	777.3	890.8	745	616.2	1,163	4,441	6,048	1,303	823	501.4	19,210
1949	479.3	478.2	537.5	839.8	508	570.8	1,174	4,136	2,649	871.3	482.3	373.1	13,100
1950	572.8	635.1	750.2	734.1	727.7	753.1	1,033	2,702	5,462	2,154	985.7	526.8	18,040

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1911	312	-	-	6,020	\$20,100	\$14,500,000	\$19,300	\$14,000,000
1912	332	74,500	June 11, 1912	-	\$18,900	\$13,700,000	\$19,000	\$13,800,000
1913	362	115,000	June 5, 1913	6,240	24,100	17,400,000	24,100	17,400,000
1914	392	67,000	May 25, 1914	5,970	17,300	12,500,000	17,800	13,000,000
1915	412	37,900	June 7, 1915	6,850	15,800	11,400,000	15,200	11,000,000
1916	442	115,000	July 2, 1916	-	\$27,900	\$20,200,000	\$28,000	\$20,300,000
1917	462	106,000	June 20, 1917	-	\$24,300	\$17,600,000	\$24,200	\$17,500,000
1918	482	100,000	June 16, 1918	5,850	24,100	17,400,000	23,800	17,200,000
1919	512	73,800	May 31, 1919	5,200	15,100	10,900,000	\$14,300	\$10,400,000
1920	512	73,800	June 18, 1920	-	\$17,400	\$12,600,000	\$18,600	\$13,500,000
1921	532	100,000	May 28, 1921	7,010	22,700	16,500,000	22,100	16,000,000
1922	552	114,000	June 9, 1922	4,890	19,500	14,100,000	19,300	14,000,000
1923	572	96,500	June 14, 1923	4,900	19,500	14,100,000	19,600	14,200,000
1924	592	80,300	May 20, 1924	-	16,000	11,600,000	\$15,900	\$11,600,000
1925	612	106,000	May 22, 1925	-	\$24,400	\$17,600,000	\$24,600	\$17,800,000
1926	632	47,800	May 6, 1926	6,000	12,600	9,150,000	13,900	10,100,000
1927	652	117,000	June 14, 1927	7,740	26,700	19,300,000	28,100	20,400,000
1928	672	126,000	May 28, 1928	-	29,400	21,300,000	27,000	19,600,000
1929	692	67,300	June 11, 1929	4,370	15,200	11,000,000	14,400	10,400,000
1930	707	47,300	June 1, 1930	3,860	14,000	10,100,000	14,300	10,400,000
1931	722	47,300	May 19, 1931	4,200	11,400	8,250,000	11,000	7,940,000
1932	737	83,600	May 24, 1932	4,050	18,800	13,700,000	19,500	14,200,000
1933	752	120,000	June 17, 1933	5,260	22,200	16,000,000	24,640	17,840,000
1934	767	76,800	May 10, 1934	5,450	25,480	18,430,000	23,090	16,720,000
1935	792	71,200	June 3, 1935	5,450	17,490	12,660,000	16,690	12,080,000
1936	812	81,800	May 17, 1936	3,200	16,080	11,670,000	16,010	11,630,000
1937	832	50,000	May 30, 1937	-	12,130	8,784,000	12,330	8,929,000
1938	862	88,000	May 31, 1938	4,500	16,920	12,250,000	17,260	12,500,000
1939	882	68,000	May 20, 1939	5,200	15,830	11,460,000	15,790	11,430,000
1940	902	48,100	May 27, 1940	4,600	11,310	8,213,000	11,340	8,230,000
1941	932	32,200	June 6, 1941	3,450	8,845	6,404,000	10,130	7,333,000
1942	962	74,000	June 11, 1942	3,320	17,590	12,740,000	16,750	12,130,000
1943	982	92,500	June 22, 1943	3,680	24,470	17,710,000	24,700	17,880,000
1944	1012	36,200	June 13, 1944	5,600	10,850	7,862,000	10,320	7,489,000
1945	1042	74,900	June 4, 1945	5,640	14,270	10,330,000	14,570	10,550,000
1946	1062	70,900	May 30, 1946	7,070	18,620	13,480,000	19,690	14,250,000
1947	1092	104,000	May 11, 1947	7,950	26,470	17,410,000	24,560	17,780,000
1948	1122	134,000	June 5, 1948	6,500	26,470	19,210,000	24,830	18,030,000
1949	1152	96,100	May 18, 1949	4,960	18,090	13,100,000	18,730	13,560,000
1950	1182	110,000	June 23, 1950	7,130	24,910	18,040,000	-	-

* Not previously published.

504. Thompson River near Thompson Falls, Mont.

Location.--Lat 47°35'20" (revised), long. 115°13'50", in SE $\frac{1}{4}$ sec. 7, T. 21 N., R. 28 W., near center of downstream side of bridge 1 mile upstream from mouth and 5 miles east of Thompson Falls.

Drainage area.--643 sq mi.

Supplemental records available.--Oct. 1, 1911, to Sept. 30, 1916, occasional gage heights, discharges, and discharge measurements.

Gage.--Staff gage. Altitude of gage is 2,410 ft (from topographic map).

Extremes.--1911-16: Maximum discharge observed, 3,180 cfs May 29, 1913 (gage height, 7.8 ft), but probably was exceeded in 1916; minimum not determined.
Flood of May-June 1948 reached a discharge of 6,190 cfs, by slope-area determination at site half a mile downstream.

Remarks.--One bypass diversion for irrigation of bench lands adjoining the Clark Fork between mouth of Thompson River and Thompson Falls.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	338	963	*1,130	*1,110	547	307	256	-

* Revised; see Water-Supply Paper 1246.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	20,800	57,300	*69,500	*66,000	33,600	18,900	15,200	-

* Revised; see Water-Supply Paper 1246.

Note.--Estimated figures for January and February 1911, published in Water-Supply Paper 916 have been found in error on the basis of restudy of the original data and comparison with records at nearby stations. Those figures are not published herein and should not be used.

505. Thompson Falls Reservoir at Thompson Falls, Mont.

Location.--Lat 47°35'30", long. 115°21'10", near east line of sec. 7, T. 21 N., R. 29 W., at dam on Clark Fork at Thompson Falls.

Drainage area.--20,968 sq mi.

Gage.--Staff gage. Datum of gage is at mean sea level (levels by The Montana Power Company).

Extremes.--1939-50: Maximum contents observed, 16,060 acre-ft Nov. 30, 1950; minimum observed, 1,890 acre-ft Apr. 30, 1950.

Remarks.--For power development, first generator installed July 1915. Reservoir has usable capacity of 15,000 acre-ft at elevation 2,396 ft.

Cooperation.--Records furnished by The Montana Power Co.

Contents in acre-feet, on last day of month												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1940	15,290	14,690	15,450	14,400	15,130	9,800	7,470	4,400	11,140	14,400	5,350	11,780
1941	13,670	15,280	14,100	15,440	15,280	15,120	13,520	13,960	14,390	12,840	15,280	11,780
1942	13,670	14,250	13,960	13,960	13,670	14,390	13,110	8,210	3,670	14,680	12,300	8,870
1943	12,840	15,520	13,960	13,670	14,680	10,640	4,820	6,860	6,270	12,710	15,280	15,280
1944	15,440	15,590	10,270	11,900	10,880	10,880	14,970	8,760	12,710	13,110	14,390	12,980
1945	13,520	13,670	15,440	12,570	12,710	12,160	9,790	6,080	3,990	13,960	10,150	14,100
1946	11,130	14,530	14,820	14,680	11,900	14,970	3,740	6,080	2,280	24,400	13,250	9,670
1947	14,390	15,590	14,970	12,300	14,390	14,680	3,990	5,430	4,230	13,390	14,820	11,650
1948	15,750	15,440	14,390	12,300	14,390	13,960	3,130	11,390	4,400	4,480	12,980	12,430
1949	12,570	11,130	13,960	13,960	14,250	13,960	3,210	6,460	1,950	14,680	13,250	11,390
1950	11,520	16,060	15,440	13,250	15,280	14,390	1,890	6,660	8,100	3,900	11,780	11,650

a Interpolated on the basis of gage readings within 2 days of last day of month.

506. Prospect Creek near Thompson Falls, Mont.

Location.--Lat 47°35'10", long. 115°21'20" (revised), in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 18, T. 21 N., R. 29 W., on left bridge abutment just upstream from Dry Creek and about 1 mile southwest of Thompson Falls.

Drainage area.--145 sq mi (revised).

Supplemental records available.--October 1911 to September 1916, discharge measurements and occasional gage heights and discharges.

Gage.--Staff gage. Altitude of gage is 2,410 ft (from topographic map).

Extremes.--1911-16: Maximum discharge observed, 1,860 cfs May 29, 1913 (gage height, 7.5 ft), but may have been exceeded during period of no gage-height record in 1916; minimum not determined.

Flood of May-June 1948 reached a discharge of 2,800 cfs, from contracted opening determination.

Remarks.--A powerplant when in operation has diverted about 40 cfs past station since Feb. 15, 1913. No other diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	385	*783	*847	549	189	95.2	59.6	-

* Revised; see Water-Supply Paper 1246.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	23,700	*46,600	*52,100	32,700	11,600	5,850	3,550	-

* Revised; see Water-Supply Paper 1246.

507. Clark Fork near Heron, Mont.

Location.--Lat 48°04', long. 115°59', in sec. 28, T. 27 N., R. 34 W., on left bank 600 ft upstream from Dead Horse Creek, 1½ miles northwest of Heron, and 3 miles east of Montana-Idaho State line.

Drainage area.--21,800 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 2,078.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 30, 1928, staff gage and Oct. 31, 1928, to Jan. 2, 1931, water-stage recorder at datum 10 ft higher.

Average discharge.--22 years (1928-50), 19,940 cfs.

Extremes.--1928-50: Maximum discharge, 153,000 cfs May 29 to June 1, 1948; maximum gage height, 50.97 ft May 31, 1948; minimum discharge, 1,210 cfs (revised) Dec. 23, 1935 (gage height, 7.59 ft), from rating curve extended below 4,000 cfs; minimum daily, 1,400 cfs (revised) Feb. 12, 1936.

Maximum discharge known, 195,000 cfs in June 1894 (gage height, 59.1 ft, present datum, from floodmark an eighth of a mile downstream).

Remarks.--Some regulation by Flathead Lake (see p. 377); diurnal fluctuations at low flow caused by powerplant at Thompson Falls. Diversions from tributaries for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	9,450	9,010	7,180	5,900	5,390	7,450	10,900	40,000	60,700	26,000	10,600	6,530	16,600
1930	6,210	5,640	6,040	4,720	7,430	7,550	27,500	45,600	42,600	20,100	9,860	6,990	15,900
1931	7,610	7,580	6,760	5,930	6,190	7,260	12,300	39,700	34,600	14,700	7,480	5,740	13,000
1932	5,680	5,450	5,570	5,560	6,330	11,500	25,100	69,200	70,800	35,600	13,500	8,390	21,900
1933	6,950	8,860	9,880	8,880	6,890	7,990	16,500	49,200	114,000	49,700	16,500	10,100	25,500
1934	11,320	21,830	30,350	28,020	20,190	23,010	59,140	77,100	50,290	20,590	9,896	6,740	29,900
1935	7,038	11,070	10,110	8,788	9,740	9,580	15,640	48,610	66,520	32,110	13,500	7,473	20,040
1936	5,946	5,516	4,845	4,944	4,217	7,270	26,130	89,940	53,160	18,450	8,574	6,249	17,960
1937	5,466	5,008	4,732	3,527	4,232	5,122	8,397	38,000	47,610	23,840	9,969	6,001	13,530
1938	5,511	5,871	6,644	6,808	6,111	8,205	22,630	55,160	71,950	25,770	7,824	9,980	19,390
1939	8,571	6,762	6,757	8,324	8,784	9,778	24,220	65,060	43,730	17,230	8,469	8,067	18,020
1940	7,799	6,810	6,671	6,619	7,179	9,166	20,080	41,490	28,670	9,214	6,802	6,581	13,100
1941	7,744	7,293	6,845	8,536	8,432	7,956	11,310	16,450	22,410	10,340	6,927	7,974	10,180
1942	9,304	11,270	19,080	19,580	10,160	8,951	21,010	41,800	50,180	26,130	10,370	8,544	19,830
1943	8,078	9,169	10,890	13,560	14,400	11,250	47,940	60,050	87,140	46,550	13,700	11,720	27,870
1944	11,810	10,460	9,067	7,923	7,051	7,709	9,528	21,820	30,410	13,020	8,941	7,501	12,020
1945	8,000	8,126	7,766	9,552	9,936	10,090	10,660	37,600	55,140	21,190	9,092	7,668	16,160
1946	8,443	9,243	11,380	12,870	13,190	13,830	26,650	61,640	55,570	22,610	10,180	9,034	21,240
1947	10,510	12,220	20,770	15,700	17,420	18,370	29,840	87,680	66,190	25,130	11,310	10,210	27,160
1948	18,130	16,220	14,110	15,930	14,510	11,790	24,160	84,420	115,800	24,770	14,800	9,101	30,270
1949	8,859	9,152	9,387	14,730	10,780	11,530	26,050	76,130	50,630	16,640	8,790	6,850	20,850
1950	9,858	11,200	13,110	13,420	15,500	15,750	23,310	52,370	100,500	57,650	17,680	9,620	28,370

PEND OREILLE RIVER BASIN

Monthly and yearly runoff, in thousands of acre-feet, of Clark Fork near Heron, Mont.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	581.0	536.0	441.0	363	299	458	649	2,460	3,610	1,600	652	389	12,000
1930	382	336	371	290	413	464	1,840	2,800	2,530	1,240	606	416	11,500
1931	468	450	416	365	344	446	732	2,440	2,060	904	460	342	943
1932	349	324	346	342	354	707	1,490	4,250	4,210	190	830	499	15,900
1933	427	527	608	545	383	491	982	3,030	6,780	5,060	1,010	601	18,400
1934	695.9	299	1,666	1,723	1,121	1,415	3,519	4,741	2,992	1,266	608.5	401.1	21,650
1935	432.8	658.9	621.9	540.4	540.9	589	930.4	2,989	3,958	1,974	830.3	444.7	14,510
1936	365.6	328.2	297.9	304	242.6	447	1,555	4,300	3,163	1,134	527.2	371.8	13,040
1937	356.1	298	290.9	216.9	235	314.9	499.7	2,356	2,833	1,466	613	357.1	9,797
1938	358.9	349.3	408.5	418.6	339.4	504.5	1,347	3,392	4,281	1,585	481.1	593.8	14,043
1939	527	402.4	415.5	511.8	487.8	601.2	1,441	4,000	2,602	1,059	520.8	480	13,050
1940	479.5	405.2	410.2	407	412.9	563.7	1,195	2,551	1,708	566.5	418.2	391.6	9,507
1941	476.2	434	420.9	524.8	468.3	489.3	672.8	1,011	1,334	635.9	426	474.5	7,368
1942	572.1	706.3	1,173	1,203	564	550.3	1,250	2,558	2,986	1,607	674.6	508.4	14,350
1943	496.7	545.6	669.3	854	805.5	692	2,853	3,692	5,185	2,862	842.4	697.2	20,170
1944	726	622.5	557.5	487.1	405.6	474	566.9	1,342	1,810	800.8	488.3	446.4	8,727
1945	491.9	483.5	477.5	587.3	551.8	620.1	634.4	2,312	3,281	1,503	497.6	456.3	11,700
1946	519.2	550	699.9	791.2	732.3	850.3	1,586	3,790	3,307	1,590	625.9	537.6	15,380
1947	646.1	727.3	277	965.2	987.3	1,130	1,776	5,391	3,939	1,545	695.7	607.3	19,670
1948	1,115	965.4	867.4	979.4	834.6	724.8	1,438	5,191	6,888	1,523	910.2	541.6	21,980
1949	544.7	546.3	577.2	905.9	598.7	708.7	1,550	4,681	3,013	1,523	540.5	407.6	15,100
1950	606.1	666.2	805.9	825.3	860.8	968.7	1,387	3,220	5,983	1,545	1,099	572.4	20,540

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1929	692	72,600	May 27, 1929	4,800	16,600	12,000,000	15,990	11,600,000
1930	707	51,400	June 2, 1930	3,180	15,900	11,500,000	16,210	11,700,000
1931	722	51,400	May 19, 1931	4,060	13,000	9,430,000	12,570	9,110,000
1932	737	95,400	May 24, 1932	4,140	21,900	15,900,000	27,670	16,400,000
1933	752	137,000	June 17, 1933	5,000	25,500	18,400,000	28,660	20,740,000
1934	767	87,400	Apr. 28, 1934	5,550	29,900	21,650,000	29,930	19,500,000
1935	792	77,600	June 3, 1935	5,710	20,040	14,510,000	19,050	13,790,000
1936	812	90,000	May 18, 1936	1,400	17,960	13,040,000	17,870	12,970,000
1937	832	54,900	May 29, 1937	2,970	13,530	9,797,000	13,770	9,968,000
1938	862	96,200	June 1, 1938	3,460	19,390	14,040,000	19,730	14,290,000
1939	886	75,800	May 20, 1939	5,090	16,020	13,050,000	17,960	13,000,000
1940	902	52,600	May 27, 1940	3,670	13,100	9,507,000	13,150	9,545,000
1941	932	35,200	June 7, 1941	4,390	10,180	7,368,000	11,720	8,488,000
1942	962	77,100	June 12, 1942	6,640	19,830	14,350,000	18,800	13,610,000
1943	982	101,000	June 22, 1943	6,810	27,870	20,170,000	28,140	20,370,000
1944	1012	37,300	June 15, 1944	6,270	12,020	8,727,000	11,400	8,274,000
1945	1042	79,000	June 5, 1945	5,320	16,160	11,700,000	16,590	12,010,000
1946	1062	76,900	May 31, 1946	7,600	21,240	15,240,000	22,460	16,260,000
1947	1092	114,000	May 11, 1947	8,840	27,160	19,670,000	27,570	19,960,000
1948	1122	153,000	May 29, 1948	7,270	30,270	21,980,000	28,510	20,700,000
1949	1152	106,000	May 18, 1949	5,630	20,850	15,100,000	21,420	15,507,000
1950	1182	120,000	June 21, 24, 1950	7,430	28,370	20,539,000	-	-

508. Pend Oreille Lake at Hope, Idaho 1/

Location.--Lat 48°15', long. 116°18', in lot 2, sec. 35, T. 57 N., R. 1 E., at floating dock near Northern Pacific Railway station at Hope.

Drainage area.--22,900 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 2,000.00 ft above mean sea level, adjustment of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1921, staff gage at Sandpoint at datum 42.38 ft higher. Oct. 1, 1921, to Sept. 30, 1929, staff gage at present site at datum 45.67 ft higher.

Extremes.--1914-50: Maximum contents, 2,462,000 acre-ft June 9, 1948 (elevation, 2,071.82 ft); minimum, 117,700 acre-ft Feb. 17, 1936 (elevation, 2,046.47 ft). Maximum contents known, 2,905,000 acre-ft in June 1894 (elevation, 2,076.08 ft).

Remarks.--Diversions for irrigation from tributaries of Clark Fork. Contents shown is that above elevation 2,045 ft. Contents records prior to 1947 not previously published.

1/ Published as Pend Oreille Lake at Sandpoint prior to 1921.

Contents, in thousands of acre-feet, on last day of month, of Pend Oreille Lake at Hope, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1914	-	-	-	-	-	336.0	718.8	1,288	977.7	508.2	276.5	234.5
1915	320.7	-	-	-	200.9	255.5	573.4	794.1	767.4	577.8	344.5	272.3
1916	261.4	272.3	263.9	-	-	674.4	914.7	1,191	1,944	1,242	569.1	415.7
1917	302.0	263.9	224.4	196.8	195.1	204.3	551.7	1,755	1,881	886.7	395.9	283.1
1918	211.8	195.1	569.1	534.6	368.4	473.4	843.0	1,155	1,492	587.5	430.3	259.7
1919	259.7	259.7	234.5	353.0	234.5	310.5	621.4	1,242	923.7	413.1	251.3	234.5
1920	167.8	165.3	180.2	211.0	180.2	230.4	404.5	1,150	1,307	685.4	361.5	319.0
1921	327.5	327.5	319.0	285.0	370.1	495.1	754.0	1,702	1,368	604.1	327.5	251.3
1922	215.2	227.0	289.2	216.9	190.2	220.2	433.7	1,455	1,371	550.8	318.2	238.7
1923	215.2	191.8	233.7	250.5	215.2	233.7	594.5	1,343	1,375	656	347.9	227.8
1924	206.8	210.2	198.4	183.5	292.6	240.4	407.9	1,343	886.3	446.6	168.1	201.8
1925	199.3	217.7	275.7	319.8	377.8	395.0	1,099	1,817	1,296	612.0	343.6	271.5
1926	235.4	215.2	223.6	197.6	222.8	275.7	741.3	876.9	533.4	302.8	227.0	242.1
1927	358.1	364.9	364.9	277.4	313.0	318.1	651.6	1,460	1,944	875.2	442.3	420.8
1928	472.5	669.2	472.5	429.4	326.6	531.6	721.1	2,143	1,246	766.5	386.4	261.4
1929	353.8	235.4	205.1	175.2	171.9	240.4	364.9	1,112	1,056	476.8	252.2	183.5
1930	170.2	139.1	178.5	133.3	232.8	233.7	810.1	910.2	755.8	395.0	237.9	191.8
1931	205.1	196.8	160.4	173.6	183.5	254.7	390.7	945.2	647.2	314.8	191.8	165.3
1932	153.8	147.3	163.1	166.9	260.5	407.9	770.9	1,503	1,287	589.2	303.7	214.4
1933	202.6	287.6	298.6	252.2	217.7	275.7	637.5	1,250	1,853	747.8	357.2	269.8
1934	366.6	489.0	933.6	670.9	497.7	689.4	1,454	1,384	833.2	413.1	238.7	180.2
1935	219.4	330.9	285.8	312.2	282.4	308.0	577.8	1,310	1,132	570.8	304.6	196.9
1936	177.7	166.9	148.1	150.5	153.0	206.7	951.6	1,388	834.1	375.2	220.2	176.0
1937	150.5	132.5	153.0	126.8	140.7	181.2	347.9	1,027	954.3	455.2	251.3	173.6
1938	171.9	238.7	268.1	269.0	214.4	311.4	822.6	1,401	1,232	441.5	237.0	238.7
1939	227.8	187.7	213.5	241.2	253.8	350.4	753.1	1,261	822.6	359.0	222.8	220.2
1940	211.0	186.8	219.4	201.8	240.4	374.4	633.1	988.5	514.2	237.9	188.5	193.5
1941	216.9	204.3	224.4	242.9	233.7	255.5	365.8	536.0	469.9	246.3	201.8	244.6
1942	270.6	333.4	571.7	411.4	274.8	252.2	653.3	1,141	926.4	463.0	282.4	229.5
1943	239.6	275.7	296.9	372.7	326.6	406.2	1,252	1,371	1,604	690.3	321.8	286.7
1944	295.2	258.9	233.7	212.7	187.7	208.5	295.2	626.9	621.6	270.6	211.0	206.8
1945	210.2	211.8	211.0	249.6	262.6	312.2	332.6	1,053	982.2	384.7	215.2	223.6
1946	238.7	288.7	326.6	336.0	354.7	422.5	873.4	1,397	987.6	432.0	259.7	243.9
1947	303.7	368.4	544.7	434.6	479.4	523.0	868.0	1,573	1,039	461.2	304.6	269.8
1948	560.4	405.3	375.2	386.4	401.0	323.2	811.0	2,274	1,650	564.7	341.1	243.8
1949	248.8	258.9	261.4	335.2	330.9	358.1	850.2	1,631	787.0	357.2	231.2	197.6
1950	254.7	346.2	358.1	398.5	426.0	456.1	700.9	1,454	1,927	768.3	383.0	248.0

Note.--Records prior to October 1929 based on readings made within 5 days of last day of month.

509. Priest River at outlet of Priest Lake, near Coolin, Idaho

Location.--Lat 48°29', long. 116°54', in SW¹/₄ sec. 5, T. 59 N., R. 4 W., on right bank 600 ft downstream from outlet of Priest Lake and 2 miles northwest of Coolin.

Drainage area.--572 sq mi.

Gage.--Water-stage recorder. Datum of gage is 2,435.06 ft (Coast and Geodetic Survey datum) or 2,437.99 ft (Geological Survey datum) above mean sea level. Prior to Nov. 25, 1914, several staff gages on Priest Lake at Coolin at different datums.

Average discharge.--34 years (1913-18, 1919-48), 1,094 cfs.

Extremes.--1912-48: Maximum discharge, 8,560 cfs May 29, 1948; maximum gage height, 6.83 ft May 30, 1917; minimum discharge, 118 cfs Nov. 25, 1936; minimum gage height, -0.42 ft Oct. 19, 1946, computed on basis of Priest Lake gage heights.

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	-	-	-	786	604	-
1913	474	824	837	-	-	-	-	3,340	4,890	2,080	833	514	-
1914	451	542	586	779	743	717	2,060	4,300	3,520	1,780	828	580	1,380
1915	567	1,050	764	496	422	552	1,760	2,240	1,580	959	596	332	943
1916	289	375	447	431	435	707	1,280	3,760	4,810	3,200	999	552	1,440
1917	330	250	246	283	296	321	557	3,780	5,910	2,200	621	330	1,260
1918	221	184	299	707	567	558	1,570	3,300	3,360	1,400	856	434	1,110
1919	-	-	-	-	-	-	-	4,260	3,600	1,420	569	304	-
1920	209	253	257	298	303	324	562	2,300	2,710	1,450	560	485	810
1921	766	737	892	808	806	1,050	2,490	4,400	4,680	1,490	571	308	1,580
1922	263	354	502	464	407	364	554	2,850	3,810	1,060	451	323	951
1923	270	324	300	513	414	354	994	3,480	3,570	1,580	585	325	1,060
1924	231	234	273	271	493	523	553	3,170	1,740	599	331	214	720
1925	194	386	429	499	717	691	2,690	4,420	3,030	1,140	415	210	1,240
1926	159	158	255	268	292	295	1,000	2,180	807	391	242	330	533
1927	690	648	1,100	925	687	671	1,020	3,650	4,480	1,790	564	821	1,420
1928	1,370	1,280	1,130	678	547	722	1,650	3,870	2,880	1,310	536	296	1,360
1929	263	274	255	225	221	247	409	2,410	2,290	1,060	434	236	697
1930	178	156	176	193	226	286	1,400	2,340	1,360	695	352	208	633

Monthly and yearly mean discharge, in cubic feet per second, of Priest River at outlet of Priest Lake, near Coolin, Idaho--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1931	175	198	194	197	208	309	1,080	3,310	1,640	733	302	182	714
1932	162	246	299	351	345	762	2,440	5,600	4,180	1,510	510	283	1,390
1933	236	527	855	669	481	448	942	3,690	5,120	2,100	615	349	1,340
1934	386	757	1,143	1,622	1,129	1,119	3,445	4,135	1,827	650	299	174	1,391
1935	164	491	614	621	677	604	1,084	3,739	3,877	1,534	572	300	1,191
1936	216	197	228	301	249	270	1,124	3,890	1,813	679	282	193	789
1937	152	133	152	189	236	224	498	2,258	2,628	1,269	495	333	716
1938	285	611	932	926	754	711	1,797	4,395	4,010	1,338	441	250	1,373
1939	230	251	266	388	346	344	1,502	3,464	2,017	1,072	398	210	877
1940	183	215	423	478	421	605	2,129	3,340	1,856	636	278	213	898
1941	219	326	333	431	432	842	1,931	3,058	2,069	952	425	528	964
1942	827	972	1,687	1,150	761	562	1,199	2,569	3,071	1,502	873	388	1,297
1943	302	339	395	370	383	354	2,349	3,200	3,586	1,738	578	303	1,157
1944	255	294	358	328	294	282	716	2,193	1,620	625	274	176	617
1945	199	270	299	359	370	414	655	4,426	3,994	1,277	420	254	1,079
1946	228	381	418	398	390	567	1,912	5,919	4,554	1,768	558	407	1,463
1947	306	386	600	532	629	874	1,933	4,852	3,023	1,051	430	433	1,257
1948	855	1,318	545	552	444	444	1,101	5,011	5,422	1,669	774	400	1,545

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	-	-	-	48,300	35,900	-
1913	29,100	49,000	51,500	-	-	-	-	205,000	291,000	128,000	51,200	30,800	-
1914	27,700	32,500	36,000	47,900	41,300	44,100	123,000	284,000	309,000	109,000	38,600	22,600	996,000
1915	34,900	62,500	47,000	30,500	28,400	33,900	105,000	138,000	94,000	57,700	36,800	18,800	683,000
1916	17,800	22,300	27,500	26,500	25,000	43,500	76,200	231,000	286,000	197,000	61,400	32,800	1,050,000
1917	20,300	14,900	15,100	17,400	16,400	19,700	33,100	32,000	52,000	35,000	38,200	19,600	914,000
1918	13,600	10,900	18,400	43,500	31,500	34,300	93,400	203,000	200,000	86,100	40,300	25,800	801,000
1919	-	-	-	-	-	-	-	262,000	214,000	87,300	35,000	18,100	-
1920	12,900	15,100	15,800	18,300	17,400	19,900	33,400	141,000	161,000	69,200	34,400	28,900	587,000
1921	47,100	43,900	54,200	49,700	44,800	64,600	148,000	271,000	278,000	91,600	35,100	18,300	1,150,000
1922	16,200	21,300	30,900	28,500	22,600	22,400	33,000	175,000	227,000	65,200	27,700	19,200	689,000
1923	16,600	19,100	18,400	31,500	23,000	21,800	59,100	214,000	12,000	97,200	36,000	19,300	769,000
1924	14,200	13,900	16,800	16,700	28,400	32,200	32,900	195,000	104,000	36,200	20,400	12,700	523,000
1925	11,900	23,000	26,400	30,700	39,800	42,500	160,000	272,000	80,000	70,100	25,500	12,500	894,000
1926	9,780	9,400	15,700	16,500	16,200	18,100	59,500	134,000	48,000	24,000	14,900	19,600	386,000
1927	42,400	38,500	67,800	56,900	39,200	41,300	60,700	224,000	271,000	110,000	34,700	48,900	1,030,000
1928	84,200	76,200	69,500	41,700	31,500	44,400	98,200	238,000	171,000	80,600	33,000	17,600	986,000
1929	16,200	16,300	15,700	13,800	12,300	15,200	24,300	148,000	36,000	65,200	26,700	14,000	504,000
1930	10,900	9,280	10,800	11,900	12,600	17,600	83,300	144,000	80,900	42,700	21,600	12,400	458,000
1931	10,800	11,800	11,900	12,100	11,600	19,000	64,300	204,000	97,600	45,100	18,600	10,800	518,000
1932	9,960	14,600	18,400	21,600	19,800	46,900	145,000	344,000	249,000	92,800	31,400	16,800	1,010,000
1933	14,500	31,400	52,600	41,100	26,700	27,500	56,100	227,000	200,000	129,000	37,800	20,800	970,000
1934	23,740	45,050	70,300	99,710	62,690	68,810	205,000	254,000	108,700	40,000	18,370	10,350	1,007,000
1935	10,070	29,240	37,750	38,180	37,580	37,160	64,400	229,900	230,700	94,340	35,150	17,880	862,400
1936	13,310	11,720	13,990	18,520	14,350	16,630	66,900	239,200	107,900	41,730	17,310	11,500	575,100
1937	9,380	7,940	9,350	11,640	13,100	13,800	29,540	138,800	156,400	78,000	30,450	19,800	518,200
1938	17,540	36,350	57,310	56,940	41,900	43,720	106,900	270,200	338,600	82,260	27,140	14,850	993,700
1939	14,160	14,940	16,370	23,880	19,210	21,140	89,380	213,000	102,000	65,930	24,450	12,490	635,000
1940	11,260	12,770	26,000	29,400	24,230	37,200	126,700	205,300	110,400	39,090	17,080	12,690	652,100
1941	13,440	19,380	20,480	26,490	24,010	51,760	114,900	188,000	123,100	58,540	26,150	31,450	697,700
1942	50,860	57,820	103,800	70,730	42,240	34,570	71,330	158,000	82,800	32,350	51,480	23,060	939,000
1943	18,560	20,180	24,270	22,750	21,290	20,550	139,800	196,700	134,000	106,900	35,530	18,020	838,000
1944	15,670	17,480	21,990	20,030	16,910	16,100	42,620	134,800	96,420	38,480	16,880	10,450	447,800
1945	12,240	16,050	17,760	20,820	20,550	25,460	38,990	272,100	237,700	78,490	25,800	15,140	781,100
1946	14,030	22,680	25,720	22,470	21,640	34,880	113,800	363,900	271,000	108,700	34,310	24,230	1,059,000
1947	18,810	22,960	36,890	32,740	34,930	53,720	115,000	298,400	179,900	64,160	26,410	25,780	910,200
1948	52,570	78,420	33,490	33,920	25,530	27,290	65,500	508,100	22,600	102,600	47,600	23,780	1,121,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1912	332	-	-	-	-	-	-	-	-	-	-
1913	362	a5,970	June 4-6, 1913	-	-	-	-	-	-	-	-
1914	392	a5,030	May 19, 23, 24, 1914	280	1,380	2.41	32.65	996,000	1,440	34.23	1,040,000
1915	412	2,450	May 1-3, 1915	308	943	1.65	22.40	683,000	837	19.88	606,000
1916	442	5,770	June 20, 1916	280	1,440	2.52	34.32	1,050,000	1,420	33.77	1,030,000
1917	462	7,290	May 30, 1917	240	1,260	2.20	29.96	914,000	1,250	29.70	906,000
1918	512	-	-	172	1,110	1.94	26.25	801,000	-	-	-
1919	512	5,800	May 29, 1919	-	-	-	-	-	-	-	-
1920	512	3,170	May 21, 1920	188	810	1.42	19.28	587,000	952	22.61	689,000
1921	532	6,440	May 27, 1921	259	1,580	2.76	37.58	1,150,000	1,480	35.05	1,070,000
1922	552	5,120	June 5-8, 1922	236	951	1.66	22.56	689,000	932	22.10	675,000
1923	572	4,080	May 27, 1923	229	1,060	1.85	25.17	768,000	1,050	24.86	759,000
1924	592	4,220	May 20, 1924	170	720	1.26	17.15	523,000	743	17.67	540,000
1925	612	5,730	May 23, 1925	173	1,240	2.17	29.31	894,000	1,200	28.45	868,000

a Maximum observed

Yearly discharge, in cubic feet per second, of Priest River at outlet of Priest Lake, near Coolin, Idaho--Continued

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Runoff	
		Discharge	Date				Inches	Acre-feet	Mean	Inches Acre-feet
1926	632	3,080	May 4, 1926	143	533	.932	12.63	386,000	690	16.36 499,000
1927	652	5,410	June 13, 1927	334	1,420	2.48	33.79	1,030,000	1,530	36.47 1,110,000
1928	672	5,250	May 24-28, 1928	237	1,360	2.38	32.32	986,000	1,110	26.34 804,000
1929	692	3,860	May 23-27, 1929	190	697	1.22	16.50	504,000	673	15.95 486,000
1930	707	3,710	Apr. 28, 1930	120	633	1.11	15.04	458,000	638	15.15 462,000
1931	722	4,220	May 16, 1931	161	714	1.25	16.96	518,000	725	17.24 528,000
1932	737	6,890	May 23, 1932	144	1,390	2.43	33.13	1,010,000	1,470	34.95 1,070,000
1933	752	5,940	June 17, 1933	178	1,340	2.34	31.78	970,000	1,395	33.11 1,010,000
1934	767	5,870	Apr. 30, 1934	140	1,391	2.43	33.01	1,007,000	1,305	30.97 944,900
1935	792	5,130	June 1, 1935	136	1,191	2.08	28.27	862,400	1,139	27.03 824,400
1936	812	4,540	May 16-18, 1936	162	789	1.38	18.80	573,100	722	18.40 560,700
1937	832	3,220	May 29, 1937	120	716	1.25	16.99	518,200	883	19.75 602,700
1938	862	5,780	May 29, 1938	209	1,373	2.40	32.57	993,700	1,282	30.42 928,000
1939	882	4,010	May 5-6, 1939	187	877	1.53	20.82	635,000	883	20.97 639,500
1940	902	3,760	May 15, 1940	167	898	1.57	21.37	652,100	903	21.48 655,400
1941	932	3,920	May 20, 1941	197	964	1.69	22.89	697,700	1,184	28.11 856,900
1942	962	4,100	May 29, 1942	323	1,297	2.27	30.79	939,000	1,091	25.89 789,600
1943	982	4,180	June 1, 1943	242	1,157	2.02	27.46	838,000	1,147	27.19 830,100
1944	1012	2,430	May 17, 1944	156	617	1.08	14.67	447,800	604	14.38 438,700
1945	1042	5,620	May 17, 1945	187	1,079	1.89	25.60	781,100	1,102	26.13 797,500
1946	1062	6,390	May 29, 1946	209	1,463	2.56	34.70	1,059,000	1,488	35.24 1,076,000
1947	1092	6,160	May 11, 1947	248	1,257	2.20	29.83	910,200	1,376	32.64 996,000
1948	1122	8,560	May 29, 1948	300	1,543	2.70	36.76	1,121,000	-	-

510. Priest River near Coolin, Idaho

Location--Lat 48°26'50", long. 116°53'50", in SE $\frac{1}{4}$ sec. 19, T. 59 N., R. 4 W., on left bank 190 ft downstream from Dickensheet Bridge, 2 $\frac{1}{2}$ miles downstream from Binarch Creek, 3 miles southwest of Coolin, and 5 miles downstream from outlet of Priest Lake.

Drainage area--611 sq mi.

Gage--Water-stage recorder. Datum of gage is 2,338.245 ft above mean sea level, adjustment of 1929, supplementary adjustment of 1947. Prior to Feb. 23, 1949, wire-weight gage at same site and datum.

Extremes--1948-50: Maximum discharge, 6,840 cfs May 16, 1949 (gage height, 7.48 ft); minimum, 126 cfs Aug. 19, 1950 (gage height, 1.88 ft).

Remarks--No diversion above station. Some regulation by logs in outlet channel and by dam at lake outlet after Aug. 9, 1950.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	408	294	341	277	328	439	1,830	5,160	2,729	798	405	258	1,110
1950	258	435	1,002	645	541	672	1,225	3,641	5,122	2,592	459	197	1,402

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1949	25,110	17,480	20,960	17,040	18,210	26,980	108,900	317,300	162,400	49,070	24,930	15,360	803,700
1950	15,870	25,890	61,600	39,670	30,040	41,310	72,910	223,900	304,800	159,400	28,250	11,700	1,015,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Runoff	
		Discharge	Date				Inches	Acre-feet	Mean	Inches Acre-feet
1949	1152	6,840	May 16, 1949	218	1,110	1.82	24.65	803,700	1,165	25.88 843,600
1950	1182	5,680	June 22, 1950	146	1,402	2.29	31.16	1,015,000	-	-

511. Priest River at Falk's ranch, near Priest River, Idaho

Location--Lat 48°16', long. 116°51', in NW $\frac{1}{4}$ sec. 20, T. 57 N., R. 4 W., on left bank at Falk's ranch, about 1,200 ft downstream from Blue Creek, 7 miles upstream from Lower West Branch, 8 miles north of Priest River, and 15 miles south of Priest Lake.

Drainage area--792 sq mi.

Gage--Staff gage. Altitude of gage is 2,191 ft (river-profile map).

Extremes--1911-12: Maximum discharge observed, 6,140 cfs May 28, 29, 1912 (gage height, 8.4 ft); minimum observed, 344 cfs Oct. 23 to Nov. 5, 1911 (gage height, 2.2 ft).

Remarks--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second, of Priest River at Falk's ranch, near Priest River, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	\$734	1,580	4,490	3,670	1,590	831	572	-
1912	398	453	515	-	-	-	4,390	-	3,330	1,330	758	637	-
1913	527	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	\$45,100	94,000	276,200	218,000	97,800	51,100	34,000	-
1912	24,500	27,000	31,700	-	-	-	-	-	270,000	198,000	81,800	46,800	-
1913	32,400	-	-	-	-	-	-	-	-	-	-	-	-

* Not previously published; partly estimated on the basis of records for nearby streams.

512. Priest River near Priest River, Idaho 1/

Location.--Lat 48°13', long. 116°55', in NE¼ sec. 11, T. 56 N., R. 5 W., on right bank 500 ft downstream from Saddler Creek, a quarter of a mile downstream from Lower West Branch, 2½ miles north of Priest River, and 3½ miles upstream from mouth.

Drainage area.--902 sq mi. At site 3 miles downstream, 904 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 2,090 ft (from river-profile map). Prior to June 4, 1929, and Sept. 18, 1929, to Apr. 28, 1930, staff gages 3 miles downstream at different datums. June 4 to Sept. 17, 1929, and Apr. 29 to Sept. 11, 1930, staff gage at present site and datum.

Average discharge.--22 years (1903-4, 1929-50), 1,543 cfs.

Extremes.--1903-5, 1910-11, 1923, 1929-50): Maximum discharge, 10,500 cfs May 29, 30, 1948; maximum gage height, 8.97 ft May 29, 1948; minimum discharge recorded, 184 cfs Jan. 17, 1937 (gage height, 0.54 ft).

Remarks.--No diversion above station. Some regulation on tributary, by logs dumped into outlet of Priest Lake, and since August 1950 by dam on Priest Lake outlet.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1903	-	-	-	-	-	-	-	-	-	3,060	1,360	928	-
1904	978	1,040	1,140	1,010	930	1,190	3,510	5,330	4,400	2,030	877	580	1,920
1905	517	564	624	621	722	1,340	1,780	-	-	-	-	-	-
1911	-	-	1,120	-	-	-	-	-	-	-	-	-	-
1923	-	-	-	-	-	-	-	-	4,370	1,820	782	459	-
1924	363	380	408	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	571	958	2,960	2,850	1,290	587	358	-
1930	292	262	356	307	366	524	1,820	2,710	1,610	864	442	287	824
1931	277	307	298	329	396	785	1,550	3,770	1,950	885	414	266	940
1932	266	395	480	490	506	1,270	4,180	7,540	5,150	1,860	677	406	1,940
1933	414	896	1,080	915	698	692	1,900	4,910	6,220	2,500	803	487	1,800
1934	535	1,072	2,367	2,742	1,884	2,008	4,452	4,791	2,197	819	416	287	1,964
1935	329	869	892	963	1,045	1,071	2,046	5,111	4,546	1,758	735	425	1,651
1936	345	355	372	464	360	438	1,832	4,716	2,169	863	381	307	1,061
1937	253	227	293	284	370	459	1,386	3,144	3,235	1,562	657	445	1,028
1938	416	1,038	1,435	1,709	1,199	1,728	3,472	5,578	4,714	1,587	579	377	1,988
1939	368	405	435	618	525	586	2,192	4,149	2,365	1,243	506	310	1,144
1940	297	342	651	647	642	1,437	3,215	4,079	2,217	751	372	325	1,248
1941	358	499	586	692	728	1,570	2,615	3,747	2,541	1,166	583	721	1,319
1942	1,025	1,256	2,574	1,537	1,075	929	2,011	3,529	3,996	1,930	1,024	559	1,791
1943	444	641	642	543	570	718	4,029	4,113	4,285	2,095	760	436	1,607
1944	418	448	556	482	458	465	1,077	2,749	2,085	821	404	297	856
1945	310	392	404	511	683	952	1,379	5,568	4,851	1,486	529	306	1,457
1946	366	662	714	714	640	1,279	3,437	7,422	5,286	2,156	729	593	2,006
1947	508	694	1,043	874	1,116	1,578	2,886	5,525	3,434	1,222	575	581	1,672
1948	1,230	1,785	965	885	758	863	2,489	7,059	6,635	2,178	1,117	630	2,217
1949	590	554	512	410	704	1,091	3,263	6,615	3,205	999	556	390	1,579
1950	426	649	1,191	813	887	1,461	2,566	4,943	6,067	3,017	678	335	1,923

1/ Published as Priest River at Priest River prior to October 1930.

Monthly and yearly runoff, in acre-feet, of Priest River near Priest River, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1903	-	-	-	-	-	-	-	-	-	188,000	83,600	55,200	-
1904	60,100	61,900	70,100	62,100	53,500	73,200	209,000	328,000	262,000	125,000	53,900	34,500	1,390,000
1905	31,300	33,600	36,400	36,200	40,100	82,400	108,000	-	-	-	-	-	-
1911	-	-	68,900	-	-	-	-	-	-	-	-	-	-
1923	-	-	-	-	-	-	-	-	260,000	112,000	48,100	27,300	-
1924	22,300	22,600	25,100	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	35,100	57,000	182,000	170,000	79,300	36,100	21,300	-
1930	18,000	15,600	21,900	18,900	20,300	32,200	109,000	167,000	95,800	53,100	27,200	17,100	596,000
1931	17,000	18,300	18,300	20,200	22,000	48,300	92,200	32,000	116,000	54,400	25,500	15,800	680,000
1932	16,400	23,500	29,500	30,100	29,100	78,100	249,000	464,000	506,000	14,000	41,600	24,200	1,410,000
1933	25,500	53,300	66,400	56,300	38,800	42,500	113,000	302,000	370,000	154,000	49,400	29,000	1,300,000
1934	32,910	63,820	45,500	68,600	104,600	23,500	264,900	294,600	130,800	50,370	25,580	17,070	1,422,000
1935	20,260	51,730	54,820	59,210	58,010	65,880	121,700	14,200	270,500	108,100	45,220	25,310	1,195,000
1936	21,190	21,100	22,860	28,550	20,710	33,060	109,000	290,000	129,000	53,080	23,450	18,290	770,300
1937	15,580	13,490	16,010	17,480	20,550	28,240	82,500	193,300	192,500	96,040	40,400	28,490	744,600
1938	25,600	61,790	88,260	105,100	66,570	106,300	206,600	343,000	280,500	97,590	35,600	22,430	1,439,000
1939	22,630	24,120	26,760	38,010	29,140	36,050	129,800	255,100	140,700	76,440	31,080	18,430	828,300
1940	18,260	20,320	40,030	39,790	36,910	86,370	191,300	250,800	131,900	46,160	22,890	19,320	906,000
1941	22,010	29,670	36,020	42,520	40,410	96,560	155,600	230,400	151,200	71,700	35,870	42,880	954,800
1942	63,050	74,760	58,300	94,490	59,680	57,140	119,700	217,000	237,800	118,700	62,960	33,280	1,297,000
1943	27,290	38,140	39,500	33,380	31,650	44,160	239,700	252,900	255,000	128,800	46,710	25,940	1,163,000
1944	25,690	26,660	34,190	29,670	26,360	28,590	64,060	169,000	124,000	50,500	24,810	17,670	621,200
1945	19,090	23,340	24,850	31,390	37,910	58,520	82,040	342,400	286,600	91,360	32,520	22,540	1,055,000
1946	22,500	39,410	43,900	43,920	35,530	78,630	204,500	456,400	514,500	32,600	44,830	35,310	1,452,000
1947	31,240	41,280	64,100	53,740	61,980	97,050	171,700	339,700	204,300	75,120	35,330	34,560	1,210,000
1948	75,640	106,200	59,310	54,400	43,630	53,090	148,100	434,000	394,800	33,900	68,700	37,520	1,609,000
1949	36,290	32,940	31,470	25,210	39,130	67,070	194,100	408,800	190,700	61,420	34,180	23,580	1,143,000
1950	26,180	38,630	73,230	50,010	49,260	89,840	152,700	303,900	361,000	185,500	41,670	19,960	1,392,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Mean	Runoff		
		Discharge	Date						Inches	Acre-feet	
1903	572	-	-	-	-	-	-	-	-	-	-
1904	572	-	-	-	550	1,920	2.12	28.88	1,390,000	1,800	27.07
1905	572	-	-	-	-	-	-	-	-	-	-
1911	312	-	-	-	-	-	-	-	-	-	-
1923	572	-	-	-	-	-	-	-	-	-	-
1924	572	-	-	-	-	-	-	-	-	-	-
1929	692	-	-	-	-	-	-	-	-	-	-
1930	707	-	-	216	824	.912	12.36	596,000	822	12.33	594,000
1931	722	4,850	May 17, 18, 1931	229	940	1.04	14.13	680,000	961	14.46	696,000
1932	737	8,890	May 23, 1932	217	1,940	2.15	29.23	1,410,000	2,041	30.81	1,480,000
1933	752	7,080	June 9, 1933	310	1,800	2.00	27.01	1,300,000	1,930	29.02	1,397,000
1934	767	6,900	Apr. 29, 1934	255	1,964	2.18	29.56	1,422,000	1,805	27.16	1,307,000
1935	792	6,150	May 24, 25, 1935	242	1,651	1.83	24.85	1,195,000	1,565	23.58	1,133,000
1936	812	5,710	May 16, 1936	265	1,061	1.18	16.01	770,300	1,036	15.62	752,200
1937	832	4,000	May 29, 1937	191	1,028	1.14	15.47	744,600	1,206	16.14	873,200
1938	862	6,960	May 26-30, 1938	340	1,988	2.20	29.91	1,439,000	1,847	27.80	1,337,000
1939	882	5,000	May 5, 1939	268	1,144	1.27	17.22	828,300	1,151	17.32	833,400
1940	902	4,540	May 13-15, 1940	268	1,246	1.38	16.82	906,000	1,261	19.02	915,100
1941	932	5,100	May 18, 1941	293	1,319	1.46	19.85	954,800	1,607	24.17	1,163,000
1942	962	5,550	May 28, 29, 1942	462	1,791	1.99	26.95	1,297,000	1,527	22.98	1,106,000
1943	982	6,000	Apr. 21, 1943	350	1,607	1.78	24.18	1,163,000	1,581	23.79	1,145,000
1944	1012	3,310	May 24, 1944	272	856	.949	12.91	621,200	829	12.53	601,900
1945	1042	7,640	May 17, 1945	300	1,457	1.62	21.95	1,055,000	1,510	22.74	1,093,000
1946	1062	8,300	May 7, 1946	315	2,006	2.22	30.18	1,452,000	2,048	30.82	1,483,000
1947	1092	7,120	May 10, 1947	429	1,672	1.85	25.16	1,210,000	1,816	27.33	1,315,000
1948	1122	10,500	May 29, 30, 1948	488	2,217	2.46	33.45	1,609,000	2,023	30.52	1,469,000
1949	1152	8,630	May 16, 1949	344	1,579	1.75	23.74	1,143,000	1,630	24.52	1,180,000
1950	1182	6,740	June 27, 1950	274	1,923	2.13	28.92	1,392,000	-	-	-

513. Pend Oreille River at Priest River, Idaho 1/

Location.--Lat 48°10'30", long. 116°55'30", in lot 4, sec. 26, T. 56 N., R. 5 W., on left bank at town of Priest River, 1½ miles downstream from Priest River.

Drainage area.--24,200 sq mi, approximately.

Gage.--Water-stage recorder after Sept. 22, 1928. Datum of gage is 2,000.0 ft above mean sea level, datum of 1929. Prior to May 1, 1905, wire-weight gage at approximately same site at different datum. May 1, 1905, to Nov. 30, 1912, staff gage at Newport about 6 miles downstream at different datum.

Average discharge.--38 years (1903-41), 24,820 cfs (unadjusted).

Extremes.--1903-41: Maximum discharge, 136,000 cfs June 15, 1913, and June 21, 1933; minimum, 2,200 cfs Dec. 12, 1919 (but may have been less during periods of ice effect).

Maximum stage known, 72.9 ft June 1894, estimated from nearby floodmarks (discharge, about 200,000 cfs, revised).

Remarks.--Many diversions for irrigation above station (337,600 acres reported irrigated in 1946). Regulation by several reservoirs in Pend Oreille basin having a combined capacity of about 289,750 acre-ft (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1903	-	-	-	-	-	-	-	-	-	71,400	28,600	15,500	-
1904	15,200	15,700	16,100	13,000	10,900	13,300	31,300	75,200	82,000	50,000	21,100	11,800	29,500
1905	9,030	8,420	8,140	7,640	7,170	9,980	12,600	21,700	44,500	30,500	13,900	9,030	15,200
1906	9,500	9,640	8,710	7,700	8,420	9,430	17,500	36,700	42,200	28,700	13,900	10,300	16,900
1907	8,810	15,400	18,900	16,300	14,500	17,000	28,400	57,300	90,200	73,700	45,200	22,000	34,100
1908	14,200	12,800	13,200	10,800	9,600	11,500	22,200	59,400	103,000	60,600	25,800	13,300	29,700
1909	11,300	12,400	9,770	9,580	12,000	12,000	17,300	32,300	91,100	67,000	28,500	14,200	26,500
1910	11,200	15,000	22,800	17,500	10,400	27,400	47,000	72,600	59,800	31,100	15,900	10,400	28,600
1911	10,600	15,300	18,900	12,200	10,400	10,700	20,200	49,300	68,900	54,000	23,700	14,000	25,800
1912	10,000	9,760	10,000	8,200	10,500	9,000	21,500	53,500	84,100	50,200	24,700	16,500	25,700
1913	13,900	15,600	15,500	10,700	10,800	12,500	25,900	58,300	122,000	70,900	29,000	15,900	33,500
1914	11,800	13,000	11,800	11,800	10,200	14,700	27,000	52,900	62,100	39,200	18,000	10,700	23,700
1915	12,200	19,200	16,000	11,000	9,410	10,600	19,800	35,900	41,900	35,300	22,900	13,100	20,700
1916	11,500	11,500	11,700	8,290	10,800	22,100	41,400	64,800	86,000	113,000	45,000	23,200	37,500
1917	16,500	12,900	10,500	9,260	9,380	8,630	17,800	54,300	112,000	83,700	29,700	14,200	31,700
1918	10,400	9,140	11,300	31,000	18,900	16,000	29,800	63,900	79,200	52,500	20,800	12,900	29,700
1919	10,100	10,200	9,550	10,000	12,900	11,600	23,000	48,800	65,800	31,100	13,300	7,990	21,200
1920	6,470	6,730	5,160	6,460	8,330	8,010	12,400	40,800	69,200	54,600	21,600	13,000	21,100
1921	13,900	13,400	13,300	13,900	14,300	19,900	28,000	62,300	101,000	52,000	19,800	10,900	30,300
1922	9,150	8,880	11,300	10,800	9,160	8,510	15,100	43,100	96,200	47,500	18,200	11,100	24,100
1923	8,530	7,890	8,880	11,600	8,090	9,080	19,300	49,800	84,100	54,500	21,800	11,600	24,500
1924	8,520	8,050	8,100	6,240	11,500	12,000	12,900	50,300	61,400	32,500	15,000	9,100	19,600
1925	7,700	8,880	8,780	11,800	18,500	17,000	41,500	81,600	93,200	52,500	20,700	12,900	31,300
1926	10,300	9,110	8,950	8,650	9,160	10,400	17,900	45,300	33,800	17,600	9,500	8,750	15,800
1927	12,000	15,200	17,900	14,300	12,300	14,300	18,400	59,500	113,000	82,200	29,800	19,400	34,100
1928	20,500	27,900	29,900	20,600	17,800	18,300	27,900	80,600	104,000	59,200	27,200	14,400	37,400
1929	10,700	10,500	8,870	6,550	6,400	8,390	12,100	33,600	67,100	35,600	14,600	8,000	18,600
1930	6,660	6,220	6,680	5,490	7,320	8,730	22,200	47,400	46,400	26,500	12,800	7,810	17,100
1931	7,570	7,960	7,600	6,660	7,380	9,060	15,200	38,600	42,100	21,000	9,860	6,350	15,000
1932	6,210	6,500	6,170	6,680	6,370	14,700	29,400	70,700	94,300	48,200	18,700	10,200	25,700
1933	7,920	10,400	12,700	11,700	8,780	10,200	17,000	48,800	115,000	71,700	23,700	12,800	29,300
1934	11,430	23,890	32,120	40,010	27,600	24,760	54,830	87,470	63,360	27,960	13,560	7,997	34,610
1935	7,563	13,200	13,710	12,000	13,600	13,290	17,650	47,610	77,790	43,230	18,420	9,909	24,050
1936	7,097	6,574	6,762	6,597	4,380	8,865	20,160	73,450	67,030	26,790	12,390	7,978	20,670
1937	6,757	6,049	5,987	4,271	4,932	6,622	11,410	34,900	55,690	33,530	14,620	8,376	16,140
1938	6,974	6,683	10,700	11,860	10,130	12,170	23,100	57,020	83,320	40,440	12,320	10,750	23,900
1939	9,642	8,613	8,045	9,987	9,811	11,270	23,140	65,750	55,330	26,160	11,520	7,722	20,700
1940	8,574	8,309	8,870	8,567	9,422	12,750	23,280	43,390	39,370	14,980	8,148	7,325	16,060
1941	8,497	8,767	8,198	10,420	10,820	11,690	14,630	21,340	26,990	15,740	8,735	9,294	12,920

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1903	-	-	-	-	-	-	-	-	-	4,390	1,760	922	-
1904	935	934	990	799	627	818	1,860	4,500	4,880	3,070	1,300	702	21,400
1905	555	501	501	470	398	614	750	1,330	2,650	1,860	855	537	11,000
1906	584	574	536	473	468	580	1,040	2,260	2,510	1,760	855	613	12,300
1907	542	916	1,160	1,000	805	1,050	1,690	3,520	5,370	4,530	2,780	1,310	24,700
1908	873	762	812	664	552	707	1,320	3,650	6,130	3,730	1,590	791	21,600
1909	695	738	601	589	666	738	1,030	1,990	5,420	4,120	1,750	845	19,200
1910	689	893	1,400	1,080	578	1,680	2,800	4,460	3,560	1,940	978	619	20,700
1911	652	910	1,160	750	578	658	1,200	3,030	4,100	3,320	1,460	833	18,700
1912	615	581	615	504	604	559	1,280	3,280	5,000	3,090	1,520	962	18,600
1913	855	940	953	658	600	769	1,540	3,580	7,260	4,360	1,780	946	24,200
1914	726	774	726	726	566	904	1,610	3,250	3,700	2,410	1,110	637	17,100
1915	750	1,140	984	676	523	652	1,180	2,210	2,490	2,170	1,410	780	15,000

1/ Published as Clark Fork at Newport, Wash., 1903-21, and as Clark Fork at Priest River, Idaho, 1922-37.

Monthly and yearly runoff, in thousands of acre-feet, of Pend Oreille River at Priest River, Idaho--
Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1916	707	684	719	510	621	1,360	2,460	3,980	5,120	6,950	2,770	1,380	27,300
1917	1,010	768	646	569	521	531	1,060	3,340	6,660	5,150	1,830	845	22,900
1918	640	544	695	1,910	1,050	984	1,770	3,930	4,710	3,230	1,280	768	21,500
1919	621	607	587	615	716	713	1,370	3,000	3,920	1,910	818	475	15,400
1920	398	400	317	397	479	493	738	2,510	4,120	3,360	1,330	774	15,300
1921	855	797	818	855	794	1,220	1,670	3,830	6,010	3,200	1,220	649	21,900
1922	565	528	695	664	509	523	898	2,650	5,720	2,920	1,120	680	17,400
1923	524	469	423	713	449	559	1,150	3,060	5,000	3,350	1,340	690	17,700
1924	524	479	498	394	662	738	768	3,090	3,650	2,000	922	541	14,300
1925	473	528	540	726	1,030	1,050	2,470	5,020	5,550	3,230	1,270	768	22,700
1926	633	542	550	532	509	640	1,070	2,790	2,010	1,080	584	521	11,500
1927	738	904	1,100	879	683	879	1,090	3,660	6,720	5,050	1,830	1,150	24,700
1928	1,260	1,860	1,840	1,270	1,020	1,130	1,660	4,960	6,190	3,640	1,670	857	27,200
1929	658	625	545	403	355	516	720	2,070	3,990	2,180	898	476	13,400
1930	410	370	411	338	407	539	1,320	2,910	2,760	1,630	787	465	12,300
1931	465	474	467	410	410	557	904	2,370	2,510	2,290	606	378	10,800
1932	382	387	379	411	366	904	1,750	4,350	5,020	2,960	1,150	607	18,700
1933	487	619	781	719	488	627	1,010	3,000	6,840	4,410	1,460	762	21,200
1934	702.5	421	1,975	2,460	1,533	1,523	2,262	5,379	3,707	1,719	833.7	459.1	25,050
1935	465.0	785.4	843.0	737.8	766.2	817.2	1,050	2,927	4,637	2,658	1,133	587.6	17,410
1936	436.4	391.2	386.2	405.6	251.9	545.1	1,200	4,516	3,989	1,647	762.0	474.7	15,010
1937	415.5	359.9	369.1	262.6	273.9	407.1	679.1	2,146	3,314	2,062	598.9	498.4	11,680
1938	428.8	516.7	657.6	729.3	562.8	748.5	1,375	3,506	4,958	2,496	752.3	639.8	17,660
1939	592.9	512.5	494.7	606.7	544.9	693.0	1,377	4,043	3,292	1,608	696.0	522.0	14,980
1940	527.2	494.4	545.4	514.5	542.0	783.7	1,385	2,668	2,342	921.1	501.0	435.7	11,660
1941	522.5	521.7	504.1	640.8	601.2	718.8	870.3	1,312	1,606	967.9	537.1	553.1	9,356

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1903	532	-	-	-	-	-	-	-	-	-	-	
1904	532	-	-	9,700	29,500	1.22	16.59	21,400,000	27,700	15.59	20,100,000	
1905	532	-	-	4,260	15,200	.628	8.54	11,000,000	15,400	8.64	11,200,000	
1906	532	-	-	6,870	16,900	.698	9.50	12,300,000	18,200	10.22	13,200,000	
1907	532	-	-	8,620	34,100	1.41	19.12	24,700,000	33,900	18.99	24,500,000	
1908	532	-	-	-	29,700	1.23	16.70	21,600,000	29,200	16.38	21,200,000	
1909	532	-	-	5,760	26,500	1.10	14.86	19,200,000	27,800	15.59	20,100,000	
1910	532	-	-	8,400	28,600	1.18	16.01	20,700,000	28,200	15.81	20,400,000	
1911	532	-	-	8,400	25,800	1.07	14.46	18,700,000	24,500	13.76	17,700,000	
1912	532	-	-	-	25,700	1.06	14.44	18,600,000	27,000	15.16	19,600,000	
1913	532	a136,000	June 15, 1913	-	33,500	1.38	18.78	24,200,000	32,800	18.37	23,700,000	
1914	532	-	-	7,600	23,700	.979	13.28	17,100,000	24,600	13.78	17,800,000	
1915	532	-	-	8,570	20,700	.855	11.57	15,000,000	19,600	10.99	14,200,000	
1916	532	-	-	6,760	37,500	1.55	21.12	27,300,000	38,000	21.36	27,600,000	
1917	532	-	-	5,730	31,700	1.31	17.78	22,900,000	30,900	17.34	22,400,000	
1918	532	-	-	8,690	29,700	1.23	16.65	21,500,000	29,600	16.60	21,400,000	
1919	532	-	-	6,870	21,200	.876	11.92	15,400,000	20,200	11.58	14,700,000	
1920	532	-	-	2,200	21,100	.872	11.88	15,300,000	23,000	12.92	16,700,000	
1921	532	a109,000	June 14, 1921	-	9,060	30,300	1.25	16.96	21,900,000	29,300	16.44	21,200,000
1922	692	-	-	7,020	24,100	.996	13.53	17,400,000	23,600	13.24	17,100,000	
1923	692	-	-	3,460	24,500	1.01	13.74	17,700,000	24,600	13.81	17,800,000	
1924	692	-	-	3,820	19,600	.810	11.04	14,300,000	19,700	11.07	14,300,000	
1925	692	-	-	6,380	31,300	1.29	17.54	22,700,000	31,500	17.68	22,900,000	
1926	692	-	-	7,900	15,800	.653	8.89	11,500,000	17,200	9.66	12,500,000	
1927	692	-	-	9,470	34,100	1.41	19.14	24,700,000	36,900	20.71	26,700,000	
1928	692	-	-	10,800	37,400	1.55	21.02	27,200,000	33,400	18.74	24,200,000	
1929	692	73,200	June 18, 1929	-	13,600	.769	10.41	13,400,000	17,700	9.93	12,800,000	
1930	707	50,100	June 5, 6, 1930	-	17,100	.707	9.58	12,300,000	17,300	9.74	12,600,000	
1931	722	50,800	(b)	-	6,150	15,000	.620	8.40	10,800,000	14,600	8.20	10,600,000
1932	737	98,000	May 27, 1932	-	4,100	25,700	1.06	14.44	18,700,000	26,700	15.02	19,400,000
1933	752	136,000	June 21, 1933	-	7,290	29,300	1.21	16.44	21,200,000	32,300	18.14	23,400,000
1934	767	91,200	May 12-14, 1934	-	6,550	34,610	1.43	19.41	25,050,000	31,840	17.86	23,050,000
1935	792	83,500	June 9-11, 1935	-	6,550	24,050	.994	13.49	17,410,000	22,830	12.81	16,530,000
1936	812	86,400	May 21, 1936	-	3,530	20,670	.854	11.63	15,010,000	20,570	11.57	14,930,000
1937	832	59,100	June 7, 1937	-	3,000	16,140	.667	9.05	11,680,000	16,780	9.41	12,150,000
1938	862	93,400	June 9, 1938	-	6,630	23,980	.991	13.45	17,360,000	23,970	13.45	17,360,000
1939	882	75,800	May 23, 1939	-	5,800	20,700	.855	11.61	14,980,000	20,650	11.58	14,950,000
1940	902	55,100	May 30, 31, 1940	-	4,700	16,060	.664	9.03	11,660,000	16,040	9.02	11,640,000
1941	932	30,200	(c)	-	4,190	12,920	.534	7.25	9,356,000	-	-	-

a Maximum observed.

b May 28-31, June 1, 3, 1931.

c June 8, 11, 12, 1941.

PEND OREILLE RIVER BASIN

514. Sullivan Creek near Metaline Falls, Wash.

Location.--Lat 48°51'10", long. 117°17'20", in sec. 30, T. 39 N., R. 44 E., on right bank an eighth of a mile downstream from Outlet Creek, half a mile downstream from Sullivan Lake, and 4 miles east of Metaline Falls.

Drainage area.--122 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 2,550 ft (from topographic map).

Average discharge.--13 years (1912-25), 191 cfs (revised).

Extremes.--1912-25: Maximum discharge observed, 1,650 cfs June 2, 1913 (gage height, 4.2 ft); minimum observed, 15 cfs Aug. 27, 28, Sept. 14-17, 1924 (gage height, 0.5 ft).

Remarks.--Flow partly regulated by storage in Sullivan Lake for power purposes at Metaline Falls.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	#481	347	160	106	103	-
1913	122	122	117	#83.5	#96.7	102	190	526	#982	#293	155	140	#242
1914	116	97.3	91.6	107	88.1	91.2	290	903	707	222	107	119	246
1915	116	157	92.9	98.6	90.1	108	346	433	272	123	98.4	109	169
1916	108	105	104	83.2	90.0	126	201	469	846	425	141	118	235
1917	102	98.2	87.0	76.2	81.2	79.0	104	453	896	396	125	91.6	216
1918	105	104	115	111	99.1	105	165	327	375	151	101	79.1	153
1919	84.6	81.6	78.1	90.4	91.4	71.9	221	749	642	203	111	117	212
1920	97.1	119	105	113	103	64.5	72.6	188	325	144	184	181	141
1921	109	131	114	95.3	99.9	135	232	663	767	222	118	101	232
1922	77.1	82.5	83.3	72.0	153	205	82.9	297	461	129	85.5	87.8	151
1923	89.7	95.9	117	113	86.4	66.2	114	433	419	160	93.8	73.9	155
1924	60.0	65.6	95.3	127	121	103	114	338	126	56.7	52.8	37.8	108
1925	58.5	65.7	76.6	#78.6	#121	#122	#457	#775	#580	#222	#90.2	#45.7	#225

* Not previously published; estimated on the basis of records for Priest River at Coolin, Idaho.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	-	-	-	-	-	-	#29,600	20,600	9,840	6,520	6,130	-
1913	7,500	7,260	7,190	#5,130	#5,370	6,270	11,300	32,300	#8,400	#17,400	9,530	8,330	#176,000
1914	7,130	5,790	5,630	6,580	4,890	5,610	17,300	55,500	42,100	13,600	6,580	7,020	178,000
1915	7,130	9,340	5,710	5,450	5,000	6,640	20,600	26,600	16,200	7,560	6,050	6,490	123,000
1916	6,640	6,250	6,400	5,120	5,180	7,750	12,000	28,800	50,300	26,100	8,670	7,020	170,000
1917	6,270	5,840	5,350	4,690	4,510	4,980	6,190	27,900	53,300	24,300	7,690	5,450	155,000
1918	6,460	6,190	7,070	6,820	5,500	6,460	9,820	20,100	22,300	9,280	6,210	4,710	111,000
1919	5,200	4,860	4,800	5,560	5,090	4,420	13,200	46,100	38,200	12,500	6,820	6,960	154,000
1920	5,970	7,080	6,460	6,950	5,920	3,970	4,320	11,600	19,300	8,850	11,300	10,800	103,000
1921	6,700	7,800	7,010	5,860	5,490	8,300	13,800	40,800	45,600	13,600	7,260	6,010	168,000
1922	4,740	4,910	5,120	4,430	8,500	12,600	4,930	18,300	27,400	7,930	5,260	5,220	109,000
1923	5,520	5,710	7,190	6,950	4,800	4,070	6,780	26,600	24,900	9,840	5,770	4,400	113,000
1924	3,690	3,900	5,860	7,910	6,960	6,330	6,780	20,900	7,500	3,490	3,250	2,250	78,600
1925	3,690	3,910	4,710	#4,940	#6,710	#7,530	#27,200	#47,700	#34,500	#13,600	#5,550	#2,720	#163,000

* Not previously published; estimated on the basis of records for Priest River at Coolin, Idaho.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Maximum observed		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet	
		Discharge	Date						
1912	362	-	-	-	-	-	-	-	-
1913	362	1,650	June 2, 1913	#53	#242	#176,000	#238	#173,000	
1914	392	1,340	May 16, 1914	60	246	178,000	251	181,000	
1915	412	635	Apr. 24, 1915	64	169	123,000	166	120,000	
1916	442	1,540	June 17, 1916	75	235	170,000	232	169,000	
1917	462	1,400	June 19, 1917	69	216	156,000	219	159,000	
1918	482	646	June 9, 1918	74	153	111,000	146	106,000	
1919	512	1,580	May 23, 1919	46	212	154,000	219	158,000	
1920	512	495	June 10, 1920	56	141	103,000	144	105,000	
1921	532	1,540	June 8, 1921	77	232	168,000	223	161,000	
1922	552	850	June 4, 1922	41	151	109,000	156	113,000	
1923	572	682	May 12, 1923	56	155	113,000	149	108,000	
1924	592	495	May 15, 1924	15	108	78,600	107	77,400	
1925	592	-	-	-	#225	#163,000	-	-	

* Not previously published.

515. Pend Oreille River below Z Canyon, near Metaltine Falls, Wash. 1/
(International gaging station)

Location.--Lat 48°59', long. 117°21', in lot 2, sec. 11, T. 40 N., R. 43 E., on right bank three-quarters of a mile downstream from Z Canyon, 1½ miles south of international boundary, 5 miles downstream from Slate Creek, and 10 miles downstream from Metaltine Falls.

Drainage area.--25,200 sq mi, approximately. At site prior to October 1928, 25,100 sq mi, approximately.

Supplemental records available.--November 1908 to September 1910, gage heights only.

Records of chemical analyses and water temperatures for the period January 1949 to September 1950 are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 1,721.80 ft above mean sea level, datum of 1923 (levels by Corps of Engineers). Nov. 4, 1908, to Sept. 4, 1910, and Oct. 1, 1912, to Dec. 18, 1928, staff gages at Metaltine Falls 10 miles upstream at datum 262.2 ft higher.

Average discharge.--38 years (1912-50), 25,900 cfs.

Extremes.--1912-50: Maximum discharge, 171,300 cfs June 13, 1948 (gage height, 60.25 ft); minimum, 2,500 cfs Dec. 12, 1919 (gage height, -2.4 ft, site and datum then in use). Flood of June 1894 reached a stage of 69.0 ft, from floodmarks.

Remarks.--Many diversions for municipal use and irrigation of about 340,000 acres above station. Flow partly regulated by several reservoirs upstream (combined capacity 1,528,800 acre-ft in 1950).

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	14,200	16,100	15,800	11,000	11,100	12,800	26,500	58,900	126,000	71,600	29,500	16,300	34,300
1914	12,100	13,300	12,100	12,100	10,500	15,000	27,900	55,600	64,200	39,900	18,300	11,100	24,400
1915	12,500	19,700	16,300	11,300	9,690	10,900	20,800	37,200	42,700	35,700	23,200	13,400	21,200
1916	11,800	11,800	12,000	8,540	11,100	22,500	42,000	66,200	88,500	114,000	45,400	23,600	38,200
1917	16,800	13,200	10,800	9,490	9,620	8,870	18,100	55,700	115,000	84,900	30,100	14,500	32,400
1918	10,700	9,450	11,800	31,300	19,200	16,300	30,300	64,900	80,300	53,000	21,100	13,100	30,200
1919	10,400	10,400	9,780	10,300	13,200	11,800	23,700	51,000	87,700	31,700	13,600	8,540	21,800
1920	6,760	7,090	5,470	6,800	8,640	8,200	12,600	41,400	70,200	55,000	22,200	13,500	21,500
1921	14,200	13,800	13,600	14,200	14,600	20,300	28,700	64,500	103,000	52,700	20,200	11,200	30,900
1922	9,580	9,130	11,500	11,000	9,540	9,020	15,300	44,000	97,600	47,900	18,500	11,400	24,500
1923	8,800	8,180	7,230	11,900	8,350	9,290	19,500	51,100	85,400	55,000	22,100	11,800	25,000
1924	8,700	8,250	8,390	6,540	11,900	12,300	13,200	51,500	61,800	32,700	15,200	9,210	20,000
1925	7,900	9,140	9,020	12,100	19,000	17,400	42,400	83,700	95,000	53,000	21,000	13,200	31,900
1926	10,600	9,370	9,200	8,850	9,400	10,600	18,300	46,500	34,500	17,800	9,640	8,960	16,200
1927	12,300	15,600	18,400	14,800	12,600	14,600	18,800	61,000	115,000	83,000	30,300	19,900	34,800
1928	21,000	28,700	30,700	21,100	18,300	18,700	28,500	82,700	108,000	59,800	27,600	14,700	38,200
1929	11,000	11,000	9,100	6,800	6,630	8,650	12,400	33,400	69,100	39,200	15,900	8,280	19,300
1930	6,830	6,350	6,730	5,550	7,380	8,840	21,500	48,100	47,900	28,100	13,200	7,980	17,400
1931	7,740	8,050	7,710	6,770	7,680	9,430	15,400	37,700	44,000	22,800	10,200	6,640	15,400
1932	6,290	6,600	6,270	6,790	6,690	15,500	31,300	71,900	87,500	52,000	19,800	10,600	28,800
1933	8,330	10,700	14,200	13,400	10,200	10,600	18,900	50,300	16,000	77,900	25,800	13,200	30,800
1934	11,620	24,510	32,580	42,960	30,460	27,060	55,740	90,800	65,610	30,460	14,120	8,524	36,270
1935	7,744	13,600	14,270	12,450	14,460	14,110	19,470	46,800	80,470	46,700	19,820	10,300	25,210
1936	7,778	7,366	6,895	7,183	4,585	9,367	19,940	73,870	70,070	29,230	12,590	8,220	21,460
1937	6,930	6,278	6,222	4,627	5,195	7,047	11,800	34,380	57,460	36,540	15,260	8,759	16,760
1938	7,258	8,674	10,870	12,950	10,770	13,590	25,390	59,040	86,430	44,660	13,060	11,030	25,350
1939	9,745	8,788	8,116	9,971	9,801	11,220	24,040	65,700	57,160	27,340	11,630	8,899	21,090
1940	8,677	8,608	8,925	8,542	9,780	13,910	25,600	44,500	42,370	16,270	8,296	7,598	16,930
1941	8,715	9,161	8,789	10,800	11,350	12,900	15,680	22,770	29,110	16,570	8,914	9,431	13,680
1942	12,220	14,750	23,560	26,650	16,310	12,620	20,320	42,630	64,610	40,250	16,080	11,070	25,120
1943	9,262	10,930	12,440	13,040	17,890	13,700	46,310	69,820	92,920	70,020	22,620	13,200	32,750
1944	13,120	12,470	11,930	9,795	8,993	9,050	12,180	22,750	35,600	21,330	9,645	8,140	14,540
1945	8,656	9,014	8,904	10,850	12,360	13,670	15,440	39,510	67,220	36,140	12,360	8,748	20,250
1946	9,617	11,310	13,560	15,810	15,450	18,050	30,160	70,110	76,770	38,410	15,120	10,890	27,140
1947	10,630	14,280	22,660	21,580	21,300	24,030	32,390	89,070	86,930	39,420	15,700	12,450	32,620
1948	17,750	24,530	18,150	19,400	17,440	17,150	25,210	76,680	50,590	33,580	23,300	12,640	37,970
1949	10,580	11,210	11,000	13,940	14,550	17,020	29,380	78,430	76,630	28,030	13,150	8,921	26,190
1950	10,780	13,380	17,160	15,430	19,250	24,510	31,310	54,540	108,900	89,680	28,310	13,790	35,650

1/ Published as Clark Fork at Metaltine Falls prior to Oct. 1, 1928, and as Clark Fork below Z Canyon near Metaltine Falls, Oct. 1, 1928, to Sept. 30, 1937.

Monthly and yearly runoff, in thousands of acre-feet, of Pend Oreille River below Z Canyon, near Metaline Falls, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	873	958	972	676	616	787	1,580	3,680	7,500	4,400	1,810	970	24,800
1914	744	791	744	744	583	922	1,680	3,420	3,820	2,450	1,130	660	17,700
1915	769	1,170	1,000	695	538	670	1,240	2,290	2,540	2,200	1,430	797	15,700
1916	726	702	738	525	638	1,580	2,500	4,070	5,270	7,010	2,790	1,400	27,500
1917	1,050	786	664	584	534	545	1,080	3,420	6,840	5,220	1,850	863	23,400
1918	658	562	713	1,920	1,070	1,000	1,800	3,990	4,780	3,260	1,300	780	21,800
1919	640	619	601	633	733	726	1,410	3,140	4,030	1,950	836	496	15,800
1920	416	422	336	418	497	504	750	2,550	4,180	3,380	1,360	803	15,600
1921	873	821	836	873	811	1,250	1,710	3,960	6,130	3,240	1,240	666	22,400
1922	577	543	707	676	530	555	910	2,710	5,810	2,950	1,140	678	17,800
1923	541	487	445	732	464	571	1,170	3,140	5,080	3,380	1,360	702	18,100
1924	535	491	516	402	684	756	786	3,150	3,680	2,010	935	548	14,500
1925	466	544	555	744	1,060	1,070	2,520	5,150	5,650	3,260	1,290	786	23,100
1926	652	558	566	544	522	652	1,090	2,860	2,050	1,090	593	533	11,700
1927	756	928	1,130	898	700	898	1,120	3,750	6,840	5,100	1,860	1,180	25,200
1928	1,290	1,710	1,890	1,300	1,050	1,150	1,700	5,080	6,310	3,680	1,700	875	27,700
1929	676	655	560	418	368	532	758	2,050	4,110	2,100	978	493	14,000
1930	420	378	414	341	410	544	1,280	2,960	2,850	1,730	612	475	12,600
1931	476	479	474	416	427	580	916	2,320	2,620	1,390	627	395	11,100
1932	387	393	386	418	385	953	1,860	4,420	5,210	3,200	1,220	631	19,500
1933	512	637	873	824	566	652	1,120	3,090	6,900	4,790	1,590	786	22,300
1934	714.21	458	2,003	2,642	1,692	1,664	3,317	5,571	3,964	1,873	868.2	491.1	26,280
1935	476.2	809.3	877.3	765.8	803.1	867.4	1,159	3,000	4,788	2,871	1,219	612.6	18,250
1936	478.3	458.3	424	441.7	283.7	576	1,186	4,542	4,169	1,797	775.9	489.1	15,580
1937	426.1	373.6	382.6	284.5	288.5	433.3	702.3	2,114	3,419	2,247	938.4	521.2	12,130
1938	446.3	516.1	668.5	796.2	597.9	835.8	1,611	3,630	5,143	2,746	803.3	656.6	18,350
1939	599.2	522.9	499	613.1	544.3	690.1	1,430	4,040	3,401	1,681	715	529.5	15,270
1940	545.9	512.2	548.6	525.2	562.5	855.1	1,524	2,736	2,521	1,000	510.1	452.1	12,290
1941	535.8	545.1	540.4	664.1	630.3	793.4	932.8	1,400	1,732	1,019	548.1	561.2	9,902
1942	751.3	877.3	1,449	1,639	905.9	776.1	1,209	2,615	3,838	2,475	988.6	658.9	18,180
1943	569.5	650.7	789.2	801.9	983.3	842.6	756	4,281	5,529	4,305	1,391	785.3	23,710
1944	806.7	741.8	702.5	602.2	513.3	556.5	724.5	1,399	2,118	1,311	593.1	484.4	10,560
1945	552.2	536.4	547.5	667.4	686.7	840.4	918.5	2,429	4,000	2,222	759.8	520.5	14,660
1946	591.3	672.8	834	972.1	858	1,110	1,794	4,311	4,568	2,362	929.7	647.8	19,650
1947	665.7	848.5	1,405	1,327	1,183	1,477	1,927	5,477	5,172	2,424	965.4	740.8	23,610
1948	1,091	1,459	1,116	1,193	1,003	1,055	1,500	4,714	8,957	3,295	1,433	751.9	27,570
1949	650.8	667	676.8	866.8	808.1	1,046	1,748	4,884	4,560	1,723	808.3	530.8	18,960
1950	663.1	796	1,055	948.7	1,069	1,507	1,863	3,553	6,481	5,514	1,740	820.6	25,810

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1913	362,442	139,000	June 16, 1913	-	34,300	1.37	18.56	24,800,000	33,600	18.17	24,300,000
1914	392	70,100	June 1, 1914	7,800	24,400	.972	13.22	17,700,000	25,300	13.71	18,300,000
1915	412	44,000	May 31, 1915	8,760	21,200	.845	11.46	15,300,000	20,100	10.87	14,600,000
1916	442	133,000	July 9, 1916	6,980	38,200	1.52	20.72	27,700,000	38,700	20.97	28,100,000
1917	462	122,100	June 25, 1917	5,960	32,400	1.28	17.50	23,400,000	31,600	17.08	22,800,000
1918	482	99,100	June 24, 1918	9,070	30,200	1.20	16.32	21,800,000	30,100	16.27	21,800,000
1919	512	79,100	June 5, 1919	7,200	21,800	.869	11.79	15,800,000	20,900	11.27	15,100,000
1920	512	82,600	June 25, 1920	2,500	21,500	.857	11.65	15,600,000	23,400	12.66	17,000,000
1921	532	111,000	June 14, 1921	9,290	30,900	1.23	16.71	22,400,000	30,000	16.20	21,700,000
1922	552	107,000	June 15, 1922	7,780	24,500	.976	13.28	17,800,000	24,100	13.00	17,400,000
1923	572	91,900	June 17, 1923	3,800	25,000	.996	13.48	18,100,000	25,100	13.55	18,100,000
1924	592	81,000	May 28, 1924	4,120	20,000	.797	10.82	14,500,000	20,000	10.84	14,500,000
1925	612	114,000	May 30, 1925	6,600	31,900	1.27	17.26	23,100,000	32,200	17.41	23,500,000
1926	632	50,400	May 11, 1926	8,090	16,200	.645	8.75	11,700,000	17,600	9.52	12,700,000
1927	652	133,000	June 23, 1927	9,750	34,800	1.39	18.81	25,200,000	37,600	20.35	27,200,000
1928	672	137,000	June 4, 1928	12,100	38,200	1.52	20.69	27,700,000	34,100	18.46	24,700,000
1929	692	74,500	June 19, 1929	-	19,300	.766	10.43	14,000,000	18,400	9.92	13,300,000
1930	707	50,900	June 7, 1930	4,350	17,400	.690	9.37	12,600,000	17,700	9.53	12,800,000
1931	722	51,500	June 1, 1931	6,270	15,400	.611	8.27	11,100,000	15,000	8.08	10,900,000
1932	737	99,000	May 28, 1932	5,000	26,800	1.06	14.48	19,500,000	28,000	15.11	20,300,000
1933	752	137,000	June 22, 1933	7,840	30,800	1.22	16.61	22,300,000	33,800	18.22	24,500,000
1934	767	94,400	May 14, 1934	6,710	36,270	1.44	19.54	26,260,000	33,490	18.03	24,200,000
1935	792	85,500	June 12, 1935	6,710	25,210	1.00	13.58	18,250,000	24,070	12.99	17,430,000
1936	812	87,200	May 22, 1936	3,800	21,460	.852	11.61	15,580,000	21,240	11.48	15,420,000
1937	832	59,900	June 8, 1937	3,500	16,760	.685	9.01	12,130,000	17,380	9.34	12,580,000
1938	862	96,500	June 10, 1938	6,970	29,350	1.01	13.64	18,350,000	25,330	13.64	18,340,000
1939	882	76,400	May 26, 1939	5,000	21,090	.837	11.35	15,270,000	21,070	11.54	15,250,000
1940	902	56,500	May 31, 1940	4,890	16,930	.672	9.16	12,290,000	16,950	9.17	12,310,000
1941	932	32,000	June 13, 1941	5,930	13,680	.543	7.37	9,902,000	15,690	8.45	11,360,000
1942	962	70,300	June 14, 1942	10,300	25,120	.997	13.54	18,180,000	23,640	12.74	17,110,000
1943	982	103,000	June 28, 1943	8,820	32,750	1.30	17.62	23,710,000	33,080	17.80	23,950,000
1944	1012	38,100	June 20, 1944	7,640	14,540	.577	7.85	10,560,000	13,670	7.39	9,922,000
1945	1042	79,500	June 11, 1945	7,510	20,250	.804	10.93	14,660,000	20,920	11.28	15,140,000
1946	1062	88,000	June 8, 1946	9,180	27,140	1.08	14.63	19,650,000	28,280	15.25	20,470,000
1947	1092	107,000	May 18, 1947	10,100	32,620	1.29	17.57	23,610,000	33,650	18.12	24,360,000
1948	1122	171,300	June 13, 1948	10,600	37,970	1.51	20.52	27,570,000	35,670	19.27	25,900,000
1949	1152	104,400	May 26, 1949	8,300	26,190	1.04	14.09	18,960,000	26,910	14.48	19,480,000
1950	1182	128,000	June 28, 1950	8,190	35,650	1.41	19.22	25,810,000	-	-	-

516. Salmo River near Waneta, British Columbia 1/

Location--Lat 49°01'30", long. 117°22'30", on left bank three-quarters of a mile upstream from mouth and 15 miles east of Waneta.

Drainage area--500 sq mi, approximately.

Gage--Staff gage. Altitude of gage is 1,750 ft above mean sea level (from topographic map).

Average discharge--10 years (1936-46), 1,013 cfs.

Extremes--1936-46: Maximum discharge observed, 9,600 cfs May 30, 1945 (gage height, 14.95 ft); minimum observed, 78 cfs Feb. 19, 1937 (discharge measurement during period of ice effect), but may have been less during other periods of ice effect.

Remarks--No regulation above station.

Cooperation--Records furnished by Dominion Water and Power Bureau, Department of Mines and Resources, Canada.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	-	-	-	-	-	169	2,780	3,840	1,070	341	161	158	-
1937	135	123	131	95	81	134	588	2,990	2,240	623	226	158	630
1938	216	464	382	383	297	585	2,410	4,810	3,130	572	183	125	1,130
1939	229	284	240	273	137	453	2,750	3,890	2,060	794	223	175	962
1940	233	291	579	324	281	790	2,460	3,940	1,690	344	171	164	940
1941	309	304	260	264	267	1,030	2,230	3,210	1,740	806	303	1,070	985
1942	1,200	994	1,480	486	371	357	1,930	3,560	3,500	1,330	429	229	1,330
1943	195	225	204	169	186	260	3,070	3,330	3,440	1,350	338	181	1,080
1944	241	248	298	221	184	175	1,240	2,690	1,580	429	199	211	643
1945	215	352	245	204	224	329	955	5,110	3,550	682	209	227	1,030
1946	227	444	335	283	242	504	2,880	6,580	3,520	1,130	291	306	1,400

* Not previously published; estimated on the basis of records for nearby streams.

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	-	-	-	-	-	10,380	155,000	236,000	63,800	21,000	9,930	9,410	-
1937	8,280	7,320	8,070	5,860	4,520	8,240	35,000	184,000	134,000	38,300	13,900	9,430	457,000
1938	13,300	27,600	23,500	23,500	16,500	36,000	43,000	296,000	186,000	35,200	11,300	7,430	819,000
1939	14,100	16,900	14,800	16,800	7,590	27,900	64,000	239,000	23,000	48,800	13,700	10,400	697,000
1940	14,300	17,300	35,600	19,900	16,200	48,500	47,000	242,000	101,000	21,100	10,500	9,770	683,000
1941	18,990	18,110	15,990	16,230	14,810	63,340	132,500	197,600	103,700	49,560	18,630	63,670	713,100
1942	73,960	59,130	91,340	29,870	20,580	21,940	114,800	219,100	208,000	82,070	26,390	13,600	960,800
1943	11,970	13,420	12,550	10,370	10,340	16,000	182,800	204,700	204,500	83,280	20,780	10,760	781,500
1944	14,820	14,750	18,330	13,570	10,610	10,780	73,590	85,100	93,960	26,390	12,260	12,540	466,700
1945	13,250	21,510	15,040	12,540	12,450	20,260	56,830	514,500	211,200	41,950	12,850	13,500	745,900
1946	13,950	26,440	20,570	17,410	13,470	30,990	71,100	404,500	209,600	69,260	17,900	18,220	1,013,000

* Not previously published; estimated on the basis of records for nearby streams.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1936	832	7,630	Apr. 25, 1936	-	-	-	-	-	-	-	-	-
1937	832	4,840	May 27, 1937	78	630	1.26	17.12	457,000	686	18.65	498,000	
1938	862	9,060	May 26, 1938	108	1,130	2.26	30.74	819,000	1,110	30.04	801,000	
1939	882	6,720	Apr. 30, 1939	90	962	1.92	26.15	697,000	991	26.96	718,000	
1940	902	6,190	May 11, 1940	119	940	1.88	25.60	683,000	921	25.07	668,500	
1941	932	6,820	May 18, 1941	127	985	1.97	26.75	713,100	1,220	33.15	884,500	
1942	962,982	9,340	May 27, 1942	181	1,330	2.66	36.01	960,800	1,070	29.03	774,300	
1943	982	6,500	May 27, 1943	132	1,080	2.16	29.29	781,500	1,090	29.67	781,400	
1944	1012	3,840	May 16, 1944	116	643	1.29	17.51	466,700	646	17.57	468,600	
1945	1042	9,600	May 30, 1945	113	1,030	2.06	27.94	745,900	1,046	28.36	757,000	
1946	1062	8,760	May 6, 1946	163	1,400	2.80	38.02	1,013,000	-	-	-	

1/ Published as Salmon River near Waneta, British Columbia, 1936-42.

517. Columbia River at international boundary
(International gaging station)

Location.--Lat 49°00'03", long. 117°37'40", in SE¹ sec. 4, T. 40 N., R. 41 E., on left bank at international boundary, half a mile downstream from Pend Oreille River.

Drainage area.--59,700 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation 1937 datum). Prior to Apr. 27, 1939, staff gage at same site and datum.

Auxiliary water-stage recorder 2.2 miles downstream from base gage at same datum.

Average discharge.--13 years (1937-50), 91,790 cfs (revised).

Extremes.--1937-50: Maximum discharge, 550,100 cfs June 12, 1948 (elevation, 1,338.13 ft); minimum, 20,700 cfs Mar. 9, 1944 (elevation, 1,289.91 ft).

Flood of June 1894 reached a stage of 1,346 ft, from information by Bureau of Reclamation (discharge, 680,000 cfs).

Flood of about 12,900 cfs occurred Jan. 30 or 31, 1937, based on information from other gaging stations (elevation, 1,287.9 ft), from rating curve extended below 1,291.6 ft; may have been as low sometime in January 1930.

Remarks.--Many diversions for irrigation above gage but quantity very small percentage of flow past gage. Some fluctuation at low flow caused by power plant on Kootenai River. Flow affected by regulation in Kootenai and Pend Oreille River basins.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Monthly and yearly mean discharge, in cubic feet per second													The year
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1938	436,810	450,080	336,060	33,400	26,430	31,560	64,970	175,500	10,500	214,400	91,490	68,910	\$95,260
1939	49,430	33,540	27,870	28,390	26,250	26,530	62,000	201,800	12,000	173,700	101,000	62,550	84,140
1940	46,140	46,860	41,050	30,920	29,410	37,570	70,870	159,700	215,700	145,400	89,160	71,280	82,080
1941	56,930	44,010	30,260	28,890	28,580	36,060	63,630	125,800	165,000	126,500	87,210	75,590	72,640
1942	68,710	55,910	65,130	49,850	39,330	35,250	53,800	138,400	251,600	210,500	114,300	59,680	95,560
1943	45,580	36,500	33,530	31,040	34,140	29,550	103,600	162,100	100,251,400	254,300	21,700	59,690	97,270
1944	46,370	37,090	31,790	27,960	24,300	22,940	33,570	94,950	178,900	115,100	88,890	60,980	63,630
1945	49,170	39,830	30,700	29,270	30,310	31,540	35,430	122,900	247,900	174,800	89,750	53,950	78,180
1946	38,350	35,350	31,720	32,510	32,140	40,540	72,160	230,800	253,400	216,500	103,130	67,970	103,300
1947	42,900	35,160	42,120	38,600	42,170	50,740	78,860	245,600	297,100	201,900	102,700	63,240	103,800
1948	82,840	67,550	42,500	40,630	36,710	37,540	57,190	206,300	477,400	208,900	123,000	74,960	121,200
1949	50,290	39,900	33,000	31,720	29,890	33,740	66,620	229,900	238,900	125,000	85,180	55,690	85,270
1950	40,450	38,610	43,450	35,290	39,120	50,000	61,030	138,000	240,400	335,800	131,600	73,260	111,000

* Not previously published; estimated on the basis of records for Columbia River at Kettle Falls, Wash.

Monthly and yearly runoff, in thousands of acre-feet													The year
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1938	\$2,284	\$2,980	\$2,218	\$2,053	\$1,470	\$1,940	3,866	10,790	18,480	13,180	5,628	4,101	\$68,970
1939	3,039	1,986	1,714	1,746	1,458	1,631	3,689	12,410	12,620	10,680	6,213	3,722	60,920
1940	2,837	2,789	2,524	1,901	1,692	2,310	4,217	9,817	12,830	8,943	5,482	4,241	59,580
1941	3,501	2,619	1,861	1,776	1,587	2,217	3,786	7,732	9,876	7,775	5,363	4,498	52,590
1942	4,225	3,327	4,005	3,065	2,184	2,168	3,202	8,509	14,970	12,940	7,030	3,551	69,180
1943	2,803	2,172	2,061	1,909	1,896	1,817	6,166	9,969	14,960	15,630	7,484	3,552	70,420
1944	2,851	2,207	1,955	1,719	1,398	1,411	1,997	5,838	10,640	7,078	5,638	3,629	46,190
1945	3,024	2,370	1,888	1,800	1,684	1,939	2,108	7,558	14,750	10,750	5,456	3,210	56,600
1946	2,358	2,104	1,951	1,999	1,785	2,493	4,294	14,190	19,240	13,320	6,977	4,044	74,760
1947	2,638	2,092	2,590	2,373	2,342	3,120	4,692	15,100	17,680	12,410	6,317	3,763	75,120
1948	5,094	4,019	2,613	2,498	2,111	2,308	3,403	12,680	28,410	12,840	7,560	4,460	88,000
1949	3,092	2,374	2,029	1,950	1,660	2,075	3,964	14,130	14,220	7,698	5,238	3,314	61,730
1950	2,487	2,298	2,672	2,170	2,172	3,074	3,632	8,486	20,250	20,640	8,093	4,359	80,530

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second													
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff			
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1938	902	334,400	June 27, 28, 1938	-	\$95,260	\$1.60	\$21.66	\$68,970,000	\$94,270	\$21.43	\$68,260,000		
1939	902	259,600	(a)	21,800	84,140	1.41	19.13	60,920,000	86,070	19.57	62,320,000		
1940	902	248,000	May 30, 1940	25,500	82,080	1.37	18.71	59,580,000	81,850	18.65	59,410,000		
1941	932	185,400	June 19, 1941	25,800	72,640	1.22	16.51	52,590,000	77,580	17.64	56,170,000		
1942	982	275,000	June 12, 16, 1942	33,400	95,560	1.60	21.74	69,180,000	89,320	20.32	64,660,000		
1943	982	291,000	July 7, 1943	26,500	97,270	1.63	22.13	70,420,000	97,240	22.12	70,400,000		
1944	1012	196,700	June 15, 1944	21,200	63,630	1.07	14.50	46,190,000	64,000	14.58	46,460,000		
1945	1042	280,800	June 11, 1945	26,400	78,180	1.31	17.77	56,600,000	76,980	17.50	55,730,000		
1946	1062	360,200	June 6, 1946	28,500	103,300	1.73	23.47	74,760,000	104,500	23.76	75,660,000		
1947	1092	324,200	June 14, 1947	31,800	103,800	1.74	23.59	75,120,000	109,900	24.97	79,520,000		
1948	1122	550,100	June 12, 1948	30,400	121,200	2.03	27.61	88,000,000	115,400	26.29	83,760,000		
1949	1152	314,500	May 24, 1949	27,700	85,270	1.43	19.39	61,730,000	85,220	19.37	61,690,000		
1950	1182	461,000	June 24, 1950	31,400	111,000	1.86	25.23	80,330,000	-	-	-		

* Not previously published.
a May 31, June 1, 1939.

518. Sheep Creek near Velvet, Wash.

Location.--Lat 48°57'10", long. 117°52'50", in SE¼NW¼ sec. 20, T. 40 N., R. 39 E., on right bank about 3½ miles upstream from Little Sheep Creek and 4 miles southwest of Velvet.

Drainage area.--171 sq mi.

Gage.--Water-stage recorder. Datum of gage is 2,094.8 ft above mean sea level (from river-profile map). Prior to Oct. 1, 1929, staff gage at same site and datum.

Extremes.--1929-32: Maximum discharge, 1,470 cfs Apr. 15, 1932 (gage height, 8.66 ft); minimum recorded, 1.7 cfs Nov. 24, 1930, but may have been less during winter of 1930.

Remarks.--No diversion. Some regulation by operation of flash dam half a mile above gage.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	27.6	20.4	-
1930	18.4	12.3	5.92	3.71	9.93	25.3	263	231	202	58.9	20.5	18.2	72.4
1931	22.8	16.8	16.6	13.0	14.4	64.5	321	548	204	121	38.4	24.3	118
1932	23.0	25.1	27.2	25.3	28.5	125	818	1,030	389	65.4	29.9	20.7	218

* Not previously published; estimated on the basis of records for Sheep Creek near Northport, Wash.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	1,700	1,210	-
1930	1,130	732	364	228	551	1,560	15,600	14,200	12,000	3,620	1,260	1,080	52,500
1931	1,400	1,000	1,020	799	800	3,970	19,100	33,700	12,100	7,440	2,360	1,450	85,100
1932	1,410	1,490	1,670	1,550	1,640	7,700	48,600	63,300	23,100	4,020	1,840	1,230	158,000

* Not previously published; estimated on the basis of records for Sheep Creek near Northport, Wash.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	707	-	-	-	-	-	-	-	-	-	-
1930	707	1,190	June 1, 1930	-	72.4	0.423	5.76	52,300	74.1	5.89	53,500
1931	722	954	May 3, 1931	3.3	118	.690	9.34	85,100	119	9.47	86,300
1932	737	1,470	Apr. 15, 1932	-	218	1.27	17.27	158,000	-	-	-

† Corrected.

* Not previously published.

519. Sheep Creek near Northport, Wash.

Location.--Lat 48°56'40", long. 117°46'50" (revised), in NE¼NE¼ sec. 25, T. 40 N., R. 39 E., on right bank at county highway bridge, 1 mile upstream from mouth, and 1½ miles north of Northport.

Drainage area.--225 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,294.78 ft above mean sea level, datum of 1929. Prior to Oct. 3, 1929, staff gage at same site and datum.

Average discharge.--13 years (1929-42), 219 cfs.

Extremes.--1929-42: Maximum discharge, 2,450 cfs Apr. 29, 1933 (gage height, 27.46 ft); minimum not determined (probably less than 8 cfs sometime during period of ice effect, Dec. 25, 1929, to Apr. 7, 1930).

Remarks.--No diversion. Flow partly regulated by flash dam 6½ miles upstream used in logging operations.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	331	90.5	37.8	29.0	-
1930	25.0	16.0	11.9	9.32	15.0	30.2	286	248	213	69.2	28.9	25.0	81.4
1931	29.1	24.0	22.5	22.4	22.4	73.5	390	669	235	140	45.5	31.0	143
1932	30.4	30.1	28.1	26.5	29.0	125	1,180	1,380	440	86.5	41.8	31.7	286
1933	32.5	42.8	76.5	59.0	41.2	61.6	759	1,400	715	125	35.8	31.8	282
1934	44.6	113	122	131	164	360	1,300	491	131	53.8	29.5	24.4	246
1935	27.2	57.7	69.6	58.5	122	110	544	1,124	396	125	53.7	33.6	227
1936	51.1	26.7	25.0	24.1	15.9	26.1	754	619	191	63.0	30.5	26.4	152
1937	25.3	23.4	20.6	15.8	16.4	21.9	154	715	415	190	53.4	30.4	141
1938	30.0	70.4	85.1	96.2	74.7	228	983	1,300	456	98.6	37.3	27.2	291
1939	33.6	32.6	28.3	34.7	27.1	110	781	564	233	132	35.2	25.0	170
1940	27.5	28.4	47.2	34.4	41.9	248	980	931	228	52.4	30.1	24.4	223
1941	35.0	74.5	51.0	70.1	84.5	523	941	823	456	211	64.3	174	293
1942	210	213	311	135	109	101	684	949	655	250	90.5	44.4	313

SHEEP CREEK BASIN

Monthly and yearly runoff, in acre-feet, of Sheep Creek near Northport, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	19,700	5,560	2,320	1,730	-
1930	1,540	952	732	573	833	1,860	17,000	15,200	12,700	4,250	1,780	1,490	58,900
1931	1,790	1,430	1,580	1,380	1,240	4,520	23,200	41,100	14,000	8,610	2,800	1,840	103,000
1932	1,870	1,790	1,730	1,630	1,670	7,690	70,200	84,900	26,200	5,320	2,570	1,890	207,000
1933	2,000	2,550	4,700	3,630	2,290	3,790	45,200	86,100	42,500	7,690	2,200	1,890	205,000
1934	2,740	6,730	7,490	8,030	9,100	22,130	77,330	30,170	7,790	3,310	1,820	1,450	178,100
1935	1,670	3,430	4,280	3,600	6,750	6,760	32,340	69,120	23,530	7,680	3,300	2,000	164,500
1936	1,910	1,590	1,540	1,480	912	1,600	44,880	38,070	10,790	3,870	1,870	1,570	110,100
1937	1,560	1,390	1,270	972	912	1,340	9,160	43,950	24,700	11,690	3,280	1,810	102,000
1938	1,840	4,190	5,230	5,910	4,150	13,990	58,510	79,930	27,150	6,060	2,290	1,620	210,900
1939	2,060	1,940	1,740	2,140	1,500	6,750	46,480	34,680	13,880	8,140	2,150	1,490	123,000
1940	1,690	1,690	2,900	2,120	2,410	15,240	58,330	57,240	13,560	3,220	1,850	1,450	161,700
1941	2,150	4,430	3,130	4,310	4,690	32,140	56,000	50,610	27,110	12,970	3,950	10,330	211,800
1942	12,890	12,680	19,130	8,180	6,050	6,190	40,720	58,330	38,970	15,370	5,560	2,640	226,700

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1929	707	-	-	-	-	-	-	-	-	-	-
1930	707	1,160	June 1, 1930	-	81.4	0.362	4.92	58,900	83.3	5.04	60,300
1931	737	1,260	May 3, 1931	11	143	.636	8.60	103,000	144	8.66	104,000
1932	737	2,130	Apr. 15, 1932	-	286	1.27	17.29	207,000	291	17.61	211,000
1933	752	2,450	Apr. 29, 1933	27	282	1.25	17.04	205,000	293	17.68	212,000
1934	767	1,920	Apr. 25, 1934	23	246	1.09	14.84	178,100	236	14.22	170,500
1935	792	1,640	May 7, 1935	20	227	1.01	13.72	164,500	221	13.55	160,100
1936	812	2,210	Apr. 26, 1936	10	152	.676	9.17	110,100	151	9.11	109,300
1937	832	975	June 25, 1937	-	141	.627	8.50	102,000	151	9.08	109,100
1938	862,882	2,080	May 2, 1938	24	291	1.29	17.57	210,900	284	17.11	205,400
1939	862	1,420	Apr. 30, 1939	20	170	.756	10.24	123,000	171	10.28	123,500
1940	902	1,620	May 12, 1940	20	223	.991	13.47	161,700	227	13.76	165,100
1941	932	1,540	May 18, 1941	27	293	1.30	17.66	211,800	341	20.57	246,800
1942	962	1,920	May 27, 1942	37	313	1.39	18.88	226,700	-	-	-

KETTLE RIVER BASIN

520. Myers Creek near Myncaster, British Columbia
(International gaging station)

Location.--Lat 49°00'00", long. 119°01'15", on left bank 50 ft north of international boundary, a quarter of a mile south of Myncaster, British Columbia, and 4½ miles downstream from Mary Ann Creek.

Drainage area.--85.7 sq mi (revised).

Supplemental records available.--Fragmentary records of discharge available about June 1923 to September 1924 in the Canadian Department of the Interior, Water Resources publication for Pacific drainage area, W.R.P. Nos. 43 and 47.

Gage.--Water-stage recorder and Cippoletti weir or concrete rectangular section. Altitude of gage is 2,620 ft above mean sea level (from international boundary strip map, publication of 1913). Prior to October 1929, staff gage at same site and datum.

Extremes.--1923-50: Maximum discharge recorded, 109 cfs June 7, 1942 (discharge measurement), June 11, 1948; no flow at times.

Remarks.--Small diversions for irrigation above station. No regulation.

Cooperation.--Records 1926-29 furnished by Canadian Department of Resources Development. This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Monthly and yearly mean discharge, in cubic feet per second.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	-	-	8.5	3.5	1.0	0.9	4.2	-
1927	-	-	-	-	-	-	-	28.4	28.9	6.6	1.3	5.5	-
1928	-	-	-	-	-	-	-	41.1	19.9	18.5	6.3	5.5	-
1929	-	-	-	-	-	-	-	9.0	9.1	1.4	0.4	0.9	-
1930	2.4	-	-	-	-	-	4.3	2.3	2.8	1.0	0.5	0.7	-
1931	1.8	-	-	-	-	-	3.9	5.7	3.0	1.5	0.4	1.0	-
1932	1.7	-	-	-	-	-	11.1	29.3	13.3	2.7	1.5	1.2	-
1933	2.1	3.9	-	-	-	-	12.4	23.8	27.2	6.7	1.8	2.0	-
1934	3.2	-	-	-	-	-	12.8	10.8	4.7	1.1	0.6	1.3	-
1935	2.2	3.8	-	-	-	-	-	16.8	10.4	4.1	1.8	1.3	-
1936	1.8	-	-	-	-	-	11.3	12.4	15.8	3.8	0.9	1.0	-
1937	1.3	-	-	-	-	-	-	7.5	15.5	6.0	1.8	1.5	-
1938	2.2	3.5	-	-	-	-	-	-	6.5	2.0	1.7	-	-
1939	2.9	-	-	-	-	-	-	-	3.8	1.5	0.1	0.4	-
1940	1.1	-	-	-	-	-	8.6	24.6	13.4	3.4	1.1	2.0	-

Monthly and yearly mean discharge, in cubic feet per second, of Myers Creek near Myncaaster, British Columbia--Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941	-	-	-	-	-	-	-	-	-	-	-	13.2	-
1942	-	-	-	-	-	-	-	-	-	44.7	22.3	14.8	-
1943	13.2	-	-	-	-	-	-	14.4	16.9	8.0	4.6	3.8	-
1944	6.82	-	-	-	-	-	-	16.5	16.8	6.47	2.57	2.74	-
1945	3.91	-	-	-	-	-	-	61.1	52.8	9.42	4.09	4.64	-
1946	-	-	-	-	-	-	-	39.8	27.5	8.29	3.45	3.43	-
1947	5.4	-	-	-	-	-	-	-	14.6	4.4	2.6	2.9	-
1948	7.0	-	-	-	-	-	-	58.0	76.0	25.4	21.6	13.0	-
1949	-	-	-	-	-	-	-	-	9.8	4.5	3.2	-	-
1950	-	-	-	-	-	-	-	26.7	33.5	7.1	-	-	-

Monthly and yearly runoff in acre-feet.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1926	-	-	-	-	-	-	-	523	208	61	55	250	-
1927	-	-	-	-	-	-	-	1,750	1,720	406	80	327	-
1928	-	-	-	-	-	-	-	2,530	1,180	1,140	387	327	-
1929	-	-	-	-	-	-	-	553	541	86	25	54	-
1930	148	-	-	-	-	-	256	141	167	61.5	30.7	41.7	-
1931	111	-	-	-	-	-	232	350	179	92.2	24.6	59.5	-
1932	105	-	-	-	-	-	660	1,800	791	166	92	71	-
1933	129	232	-	-	-	-	738	1,460	1,620	412	111	119	-
1934	197	-	-	-	-	-	762	564	280	68	37	77	-
1935	135	228	-	-	-	-	-	1,030	615	252	112	78	-
1936	109	-	-	-	-	-	†672	762	†938	232	53	58	-
1937	82	-	-	-	-	-	-	464	924	369	112	88	-
1938	136	205	-	-	-	-	-	-	-	408	121	99	-
1939	181	-	-	-	-	-	-	-	227	93	6.9	22	-
1940	66	-	-	-	-	-	512	1,510	797	207	71	120	-
1941	-	-	-	-	-	-	-	-	-	-	-	783	-
1942	-	-	-	-	-	-	-	-	2,750	1,370	882	-	-
1943	809	-	-	-	-	-	-	888	1,010	492	283	227	-
1944	419	-	-	-	-	-	-	1,010	1,000	398	158	163	-
1945	240	-	-	-	-	-	-	3,760	3,140	579	252	276	-
1946	-	-	-	-	-	-	-	2,440	1,640	510	212	204	-
1947	332	-	-	-	-	-	-	-	869	273	162	175	-
1948	433	-	-	-	-	-	-	3,540	4,500	1,560	1,330	773	-
1949	-	-	-	-	-	-	-	-	585	277	198	-	-
1950	-	-	-	-	-	-	-	1,640	1,990	434	-	-	-

† Corrected.

521. Kettle River near Ferry, Wash.
(International gaging station)

Location.--Lat 48°58'40", long. 118°46'10", in lot 7, sec. 10, T. 40 N., R. 32 E., on right bank $1\frac{1}{2}$ miles south of international boundary and Ferry and 3 miles upstream from Toroda Creek.

Drainage area.--2,220 sq mi, approximately.

Supplemental records available.--Discharge records collected in this vicinity at Nicholson's Bridge near Midway, Canada from March 1914 to May 1922 are published in reports of Canadian Department of Water Resources and Development.

Gage.--Water-stage recorder. Datum of gage is 1,836.8 ft above mean sea level, International joint adjustment of 1947. Prior to Nov. 23, 1928, staff gage at same site and datum.

Average discharge.--22 years (1928-50), 1,388 cfs.

Extremes.--1928-50: Maximum discharge, 21,200 cfs May 29, 1948 (gage height, 21.15 ft); minimum recorded, 14 cfs (discharge measurement) Jan. 23, 1930, but may have been less during periods of ice effect.

Remarks.--A few small diversions for irrigation above station. No regulation.

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	-	214	-
1929	220	183	128	85.3	87.2	118	-	300	2,950	3,930	571	123	733
1930	96.0	84.3	78.2	40.3	72.5	110	1,570	2,220	2,730	664	147	90.7	659
1931	107	110	90.6	88.2	92.9	144	851	4,830	2,770	964	178	202	875
1932	159	179	150	126	121	307	3,450	7,560	5,580	922	298	208	1,590
1933	247	413	404	284	201	281	2,380	7,410	8,140	2,530	349	227	1,910
1934	410	731	473	327	356	821	6,351	5,454	1,834	346	149	132	1,449
1935	220	730	410	326	626	462	1,672	6,386	5,668	2,754	544	249	1,675

Monthly and yearly mean discharge, in cubic feet per second, of Kettle River near Ferry, Wash.--
Continued

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	213	219	158	145	81.5	147	3,480	6,694	3,877	927	220	152	1,360
1937	141	112	101	64.3	74.8	127	604	4,834	5,252	1,024	275	141	1,065
1938	202	241	187	195	185	415	3,464	7,375	3,856	722	182	124	1,433
1939	194	174	114	134	88.2	227	2,598	6,284	3,530	1,165	205	121	1,241
1940	193	202	203	86.5	127	540	3,230	6,161	2,962	410	174	98.7	1,202
1941	173	187	151	156	141	970	3,746	5,033	3,537	1,767	480.1	941	1,526
1942	2,085	1,280	1,161	640	523	432	3,462	7,062	5,978	2,189	803	314	2,168
1943	219	192	155	157	161	169	2,194	3,766	4,645	1,414	306	136	1,127
1944	173	184	97.9	81.4	90.6	150	1,120	4,862	4,093	800	443	430	1,044
1945	725	791	297	325	288	340	1,295	8,958	6,189	961	221	146	1,719
1946	168	264	199	175	177	316	3,502	9,459	5,166	1,389	269	179	1,780
1947	172	158	162	149	148	284	3,973	4,991	2,664	785	307	201	1,004
1948	530	588	373	252	197	213	1,477	10,060	8,239	1,524	1,987	746	2,185
1949	609	393	244	205	189	302	3,046	7,857	2,311	596	353	209	1,369
1950	208	276	229	154	179	220	802	5,271	7,794	1,492	378	159	1,431

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1928	-	-	-	-	-	-	-	-	-	-	-	12,700	-
1929	13,500	10,900	7,750	5,240	4,840	7,260	17,900	181,000	32,000	35,100	7,560	5,160	530,000
1930	5,900	5,020	4,810	2,480	4,030	6,760	93,400	136,000	62,000	40,800	9,040	5,400	476,000
1931	6,580	6,550	5,570	5,420	5,160	8,850	50,600	297,000	65,000	59,300	10,900	12,000	633,000
1932	9,780	10,700	9,220	7,750	6,960	18,900	205,000	465,000	32,000	56,700	18,300	12,400	1,150,000
1933	15,200	24,600	24,800	17,500	11,200	17,300	142,000	456,000	484,000	156,000	21,500	13,500	1,380,000
1934	25,250	43,500	29,070	20,090	19,800	50,500	77,900	335,300	109,100	21,290	9,150	7,850	1,049,000
1935	13,510	43,470	25,230	20,030	34,740	28,390	99,490	592,700	337,500	169,300	33,450	14,830	1,212,000
1936	13,120	13,010	9,740	8,890	4,690	9,070	207,100	411,600	30,700	57,020	13,560	9,060	987,600
1937	8,650	6,660	6,230	3,950	4,160	7,810	35,910	297,200	512,500	62,930	16,910	8,390	771,300
1938	12,410	14,360	11,480	11,960	10,270	25,500	206,100	455,500	229,100	44,400	11,190	7,400	1,038,000
1939	11,960	10,360	6,990	8,250	4,900	13,950	154,000	386,400	210,000	71,500	12,630	7,180	898,100
1940	11,850	12,000	12,490	5,320	7,310	33,230	192,200	380,100	76,300	25,190	10,670	5,880	872,500
1941	10,660	11,100	9,270	9,600	7,830	59,620	222,900	309,500	210,500	108,600	29,490	115,500	1,105,000
1942	128,200	76,190	71,370	39,580	29,040	26,530	205,000	434,200	355,700	134,600	49,400	18,690	1,569,000
1943	13,470	11,440	9,520	9,660	8,930	10,410	30,500	231,600	276,400	88,960	18,840	8,100	815,900
1944	10,620	10,950	6,020	5,000	5,210	9,200	65,610	299,000	43,600	49,180	27,270	25,580	758,200
1945	44,560	47,070	18,280	19,960	16,020	20,940	77,080	550,800	568,300	59,090	13,560	8,680	1,244,000
1946	10,320	15,710	12,230	10,760	9,840	19,450	208,400	581,600	307,400	85,390	16,560	10,680	1,288,000
1947	10,560	9,390	9,990	9,140	8,220	17,450	117,400	306,900	158,500	48,280	18,880	11,990	726,700
1948	32,580	35,020	22,910	15,490	11,320	13,080	87,900	618,100	489,100	93,700	22,200	44,410	1,586,000
1949	37,450	23,370	14,990	12,630	10,510	18,590	181,200	483,100	38,700	36,650	21,680	12,420	991,300
1950	12,790	16,430	14,050	9,470	9,970	13,550	47,720	324,100	463,800	91,740	23,230	9,460	1,036,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1928	692	-	-	-	-	-	-	-
1929	692	7,420	May 24, 1929	-	733	530,000	710	514,000
1930	707	6,000	June 1, 1930	-	659	476,000	661	479,000
1931	722	9,020	May 15, 1931	61	875	633,000	889	644,000
1932	737	10,300	May 22, 1932	-	1,590	1,150,000	1,640	1,190,000
1933	752	14,000	June 17, 1933	-	1,910	1,380,000	1,960	1,420,000
1934	767	11,500	Apr. 28, 1934	81	1,449	1,049,000	1,427	1,033,000
1935	792	11,100	May 23, 1935	140	1,675	1,212,000	1,611	1,166,000
1936	812	11,100	Apr. 26, 1936	50	1,360	987,600	1,341	973,200
1937	832	9,940	June 3, 1937	55	1,065	771,300	1,088	789,000
1938	862	12,200	May 26, 1938	90	1,433	1,038,000	1,421	1,028,000
1939	882	10,400	May 17, 1939	70	1,241	898,100	1,250	905,200
1940	902	9,930	May 26, 1940	30	1,202	872,500	1,194	867,200
1941	932	9,310	May 2, 1941	60	1,526	1,105,000	1,864	1,349,000
1942	962	18,200	May 27, 1942	218	2,168	1,569,000	1,834	1,328,000
1943	982	7,950	May 27, 1943	87	1,127	815,900	1,118	809,100
1944	1012	8,280	June 2, 1944	65	1,044	758,200	1,158	840,600
1945	1042	12,900	May 31, 1945	106	1,719	1,244,000	1,620	1,173,000
1946	1062	13,600	May 29, 1946	106	1,780	1,288,000	1,768	1,280,000
1947	1092	9,070	May 8, 1947	90	1,004	726,700	1,087	787,300
1948	1122	21,200	May 29, 1948	140	2,185	1,586,000	2,165	1,572,000
1949	1152	14,400	May 14, 1949	155	1,369	991,300	1,324	958,800
1950	1182	12,000	June 15, 1950	117	1,431	1,036,000	-	-

522. Curlew Creek near Curlew, Wash.

Location.--Lat 48°46'25", long. 118°38'45", in sec. 21, T. 38 N., R. 33 E., on right bank half a mile downstream from Curlew Lake, 9 miles upstream from mouth, and 9 miles southwest of Curlew.

Drainage area.--89.8 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 2,330 ft (from topographic map).

Extremes.--1917-21: Maximum discharge, 65 cfs May 27-30, June 1, 2, 5, 6, 1917; maximum gage height, 3.09 ft (revised) May 30, 1917, from graph based on gage readings; no flow at times during 1919 and 1920.

Remarks.--Diversion of 3 cfs by decree from San Poil River near headwaters but exceeds this amount at times; as much as 30 cfs (estimated) observed entering basin by this route.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1917	-	-	-	-	-	-	-	-	46.4	11.7	2.60	1.69	-
1918	1.31	1.69	3.47	5.23	4.91	5.88	9.51	9.85	6.03	2.44	1.68	.89	4.40
1919	1.05	1.30	1.40	1.98	5.10	8.26	26.0	44.0	20.5	4.62	1.84	1.25	9.80
1920	.61	1.97	.85	1.69	2.48	2.39	3.77	8.72	6.61	2.63	.64	.21	2.74
1921	.14	.42	.73	1.09	3.22	5.96	20.5	50.1	35.0	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1917	-	-	-	-	-	-	-	-	2,760	719	160	101	-
1918	80.6	101	213	322	273	362	566	606	359	150	103	53	3,190
1919	64.6	89.3	86.1	122	283	508	1,550	2,710	1,220	284	113	74.4	7,100
1920	49.8	117	52.3	104	143	147	224	536	393	174	39.4	12.5	1,990
1921	8.6	25.0	46.1	67.0	179	366	1,220	3,080	2,080	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1917	462	65	(a)	-	-	-	-	-
1918	482	11.2	Apr. 20, 1918	0.7	4.40	3,190	4.19	3,030
1919	512	50	May 22-24, 1919	-	9.80	7,100	9.78	7,080
1920	512	12	May 14, 1920	0	2.74	1,990	2.55	1,850
1921	532	61	May 25, 1921	-	-	-	-	-

a May 27-30, June 1, 2, 5, 6, 1917.

523. Kettle River at Cascade, British Columbia
(International gaging station)

Location.--Lat 49°01'35", long. 118°12'20", on left bank at highway bridge at Cascade, half a mile downstream from Cascade Falls.

Drainage area.--3,550 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 1,449.79 ft above mean sea level (Geodetic Survey of Canada, datum of 1928).

Average discharge.--18 years (1916-34), 2,497 cfs.

Extremes.--1916-34: Maximum discharge observed, 29,300 cfs June 8, 1921; minimum discharge, 60 cfs Jan. 24, 25, 1930.

Remarks.--Divisions above station for irrigation of about 650 acres in the United States and 2,150 acres in Canada (1934). A small part of the stream flow is utilized for domestic purposes at Grand Fork, British Columbia. Slight regulation on the North Fork by dam at Grand Forks, British Columbia.

Cooperation.--Records 1916-30, not previously published by Geological Survey, furnished by Canadian Department of Resources and Development. This station is one of the international gaging stations maintained by Canada under agreement with the United States.

KETTLE RIVER BASIN

Monthly and yearly mean discharge, in cubic feet per second, of Kettle River at Cascade, British Columbia

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1916	-	-	-	-	-	-	3,760	9,350	9,250	4,350	1,270	580	-
1917	410	365	245	200	250	270	800	11,900	12,300	3,500	550	310	2,600
1918	350	380	365	515	450	600	4,550	9,200	7,900	1,500	820	460	2,850
1919	430	500	410	420	400	440	5,200	12,500	8,400	2,400	430	410	2,650
1920	391	425	350	300	300	350	1,210	6,510	9,340	3,390	572	821	2,000
1921	2,160	1,100	750	700	700	970	4,120	15,000	12,200	2,280	498	465	3,410
1922	575	1,050	590	380	300	350	2,010	9,820	12,200	1,360	505	433	2,460
1923	589	562	400	375	325	360	3,750	8,730	10,300	2,610	657	251	2,410
1924	220	210	210	210	325	450	1,470	9,470	3,260	580	210	140	1,400
1925	276	463	300	400	400	500	7,350	14,000	6,940	1,000	411	360	2,700
1926	252	262	269	230	250	690	6,050	8,380	3,260	862	283	308	1,760
1927	1,170	846	1,100	500	500	600	3,350	11,300	17,100	4,320	840	6,030	3,970
1928	5,600	2,920	1,830	1,110	870	2,230	7,020	18,800	9,580	4,840	1,020	433	4,690
1929	371	513	300	217	161	245	792	5,530	6,130	1,160	232	184	1,310
1930	167	191	146	71	90	188	3,360	3,980	4,190	1,180	288	163	1,170
1931	205	221	202	189	205	554	2,400	8,000	4,510	1,910	358	356	1,600
1932	324	363	302	219	236	589	6,150	12,800	9,020	1,700	463	351	2,710
1933	367	650	909	569	467	570	4,500	12,000	13,100	4,060	630	383	3,190
1934	797	1,490	1,010	781	873	1,850	11,600	8,950	3,580	543	263	228	2,650

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1916	-	-	-	-	-	-	224,000	575,000	550,000	267,000	78,000	34,000	-
1917	25,000	22,000	15,000	12,300	13,900	16,600	47,600	730,000	735,000	215,000	34,000	18,500	1,880,000
1918	21,500	22,500	22,500	31,500	25,000	37,000	270,000	655,000	470,000	92,000	50,500	27,500	1,640,000
1919	26,400	29,800	25,200	26,000	22,200	27,000	310,000	770,000	500,000	148,000	26,400	24,400	1,940,000
1920	24,000	25,300	21,500	18,400	17,300	21,500	72,000	400,000	556,000	208,000	35,200	48,900	1,450,000
1921	133,000	65,500	46,100	43,000	38,900	59,600	245,000	822,000	726,000	140,000	30,600	27,700	2,480,000
1922	55,400	62,500	36,300	23,400	16,700	21,500	120,000	604,000	726,000	83,600	31,100	25,800	1,790,000
1923	36,200	33,400	24,600	23,100	18,000	22,100	223,000	537,000	613,000	60,000	40,400	14,900	1,750,000
1924	13,500	12,500	12,900	12,900	18,700	27,700	87,500	582,000	94,000	35,700	12,900	8,330	1,020,000
1925	17,000	27,600	18,400	24,600	22,200	30,700	437,000	861,000	413,000	61,500	25,300	21,400	1,960,000
1926	15,500	15,600	15,500	14,100	13,900	42,400	360,000	515,000	394,000	53,000	17,400	18,300	1,280,000
1927	71,900	50,300	67,600	30,700	27,800	36,900	199,000	695,000	1,000,000	266,000	51,600	59,000	2,880,000
1928	544,000	74,000	13,000	68,200	50,000	137,000	418,000	1,160,000	558,000	298,000	62,700	25,800	3,410,000
1929	22,800	18,600	18,400	13,300	8,940	15,100	47,100	540,000	565,000	71,300	14,300	10,900	945,000
1930	10,300	11,400	8,980	4,370	5,000	11,600	200,000	245,000	49,000	72,600	17,700	9,700	846,000
1931	12,600	13,200	12,400	11,600	11,400	34,100	143,000	492,000	288,000	117,000	22,000	21,200	1,160,000
1932	19,900	21,600	18,600	13,500	13,600	36,200	356,000	787,000	537,000	105,000	28,500	20,800	1,970,000
1933	22,600	38,700	55,900	36,600	25,900	35,000	238,000	738,000	800,000	250,000	38,700	22,800	2,310,000
1934	49,000	89,700	62,100	48,000	48,500	114,000	690,000	551,000	201,000	39,500	16,200	13,800	1,920,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1916	(a)	-	-	-	-	-	-
1917	(a)	-	-	-	2,600	1,880,000	1,400
1918	(a)	-	-	-	2,700	1,640,000	1,350
1919	(a)	-	-	-	310	1,940,000	2,650
1920	(a)	-	-	-	-	2,000	1,450,000
1921	(a)	29,300	June 8, 1921	350	3,410	2,480,000	3,300
1922	(a)	-	-	-	2,460	1,790,000	2,420
1923	(a)	-	-	-	2,410	1,750,000	2,330
1924	(a)	-	-	-	1,400	1,020,000	1,430
1925	(a)	-	-	-	2,700	1,960,000	2,680
1926	(a)	-	-	-	1,760	1,280,000	1,960
1927	(a)	-	-	-	3,970	2,380,000	4,590
1928	(a)	-	-	-	360	4,690	3,910
1929	(a)	-	-	-	126	1,310	946,000
1930	(a)	-	-	-	60	1,170	846,000
1931	722	12,800	May 16, 1931	130	1,600	1,160,000	1,630
1932	737	17,400	May 11, 1932	188	2,710	1,970,000	2,790
1933	752	22,500	June 17, 1933	300	3,190	2,310,000	3,510
1934	767	20,700	Sept. 4, 1934	182	2,650	1,920,000	-

a From Canadian Water Resources Papers.

524. Kettle River near Laurier, Wash.
(International gaging station)

Location.--Lat 48°59'10", long. 118°13'00", in NW $\frac{1}{4}$ sec. 11, T. 40 N., R. 36 E., on right bank 500 ft downstream from Deep Creek, $\frac{1}{2}$ miles southeast of Laurier, and 12 miles upstream from Boulder Creek.

Drainage area.--3,800 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 1,425.5 ft above mean sea level, international joint adjustment of 1947. Prior to Jan. 3, 1930, staff gage at same site and datum.

Average discharge.--21 years (1929-50), 2,696 cfs.

Extremes.--1929-50: Maximum discharge, 35,000 cfs May 29, 1948 (gage height, 17.25 ft); minimum not determined, probably occurred during winter of 1929-30.
Maximum stage known, about 22 ft in 1894, from information by local residents.

Remarks.--North Fork partly regulated by reservoir at Grand Forks, British Columbia. Numerous diversions for domestic use and irrigation of about 720 acres in the United States (1946) and 2,090 acres in Canada (1940).

Cooperation.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	-	174	-
1930	184	202	154	76.5	97.9	212	3,500	4,250	4,450	1,340	348	194	1,250
1931	210	225	208	194	222	575	2,680	8,890	5,510	2,110	437	398	1,800
1932	340	400	358	230	338	705	6,940	14,200	9,590	1,850	540	398	2,990
1933	390	692	918	636	519	670	4,790	13,500	14,000	4,440	766	458	3,490
1934	800	1,562	1,101	890	975	2,041	12,170	9,898	3,783	759	307	231	2,875
1935	322	1,551	971	807	1,407	1,163	3,766	11,570	9,683	4,355	1,089	462	3,101
1936	381	402	311	274	215	330	6,672	10,820	6,286	1,636	455	313	2,542
1937	265	206	173	131	131	260	1,478	8,608	8,862	2,073	552	293	1,925
1938	334	567	540	609	513	1,270	7,017	13,940	7,768	1,588	431	311	2,916
1939	358	366	324	392	334	712	6,118	10,710	5,959	2,148	445	276	2,352
1940	247	323	574	433	445	1,616	7,239	11,640	5,486	781	376	228	2,451
1941	350	506	457	486	497	2,822	7,999	9,304	6,545	3,161	998	3,773	3,078
1942	3,815	2,600	2,652	1,450	1,164	983	6,767	11,900	10,640	3,836	1,490	627	4,005
1943	443	384	373	371	321	390	5,226	7,047	7,995	2,600	580	333	2,173
1944	318	338	283	264	278	340	2,728	8,509	6,794	1,381	648	602	1,874
1945	1,096	1,519	657	615	600	777	2,921	15,710	11,170	1,841	469	334	3,137
1946	310	450	440	435	426	862	7,100	17,390	9,004	2,541	564	390	3,340
1947	379	346	345	393	599	1,031	4,709	9,477	4,885	1,535	655	426	2,072
1948	1,349	1,650	956	681	497	550	3,938	18,000	14,700	2,767	2,922	1,270	4,112
1949	1,092	824	577	455	448	844	6,687	13,820	4,363	1,119	571	359	2,609
1950	344	470	578	373	426	571	2,392	10,150	13,460	2,931	735	331	2,734

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1929	-	-	-	-	-	-	-	-	-	-	-	10,400	-
1930	11,300	12,000	9,470	4,700	5,440	13,000	208,000	261,000	265,000	82,400	21,400	11,500	905,000
1931	12,900	15,400	12,800	11,900	12,300	35,400	159,000	547,000	316,000	130,000	26,900	23,700	1,300,000
1932	20,900	23,800	20,800	14,100	19,400	43,300	413,000	873,000	571,000	114,000	33,200	23,100	2,170,000
1933	24,000	41,200	56,300	39,100	28,800	41,200	285,000	800,830	600,833,000	273,000	47,100	27,300	2,530,000
1934	49,180	92,860	67,700	54,740	54,170	125,500	724,200	608,000	602,225,100	46,680	18,890	13,730	2,081,000
1935	19,790	92,300	59,700	49,640	78,150	71,500	224,100	711,900	576,200	267,700	66,960	27,490	2,245,000
1936	23,420	23,920	19,130	16,840	12,360	20,300	397,000	655,600	374,100	100,600	27,980	18,650	1,700,000
1937	16,290	12,250	10,650	8,050	7,260	15,970	87,970	529,300	527,300	127,500	33,960	17,460	1,394,000
1938	20,510	33,730	33,220	37,450	28,490	78,110	417,600	856,900	462,200	97,660	26,480	18,500	2,111,000
1939	22,000	21,770	19,920	24,120	18,570	43,760	354,000	658,400	54,600	132,100	27,350	16,420	1,703,000
1940	15,000	19,210	35,280	26,640	25,610	99,340	430,700	715,800	526,500	48,020	23,130	13,580	1,779,000
1941	21,490	30,110	28,100	29,980	27,580	173,500	476,000	572,100	589,400	194,300	61,360	224,500	2,228,000
1942	234,600	54,700	63,100	89,180	64,640	60,420	402,700	731,900	833,100	325,800	91,640	37,320	2,899,000
1943	27,250	22,680	22,930	22,800	17,830	23,990	310,900	433,200	475,700	159,800	35,660	19,840	1,573,000
1944	19,570	20,140	17,390	16,210	15,990	20,880	162,300	523,200	404,300	84,910	39,820	35,810	1,361,000
1945	67,410	78,510	40,390	37,810	33,330	47,780	173,800	985,800	664,700	13,200	28,770	19,850	2,271,000
1946	19,050	26,760	27,050	26,740	23,680	52,970	422,500	1,069,000	535,800	156,300	34,680	23,210	2,418,000
1947	23,330	20,560	21,210	24,180	33,250	63,380	280,200	582,700	290,700	94,460	40,900	25,320	1,500,000
1948	82,950	98,200	58,800	41,980	28,590	33,830	234,300	1,070,000	74,400	70,200	79,700	76,570	2,985,000
1949	67,140	49,050	35,500	27,980	24,850	51,900	397,900	849,700	59,600	68,780	35,100	21,340	1,889,000
1950	21,170	27,970	35,540	22,950	23,640	35,090	142,300	624,300	801,200	180,200	45,220	19,710	1,979,000

Yearly discharge, in cubic feet per second, of Kettle River near Laurier, Wash.

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1929	707	-	-	-	-	-	-	-
1930	737	7,820	June 1, 1930	-	1,250	905,000	1,260	912,000
1931	737	14,800	May 16, 1931	-	1,800	1,300,000	1,830	1,328,000
1932	737	19,200	May 11, 1932	-	2,990	2,170,000	13,060	2,230,000
1933	752	23,800	June 17, 1933	300	3,490	2,530,000	3,610	2,610,000
1934	767	21,100	Apr. 26, 1934	178	2,875	2,081,000	2,823	2,043,000
1935	792	19,500	May 24, 1935	250	3,101	2,245,000	2,956	2,140,000
1936	812	19,000	Apr. 26, 1936	160	2,342	1,700,000	2,304	1,673,000
1937	862	15,400	June 4, 1937	110	1,925	1,594,000	1,975	1,430,000
1938	882	21,700	May 27, 1938	270	2,916	2,111,000	2,883	2,087,000
1939	882	16,300	May 17, 1939	240	2,352	1,703,000	2,361	1,709,000
1940	902	17,200	May 26, 1940	193	2,451	1,779,000	2,464	1,789,000
1941	932	15,700	May 3, 1941	220	3,078	2,228,000	3,731	2,701,000
1942	962	27,400	May 28, 1942	471	4,005	2,899,000	5,542	2,420,000
1943	982	15,800	May 28, 1943	286	2,173	1,573,000	2,151	1,557,000
1944	1012	12,800	June 3, 1944	200	1,874	1,361,000	2,052	1,490,000
1945	1042	21,700	June 1, 1945	299	3,137	2,271,000	2,980	2,158,000
1946	1062	22,000	May 10, 1946	233	3,340	2,418,000	3,329	2,410,000
1947	1092	16,000	May 9, 1947	261	2,072	1,500,000	2,314	1,675,000
1948	1122	35,000	May 29, 1948	371	4,112	2,985,000	3,990	2,897,000
1949	1152	25,200	May 14, 1949	297	2,609	1,889,000	2,516	1,822,000
1950	1182	20,400	June 15, 1950	257	2,734	1,979,000	-	-

525. Kettle River at Boyds, Wash.

Location.--Lat 48°43'20", long. 118°07'20", in NW $\frac{1}{4}$ sec. 9, T. 37 N., R. 37 E., on right bank at Boyds, $\frac{1}{4}$ miles upstream from Sherwood Creek, and 4 miles upstream from mouth.

Drainage area.--4,070 sq mi (revised), approximately.

Gage.--Staff gage. Altitude of gage is 1,240 ft (from topographic map). Prior to Oct. 8, 1913, staff gage 1 mile downstream at different datum.

Extremes.--1913-15: Maximum discharge, 18,000 cfs May 17, 1914 (gage height, 10.00 ft); minimum, 288 cfs Aug. 30, 1914 (gage height, 0.28 ft).

Remarks.--Small diversions for irrigation and domestic use. Flow slightly regulated by power plant at Cascade, British Columbia.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	954	923	692	800	640	976	7,010	12,000	8,360	2,150	512	458	2,960
1915	987	1,420	847	800	930	878	6,410	10,700	6,590	4,300	1,780	701	3,040
1916	636	-	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	58,700	54,900	42,500	49,200	35,500	60,000	417,000	738,000	497,000	132,000	31,500	27,300	2,140,000
1915	60,700	84,500	52,100	49,200	51,600	54,000	581,000	658,000	592,000	264,000	109,000	41,700	2,200,000
1916	39,100	-	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1914	392	18,000	May 17, 1914	288	2,960	0.727	9.89	2,140,000	3,020	10.08	2,180,000
1915	412	*14,500	May 21, 1915	-	3,040	.747	10.15	2,200,000	-	-	-
1916	412	-	-	-	-	-	-	-	-	-	-

* Revised.

526. Columbia River at Kettle Falls, Wash.

Location.--Lat 48°37'20", long. 118°07'00" in northwest corner lot 1, sec. 14, T. 36 N., R. 37 E., on right bank at Kettle Falls, 3½ miles upstream from Colville River.

Drainage area.--64,500 sq mi, approximately.

Supplemental records available.--Gage-height records, except 1916-20, collected for Columbia River since 1895 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, unadjusted. Apr. 1, 1916, to June 4, 1921, staff gage 1½ miles upstream at different datum. June 5, 1921, to May 2, 1931, staff gage 1½ miles downstream at different datum.

Average discharge.--28 years (1913-41), 98,040 cfs.

Extremes.--1913-41: Maximum discharge, 468,000 cfs June 14, 15, 1913 (gage height, 34.2 ft. from flood marks, referred to U. S. Weather Bureau gage at Marcus, the datum of which is 1,205.55 ft above mean sea level, unadjusted); minimum, 13,000 cfs (estimated because of ice effect) Jan. 18-21, 1930, Jan. 31, 1937.
Maximum discharge known, 700,000 cfs during flood of 1894 (based on best available information from several sources).

Remarks.--Some diversion for irrigation above station. Flow partly regulated by Kootenay Lake (see Columbia River at Birchbank, B.C., p. 310).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	-	-	-	-	-	-	42,500	160,000	412,000	272,000	153,000	97,300	-
1914	58,200	47,000	34,700	31,500	27,200	34,900	79,200	201,000	885,000	249,000	129,000	74,400	105,000
1915	59,800	61,700	45,100	29,800	25,700	29,500	72,300	164,000	181,000	100,180,000	153,000	88,500	91,400
1916	47,900	46,000	36,000	24,600	24,600	44,800	86,400	175,000	298,000	402,000	185,000	107,000	124,000
1917	57,500	42,900	29,000	22,900	22,100	20,200	36,600	148,000	337,000	304,000	145,000	77,600	104,000
1918	57,900	37,200	35,200	27,900	41,100	35,700	72,000	190,000	297,000	253,000	133,000	88,100	109,000
1919	62,300	44,700	35,200	29,200	35,500	31,200	65,300	181,000	283,000	222,000	135,000	77,900	100,000
1920	43,600	27,400	20,200	20,400	21,700	21,600	30,300	121,000	227,000	311,000	174,000	88,300	92,500
1921	83,200	59,300	40,400	35,900	34,100	43,700	70,200	195,000	337,600	246,000	155,000	67,600	116,000
1922	48,500	50,500	30,400	30,500	24,600	22,000	37,200	132,000	303,390	202,150,000	124,000	86,100	95,900
1923	52,200	36,600	23,300	29,400	22,200	22,100	53,200	166,000	324,000	247,000	130,000	86,300	99,700
1924	44,300	29,300	24,600	19,600	28,000	29,700	32,900	173,000	220,000	163,000	112,000	78,700	79,800
1925	44,500	42,700	34,400	35,900	43,900	41,700	115,000	261,000	319,000	240,000	133,000	72,500	116,000
1926	43,400	29,600	25,800	22,500	22,200	24,600	56,700	159,000	316,000	138,000	86,900	69,000	69,000
1927	57,100	55,100	47,400	33,800	28,700	30,200	47,600	161,000	351,000	291,000	155,000	121,000	115,000
1928	99,900	91,400	71,100	47,900	41,300	44,000	74,300	259,000	541,000	252,000	136,000	72,000	128,000
1929	46,200	35,100	26,900	21,200	18,000	21,100	29,100	105,000	206,640	100,184,000	105,000	64,000	75,200
1930	36,500	25,100	20,800	15,900	18,600	21,700	60,000	155,000	202,170,000	189,000	119,000	71,700	79,500
1931	41,500	29,400	23,400	19,200	20,100	23,500	40,700	150,000	202,180,000	163,000	101,000	74,900	75,700
1932	39,300	31,100	25,300	25,100	20,100	39,600	87,200	226,000	321,000	227,000	127,000	74,100	104,000
1933	44,300	42,000	43,600	35,300	25,700	26,900	52,800	169,000	308,700	303,326,000	159,000	88,900	115,000
1934	59,890	78,230	73,540	82,680	61,400	57,590	145,500	304,700	302,000	201,69,000	112,100	70,420	70,420
1935	42,880	52,650	45,060	34,640	40,950	36,830	51,470	154,400	308,000	253,300	139,500	76,830	104,300
1936	44,280	30,600	24,640	22,350	17,060	22,840	63,420	236,200	202,87,400	163,700	102,400	62,920	89,980
1937	38,910	25,700	20,560	15,560	15,410	19,130	31,600	116,900	302,32,000	185,600	104,400	55,710	72,950
1938	39,960	54,720	39,680	36,170	29,110	34,700	77,070	196,500	300,300	702,24,500	95,600	70,780	102,700
1939	52,030	34,660	28,570	29,150	26,650	27,540	69,870	217,700	224,400	180,300	104,900	65,400	88,830
1940	46,760	47,910	42,080	31,600	30,150	39,670	81,580	174,900	32,900	149,600	92,030	72,670	86,890
1941	57,710	45,370	31,130	30,000	29,640	40,150	74,360	137,900	181,000	138,200	93,900	81,070	78,580

* Not previously published; estimated on the basis of records for Columbia River at international boundary.

Monthly and yearly runoff, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	-	-	-	-	-	-	2,530	9,840	24,500	16,700	9,410	5,790	-
1914	3,580	2,800	2,130	1,940	1,510	2,150	4,710	12,400	17,000	15,300	7,930	4,430	75,900
1915	3,680	3,670	2,770	1,850	1,430	1,810	5,300	10,100	10,800	11,100	9,410	5,270	66,200
1916	2,950	2,740	2,210	1,510	1,420	2,750	5,140	10,900	17,700	24,700	11,400	6,370	89,700
1917	3,540	2,550	1,780	1,410	1,230	1,240	2,180	8,990	20,100	18,700	9,820	4,620	75,200
1918	3,550	2,210	2,160	3,550	2,280	2,200	4,280	11,700	17,700	15,600	8,180	5,240	76,500
1919	3,830	2,660	2,040	1,800	1,960	1,920	3,770	11,100	16,800	13,600	8,300	4,640	72,400
1920	2,680	1,630	1,240	1,250	1,250	1,330	1,800	7,440	13,500	19,100	10,700	5,250	67,200
1921	5,120	3,530	2,480	2,210	1,890	2,690	4,180	12,000	22,400	15,100	8,300	4,020	83,900
1922	2,980	3,000	2,420	1,880	1,370	1,350	2,210	8,120	20,200	13,200	7,620	5,120	69,500
1923	3,210	2,180	1,430	1,810	1,250	1,360	3,170	10,200	19,500	15,200	7,980	5,140	72,200
1924	2,720	1,760	1,510	1,210	1,610	1,830	1,960	10,600	13,100	10,000	6,880	4,680	57,800
1925	2,740	2,540	2,120	2,210	2,440	2,560	6,840	16,000	19,000	14,800	8,180	4,310	83,700
1926	2,670	1,760	1,590	1,380	1,230	1,510	3,370	9,780	8,090	8,480	5,340	4,050	49,200
1927	3,510	3,340	2,910	2,080	1,590	1,860	2,830	9,900	20,900	17,900	9,580	7,200	83,600
1928	6,140	5,440	4,370	2,950	2,380	2,710	4,420	15,900	20,500	15,500	8,360	4,280	92,800
1929	2,840	2,090	1,650	1,300	1,000	1,300	1,730	6,460	15,700	10,100	6,460	3,810	54,400
1930	2,240	1,490	1,280	978	1,030	1,330	3,570	9,530	12,900	11,600	7,320	4,270	57,500
1931	2,550	1,750	1,440	1,180	1,120	1,440	2,420	9,220	13,000	10,000	6,210	4,460	54,800
1932	2,420	1,850	1,560	1,540	1,160	2,430	5,190	13,900	19,100	14,000	7,810	4,410	75,400
1933	2,720	2,500	2,680	2,170	1,430	1,650	3,140	10,400	20,000	20,000	9,780	5,290	83,800
1934	3,683	4,655	4,522	5,082	3,410	3,541	8,837	18,740	17,980	10,410	6,895	4,190	91,940
1935	2,636	3,133	2,771	2,130	2,274	2,264	3,062	9,495	18,330	15,580	8,577	4,572	74,820

Monthly and yearly runoff, in thousands of acre-feet, of Columbia River at Kettle Falls, Wash.--Con.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	2,723	1,821	1,515	1,374	981	1,404	3,774	14,520	17,100	10,070	6,299	3,744	65,320
1937	2,393	1,529	1,264	957	855	1,176	1,980	7,189	13,820	11,410	6,422	3,910	52,810
1938	2,457	3,256	2,440	2,224	1,617	2,134	4,586	12,080	19,680	13,800	5,878	4,212	74,360
1939	3,199	2,062	1,757	1,792	1,480	1,693	4,158	13,390	13,350	11,090	6,449	3,892	64,310
1940	2,875	2,851	2,588	1,943	1,734	2,439	4,855	10,750	13,860	9,200	5,659	4,324	63,080
1941	3,548	2,700	1,914	1,844	1,646	2,468	4,425	8,480	10,770	8,500	5,774	4,824	56,890

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1913	572	468,000	June 14, 15, 1913	-	-	-	-	-	-	-	-
1914	572	-	-	-	105,000	1.63	22.03	75,900,000	107,000	22.51	77,500,000
1915	572	-	-	-	91,400	1.42	19.22	66,200,000	88,300	18.57	64,000,000
1916	572	458,000	(a)	-	124,000	1.92	26.07	89,700,000	124,000	26.06	89,700,000
1917	572	1,569,000	June 25-25, 1917	-	104,000	1.61	21.84	75,200,000	104,000	21.85	75,300,000
1918	572	396,000	June 25-27, 1918	-	109,000	1.69	22.84	78,600,000	109,000	23.01	79,300,000
1919	572	309,000	June 1, 2, 1919	-	100,000	1.55	21.08	72,400,000	95,900	20.22	69,400,000
1920	572	332,000	July 15-19, 1920	-	92,500	1.43	19.54	67,200,000	100,000	21.17	72,800,000
1921	572	420,000	June 11, 1921	-	116,000	1.80	24.38	83,900,000	112,000	23.58	81,200,000
1922	572	373,000	June 17, 18, 1922	20,900	95,900	1.49	20.18	69,500,000	93,800	19.72	67,900,000
1923	572	371,000	June 18, 1923	-	99,700	1.55	21.00	72,200,000	98,600	20.76	71,400,000
1924	592	287,000	May 25, 26, 1924	-	79,800	1.24	16.84	57,900,000	81,700	17.25	59,300,000
1925	612	575,000	May 28, 30, 1925	31,700	116,000	1.80	24.35	83,700,000	114,000	23.95	82,400,000
1926	632	168,000	May 7, 8, 1926	21,000	68,000	1.05	14.33	49,200,000	73,200	15.42	53,000,000
1927	652	413,000	June 18, 19, 1927	-	115,000	1.78	24.30	83,600,000	124,000	26.10	89,800,000
1928	672	466,000	May 30, 31, 1928	33,300	128,000	1.98	26.99	92,800,000	115,000	24.27	83,400,000
1929	692	313,000	June 16, 17, 1929	-	75,200	1.17	15.83	54,400,000	73,000	15.36	52,900,000
1930	707	246,000	June 15, 1930	-	79,500	1.23	16.72	57,500,000	80,500	16.94	58,300,000
1931	722	241,000	June 13, 1931	18,400	75,700	1.17	15.93	54,800,000	75,800	15.95	54,900,000
1932	737	354,000	June 19, 1932	-	104,000	1.61	21.91	75,400,000	107,000	22.52	77,400,000
1933	752	438,000	June 22, 1933	23,400	116,000	1.80	24.36	83,800,000	123,000	25.79	88,700,000
1934	767	371,000	June 2, 1934	49,900	127,000	1.97	26.72	91,940,000	121,000	25.48	87,620,000
1935	792	337,000	June 19, 1935	27,500	103,300	1.60	21.76	74,820,000	99,920	21.03	72,340,000
1936	812	374,000	June 4, 5, 1936	14,800	89,980	1.40	19.00	65,320,000	88,780	18.75	64,450,000
1937	832	258,000	June 24, 1937	13,000	72,950	1.13	15.37	52,810,000	77,050	16.23	55,770,000
1938	862	345,000	June 8, 1938	26,900	102,700	1.59	21.63	74,360,000	101,200	21.30	73,230,000
1939	882	280,000	(b)	22,700	88,834	1.38	18.70	64,310,000	90,620	19.08	65,610,000
1940	902	278,200	June 2, 1940	26,500	86,890	1.35	18.34	63,080,000	86,690	18.29	62,930,000
1941	932	-	-	26,800	78,580	1.22	16.55	56,890,000	-	-	-

* Not previously published.

a June 30, July 5, 1916.

b May 31, June 1, 1939.

COLVILLE RIVER BASIN

527. Sheep Creek at Loon Lake, Wash.

Location.--Lat 48°03'30", long. 117°39'00" on line between secs. 32 and 33, T. 30 N., R. 41 E., on right bank 0.4 mile downstream from outlet of Loon Lake and 1 mile west of town of Loon Lake.

Drainage area.--36.1 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 2,380 ft (from topographic map).

Extremes.--April to September 1950: Maximum discharge, 6.9 cfs May 2 (gage height, 1.43 ft); no flow Aug. 4 to Sept. 30.

Remarks.--Small diversions for irrigation of lawns and gardens above station. Flow regulated by Loon Lake.

Monthly mean discharge, in cubic feet per second

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950				-	5.36	2.48	0.50	0.01	0			

Monthly runoff, in acre-feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950				-	329	148	31	0.6	0			

528. Colville River at Blue Creek, Wash.

Location.--Lat 48°19'10", long. 117°49'10", in NW¼ sec. 31, T. 33 N., R. 40 E., on left bank upstream from small dam at sawmill, just downstream from Blue Creek, a quarter of a mile upstream from Great Northern Railway bridge, and 5.4 miles northwest of Chewelah.

Drainage area.--435 sq mi.

Gage.--Staff gage and wooden control. Altitude of gage is 1,620 ft (from topographic map).

Extremes.--1922-24: Maximum discharge observed, 468 cfs Apr. 8, 1923 (gage height, 4.5 ft); minimum observed, 5.3 cfs Aug. 13, 1924 (gage height, 0.09).

Remarks.--Many small diversions for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	-	56.0	71.9	172	110	186	377	175	125	60.4	41.6	40.1	-
1924	-	-	-	-	-	-	126	40.8	22.8	15.7	22.3	28.0	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	-	3,330	4,420	10,600	6,110	11,400	22,400	10,800	7,440	3,710	2,560	2,390	-
1924	-	-	-	-	-	-	7,500	2,510	1,360	965	1,370	1,670	-

529. Mill Creek near Colville, Wash.

Location.--Lat 48°34'55", long. 117°51'00", in lot 3, NW¼ sec. 35, T. 36 N., R. 39 E., on right bank 3 miles northeast of Colville and 5 miles downstream from North Fork.

Drainage area.--82 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 1,959.0 ft above mean sea level, datum of 1929.

Average discharge.--11 years (1939-50), 46.8 cfs (revised).

Extremes.--1939-50: Maximum discharge, 538 cfs May 4, 1948 (gage height, 5.25 ft); minimum recorded, 3.6 cfs Aug. 28, 31, Sept. 1, 1940, but may have been less during period of no gage-height record in February 1940.

Remarks.--Small diversions for irrigation above station. No regulation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	#4.59	#5.59	#9.08	#5.64	9.89	76.0	186	86.6	28.8	11.0	6.20	7.22	#36.3
1941	14.5	13.9	17.0	19.0	23.2	133	119	78.8	63.6	31.0	17.7	22.9	46.2
1942	19.1	27.6	83.7	48.5	44.0	45.8	166	151	132	58.5	25.5	15.9	68.2
1943	15.7	22.3	15.8	11.3	11.5	19.8	124	66.7	35.1	16.6	8.10	6.85	29.4
1944	9.92	12.1	10.3	8.78	9.29	15.6	46.5	40.7	35.9	14.5	6.48	8.08	18.1
1945	7.43	10.2	9.17	10.5	18.3	44.2	114	214	70.9	22.4	11.2	12.2	45.5
1946	11.9	19.8	19.6	16.3	14.5	48.0	264	173	63.9	31.5	11.7	11.8	57.2
1947	18.6	21.8	20.5	13.0	27.7	55.9	142	77.8	39.1	16.0	14.4	10.6	38.0
1948	22.7	21.6	18.6	16.1	16.0	25.1	205	318	123.1	56.5	34.3	21.1	73.1
1949	20.5	22.1	17.1	13.8	18.0	53.3	273	143	41.2	20.4	13.2	9.21	53.6
1950	14.4	13.5	13.1	11.2	12.8	36.1	156	204	69.1	34.6	16.0	8.18	49.3

* Not previously published; estimated on the basis of records for Sheep Creek near Northport and Colville River at Kettle Falls.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1940	#282	#332	#558	#347	569	4,670	11,060	5,320	1,700	678	381	430	#28,330
1941	893	829	1,050	1,170	1,290	8,150	7,100	4,840	3,780	1,900	1,090	1,360	33,540
1942	1,170	1,640	5,150	2,980	2,440	2,820	9,880	9,310	7,880	3,600	1,570	946	49,390
1943	964	1,330	974	695	637	1,220	7,380	4,100	2,090	1,020	498	408	21,320
1944	610	720	632	540	534	959	2,770	2,500	2,140	890	398	481	13,170
1945	457	607	564	648	1,020	2,720	6,760	13,150	4,220	1,380	687	725	32,940
1946	732	1,180	1,210	1,000	803	2,950	15,730	10,650	3,800	1,940	720	704	41,420
1947	1,140	1,300	1,260	797	1,540	3,440	9,420	4,790	2,330	968	887	634	27,520
1948	1,400	1,290	1,150	990	920	1,550	12,210	19,560	7,190	3,470	2,110	1,260	53,100
1949	1,260	1,820	1,050	847	1,000	3,280	16,240	8,760	2,450	1,260	809	548	38,820
1950	886	802	807	688	708	2,220	9,280	12,560	4,110	2,130	982	487	35,660

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Mill Creek near Colville, Wash.

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff Inches	Acre-feet	Mean	Runoff	
		Discharge	Date							Inches	Acre-feet
1940	902,1042	353	Mar. 27, 1940	-	*36.3	*0.443	*6.03	*26,330	*38.5	*6.39	*27,930
1941	932	222	Mar. 2, 1941	7.6	46.2	.563	7.66	33,450	53.4	8.86	38,640
1942	962,1042	395	May 27, 1942	14	68.2	.832	11.30	49,390	61.7	10.21	44,690
1943	982	211	Apr. 15, 1943	6.4	29.4	.359	4.87	21,320	27.6	4.57	20,010
1944	1012	97	May 24, 1944	4.7	18.1	.221	2.99	13,170	17.7	2.92	12,840
1945	1042	361	May 5, 1945	6.7	45.5	.555	7.54	32,940	47.5	7.89	34,430
1946	1062	466	Apr. 19, 1946	6.9	57.2	.698	9.47	41,420	58.0	9.60	42,000
1947	1092	230	Apr. 20, 1947	7.3	38.0	.463	6.29	27,520	38.2	6.31	27,660
1948	1122	538	May 4, 1948	12	73.1	.891	12.12	53,100	72.8	12.08	52,890
1949	1152	430	Apr. 20, 1949	7.8	53.6	.654	8.88	38,820	52.1	8.61	37,690
1950	1182	339	May 13, 1950	7.5	49.3	.601	8.14	35,660	-	-	-

* Not previously published.

530. Colville River at Kettle Falls, Wash. 1/

Location (revised).--Lat 48°35'40", long. 118°03'30", in sec. 29, T. 36 N., R. 38 E., on right bank an eighth of a mile downstream from Stevens County Light and Power Co.'s plant at foot of Meyers Falls, half a mile south of town of Kettle Falls, and about 2 miles upstream from Franklin D. Roosevelt Lake.

Drainage area.--1,050 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 1,500 ft (from topographic map). Prior to Oct. 1, 1932, staff gage 500 ft upstream at different datum. Oct. 21, 1932, to Sept. 19, 1938, staff gage 200 ft upstream at datum 5 ft lower. Sept. 20, 1938, to Mar. 20, 1949, staff gage at present site and datum.

Average discharge.--28 years (1922-50), 263 cfs.

Extremes.--1922-50: Maximum discharge, 2,690 cfs (revised) Apr. 19, 1938 (revised) (gage height, 6.20 ft, revised, from graph based on gage readings); minimum observed, 0.5 cfs Aug. 15, 1930.

Remarks.--Several small diversions for irrigation above station. Slight regulation by power plant and small reservoir above falls an eighth of a mile upstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	106	111	107	243	151	254	718	533	345	184	90.4	76.7	243
1924	96.5	122	125	86.9	324	244	239	167	74.7	28.7	33.7	39.3	131
1925	65.6	139	91.0	87.7	502	545	979	453	219	63.7	47.9	51.1	268
1926	78.4	104	138	122	222	219	239	119	49.4	25.3	29.0	68.7	117
1927	90.7	111	173	148	217	406	739	880	571	225	77.1	237	323
1928	301	401	394	354	383	617	1,080	850	348	209	108	89.4	428
1929	115	148	138	92.6	73.6	239	249	214	132	52.2	29.3	38.2	127
1930	54.2	68.1	95.5	32.9	96.5	127	128	93.8	80.5	33.2	14.0	24.2	70.5
1931	43.2	64.6	68.1	84.6	90.3	151	205	112	49.5	27.8	12.0	22.7	77.3
1932	35.8	49.5	56.3	77.7	93.4	408	1,410	900	450	100	45.0	35.0	304
1933	64.7	145	89.5	126	99.6	376	888	956	336	113	53.1	78.2	278
1934	103	139	346	557	663	653	815	364	148	62.7	41.3	59.1	327
1935	102	166	169	184	368	470	886	818	277	147	80.8	65.7	310
1936	90.2	111	126	155	91.8	245	398	343	165	57.3	29.5	52.7	156
1937	62.2	74.5	88.5	51.9	65.8	211	472	434	207	118	59.5	64.0	159
1938	79.6	164	192	435	335	1,181	1,776	1,076	362	137	84.0	84.8	492
1939	130	142	123	180	116	319	522	225	147	59.2	25.8	38.4	170
1940	62.9	80.0	135	92.6	164	544	1,058	462	144	42.5	59.7	62.3	240
1941	108	141	155	248	340	715	636	435	372	160	103	184	299
1942	181	233	463	355	459	421	797	757	862	351	152	115	428
1943	116	203	218	159	180	276	816	491	285	130	69.7	65.3	250
1944	103	148	116	111	155	262	337	225	178	61.2	40.5	42.2	148
1945	60.3	95.4	85.5	128	216	381	580	863	387	107	57.2	67.3	252
1946	77.4	132	161	198	188	497	1,234	862	352	183	80.0	101	339
1947	120	160	188	150	261	312	518	515	193	72.5	44.5	74.5	200
1948	146	179	173	155	209	310	890	1,744	1,035	467	258	181	479
1949	194	239	206	138	251	821	1,328	842	305	132	93.5	94.8	387
1950	132	167	139	120	193	632	1,019	1,032	482	205	116	91.1	361

1/ Published as Colville River at Meyers Falls prior to 1939.

Monthly and yearly runoff, in acre-feet, of Colville River at Kettle Falls, Wash.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1923	6,520	6,600	6,580	14,900	8,390	15,600	42,700	32,800	20,500	11,300	5,560	4,560	176,000
1924	5,930	7,280	7,690	5,340	18,600	15,000	14,200	10,300	4,440	1,760	2,070	2,340	94,900
1925	4,030	8,270	5,600	5,390	27,900	33,500	58,300	27,900	13,000	3,920	2,950	5,040	194,000
1926	4,820	6,190	8,480	7,500	12,300	13,500	14,200	7,320	2,880	1,560	1,780	4,090	84,600
1927	5,580	6,600	10,600	9,100	12,100	25,000	44,000	54,100	34,000	13,800	4,740	14,100	234,000
1928	18,500	23,900	24,200	21,800	22,000	37,900	54,300	52,300	20,700	12,900	6,840	5,320	310,000
1929	7,070	8,810	8,480	5,690	4,090	14,700	14,800	13,200	7,860	3,210	1,800	2,270	92,000
1930	3,330	4,050	5,870	2,020	5,360	7,810	7,620	5,770	4,790	2,040	861	1,440	51,000
1931	2,680	3,840	4,190	5,200	5,020	9,280	12,200	6,890	2,950	1,710	738	1,350	56,000
1932	2,200	2,950	3,460	4,780	5,370	25,100	33,900	55,300	26,800	6,150	2,770	2,080	221,000
1933	3,980	8,630	5,500	7,750	5,530	23,100	32,800	58,800	20,000	6,950	3,260	4,850	201,000
1934	6,310	8,290	21,300	34,260	36,840	40,160	48,500	22,390	8,800	3,850	2,540	3,510	236,800
1935	6,270	9,880	10,370	11,300	20,450	28,910	52,720	50,270	16,510	9,030	4,970	3,910	224,600
1936	5,540	6,620	7,740	9,560	5,280	15,090	33,690	21,110	9,830	3,520	1,820	3,140	112,900
1937	3,820	4,430	5,440	3,190	3,650	12,980	28,100	26,670	12,340	7,240	3,660	3,810	115,300
1938	4,900	9,730	11,780	26,760	18,620	72,600	105,700	66,180	21,520	8,410	5,170	5,040	356,400
1939	7,990	8,430	7,550	11,680	6,460	19,640	31,050	13,840	8,740	3,640	1,580	2,280	122,900
1940	3,870	4,760	8,320	5,690	9,410	33,480	62,930	28,420	8,540	2,620	2,440	3,710	174,200
1941	6,620	8,370	9,530	15,220	18,880	43,970	37,870	26,720	22,130	9,850	6,320	10,940	216,400
1942	11,140	13,880	28,490	21,810	25,470	25,880	47,430	46,540	51,310	21,600	9,330	6,830	309,700
1943	7,120	12,100	13,410	9,790	10,020	16,950	48,540	30,200	16,960	7,980	4,290	3,880	181,200
1944	6,360	8,780	7,120	6,830	8,910	16,110	20,040	13,860	10,590	3,760	2,490	2,510	107,400
1945	3,710	5,680	5,260	7,880	11,980	23,400	34,490	53,070	23,040	6,580	3,510	4,010	182,600
1946	4,760	7,850	9,910	12,150	10,440	30,540	73,460	53,000	20,950	11,250	4,920	5,990	245,200
1947	7,350	9,510	11,580	9,210	14,520	19,170	30,800	19,360	11,490	4,460	2,730	4,430	144,600
1948	8,990	10,640	10,650	9,540	12,040	19,090	32,350	107,200	61,600	29,730	15,860	10,790	347,500
1949	11,950	14,200	12,690	8,460	13,940	50,500	78,880	51,750	18,160	8,110	5,750	5,640	280,000
1950	8,120	9,950	8,550	7,400	10,740	38,860	60,650	63,470	28,670	12,600	7,100	5,420	261,500

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1923	572	916	Apr. 20, 1923	-	243	176,000	245	177,000
1924	592	422	Feb. 8, 1924	17	131	94,900	127	92,000
1925	612	1,270	Apr. 19, 1925	31	268	194,000	270	195,000
1926	632	285	(a)	13	117	84,600	121	87,900
1927	652	1,280	May 1, 1927	-	323	234,000	383	278,000
1928	672	1,260	(b)	46	428	310,000	369	268,000
1929	692	356	Mar. 14, 1929	23	127	92,000	112	80,900
1930	707	220	Feb. 25, 1930	.5	70.5	51,000	66.9	48,400
1931	722	237	(c)	10	77.3	56,000	74.5	53,900
1932	752	1,760	Apr. 27, 1932	21	304	221,000	317	230,000
1933	752	1,540	Apr. 30, 1933	-	278	201,000	302	219,000
1934	767	1,040	Apr. 3, 1934	34	327	236,800	314	227,400
1935	792	1,380	Apr. 28, 1935	51	310	224,600	301	218,000
1936	812	753	Apr. 27, 1936	21	156	112,900	147	106,700
1937	832	703	Apr. 22, 1937	39	159	115,300	177	128,000
1938	862	*2,690	Apr. 19, 1938*	51	492	356,400	489	354,000
1939	882	620	Mar. 28, 1939	19	170	122,900	160	115,800
1940	902	1,450	Apr. 4, 1940	33	240	174,200	250	181,800
1941	932	*932	Mar. 13, 1941	30	299	216,400	339	245,400
1942	962	1,270	May 29, 1942	104	428	309,700	399	288,800
1943	982	973	Apr. 16, 1943	47	250	181,200	236	170,900
1944	1012	470	Mar. 10, 1944	30	148	107,400	137	99,750
1945	1042	1,060	May 6, 1945	42	252	182,600	263	190,500
1946	1062	1,710	Apr. 22, 1946	48	339	245,200	347	251,100
1947	1092	668	Apr. 21, 1947	33	200	144,600	202	146,400
1948	1122	*2,240	May 14, 1948	63	479	347,500	491	356,000
1949	1152	1,720	Apr. 21, 1949	70	387	280,000	370	267,800
1950	1182	1,370	Apr. 22, 1950	74	361	261,500	-	-

* Revised.

a Feb. 12, Apr. 19, 1926.

b Apr. 3, May 1, 1928.

c Mar. 23, Apr. 9, 1931.

531. Hall Creek at Inchelium, Wash. 1/

Location.--Lat 48°18'20", long. 118°11'10", in NE¼ sec. 6, T. 32 N., R. 37 E., on right bank three-quarters of a mile upstream from highway bridge, about 1 mile upstream from mouth, and 1 mile northwest of Inchelium.

Drainage area.--About 170 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 1,250 ft (from river-profile map). Prior to May 16, 1913, and Aug. 1, 1915, to Jan. 27, 1916, staff gage half a mile downstream at different datum. May 16, 1913, to July 31, 1915, staff gage 2 miles upstream at different datum.

Average discharge.--9 years (1913-22), 81.4 cfs.

Extremes.--1913-29: Maximum discharge, 1,010 cfs (revised) Apr. 16, 1914 (gage height, 3.24 ft, from graph based on gage readings); minimum discharge, not determined.

Remarks.--Slight fluctuation at low flow by powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	-	-	-	32.1	31.2	33.8	231	256	143	83.5	37.9	30.9	-
1914	32.1	45.1	39.3	89.4	45.5	136	507	350	113	44.4	22.3	26.1	121
1915	36.0	38.6	27.6	29.3	28.8	81.1	292	282	162	57.7	29.6	20.5	90.5
1916	20.1	20.2	19.2	16.1	21.4	76.8	359	406	245	112	47.5	29.9	114
1917	25.4	26.9	22.8	19.7	21.1	22.1	101	400	199	56.2	22.8	19.1	78.3
1918	17.1	20.6	20.3	19.6	14.6	38.1	114	83.0	34.3	15.7	13.3	9.60	33.4
1919	13.7	20.5	12.4	33.7	49.4	73.5	450	382	123	38.7	22.0	18.5	103
1920	18.5	18.9	17.0	18.0	15.0	15.7	34.5	66.9	41.4	15.5	9.51	13.0	23.7
1921	18.4	29.7	29.2	29.6	41.4	109	334	419	141	41.7	17.7	18.0	103
1922	22.9	25	27	24	22	30	130	318	121	31.6	19.7	16.6	65.8
1923	-	-	-	-	-	-	205	176	146	69.2	30.3	19.5	-
1924	19.7	20.2	-	-	-	-	110	101	36.6	12.7	9.83	9.30	-
1925	-	-	-	-	-	-	427	224	76.3	23.1	13.5	12.1	-
1926	-	-	-	-	-	-	99.5	59.5	21.2	9.05	7.41	12.1	-
1927	-	-	-	-	-	-	281	342	158	57.5	23.4	39.3	-
1928	-	-	-	-	-	-	232	284	81.9	44.3	19.1	15.0	-
1929	-	-	-	-	-	-	55.1	64.9	34.6	11.5	6.59	6.07	-

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1913	-	-	-	1,970	1,730	2,080	13,700	15,700	8,510	5,130	2,330	1,840	-
1914	1,970	2,680	2,420	5,500	2,530	8,360	30,200	21,500	6,720	2,730	1,370	1,550	87,500
1915	2,210	2,300	1,700	1,800	1,600	4,990	17,400	17,300	9,640	3,550	1,820	1,220	65,500
1916	1,240	1,200	1,180	990	1,230	4,720	21,400	25,000	14,600	6,890	2,920	1,780	63,200
1917	1,560	1,600	1,400	1,210	1,170	1,360	6,010	24,600	11,800	3,460	1,400	1,140	56,700
1918	1,050	1,230	1,250	1,210	811	2,340	6,780	5,100	2,040	965	818	571	24,200
1919	842	1,220	762	2,070	2,740	4,520	26,800	23,500	7,320	2,380	1,350	1,100	74,600
1920	1,140	1,120	1,050	1,110	863	965	2,050	4,110	2,460	953	585	774	17,200
1921	1,130	1,770	1,800	1,820	2,300	6,700	19,900	25,800	8,390	2,560	1,090	1,070	74,300
1922	1,410	1,490	1,660	1,480	1,220	1,840	7,740	19,400	7,200	1,940	1,210	988	47,600
1923	-	-	-	-	-	-	12,200	10,800	6,690	4,250	1,860	1,160	-
1924	1,210	1,200	-	-	-	-	6,550	6,210	2,180	781	604	553	-
1925	-	-	-	-	-	-	25,400	13,800	4,540	1,420	830	720	-
1926	-	-	-	-	-	-	5,920	3,680	1,260	556	456	720	-
1927	-	-	-	-	-	-	16,700	21,000	9,400	3,540	1,440	2,340	-
1928	-	-	-	-	-	-	13,800	16,200	4,870	2,720	1,170	893	-
1929	-	-	-	-	-	-	3,280	3,990	2,060	707	405	361	-

Yearly discharge, in cubic feet per second							
Year	W.S.P. no.	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean
		Discharge	Date				
1913	362	#485	Apr. 22, 1913	#25	-	-	83.0
1914	392, 412	*1,010	Apr. 16, 1914	18	121	87,500	120
1915	412	519	May 25, 1915	#19	90.5	65,500	86.9
1916	442	649	May 5, 1916	-	114	83,200	116
1917	462	634	May 14, 1917†	#17	78.3	56,700	76.9
1918	482	168	Apr. 10, 1918	#8	33.4	24,200	32.4
1919	512	730	Apr. 29, 1919	-	103	74,600	104
1920	512	92	May 11, 1920	7.6	23.7	17,200	25.6
1921	532	577	May 11, 1921	13	103	74,300	102
1922	552	531	May 18, 1922	-	65.8	47,600	-
1923	572	306	Apr. 19, 1923	-	-	-	-
1924	592	158	Apr. 14, 1924	-	-	-	-
1925	612	700	Apr. 12, 1925	-	-	-	-
1926	632	155	(a)	-	-	-	-
1927	652	-	-	-	-	-	-
1928	672	425	Apr. 28, 1928	-	-	-	-
1929	692	171	May 6, 1929	-	-	-	-

† Apr. 17, 18, 19, 1926.

* Revised.

† Corrected.

* Not previously published.

1/ Published as Hall Creek near Inchelium prior to 1921.

532. Stranger Creek at Meteor, Wash.

Location.--Lat 48°15'40" (revised), long. 118°17'00", in NW¼ sec. 21, T. 32 N., R. 36 E., on right bank at townsite of Meteor, just downstream from road bridge, about 6 miles downstream from Twin Lakes, and about 6 miles southwest of Inchellium.

Drainage area.--About 56 sq mi (revised).

Gage.--Staff gage and concrete control. Altitude of gage is 1,850 ft (from Indian Service Irrigation project map).

Average discharge.--6 years (1916-22), 16.7 cfs.

Extremes.--1916-29: Maximum discharge, 180 cfs Apr. 19, 20, 1925 (gage height, 1.84 ft); no flow at times during 1919, 1924, 1926, 1929.

Remarks.--Large part of flow is diverted for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1916	-	-	-	-	-	-	-	-	-	-	-	7.27	-
1917	4.67	5.47	6.30	5.86	5.55	7.41	29.7	122	56.1	15.4	5.79	3.27	22.4
1918	2.48	2.90	4.71	5.81	5.31	7.53	19.6	19.1	9.22	3.92	1.87	.78	6.94
1919	1.03	2.74	3.38	4.03	11.1	18.6	147	92.5	25.4	9.42	3.91	2.36	26.7
1920	1.68	1.96	2.0	2.0	2.0	5.65	10.1	9.75	7.10	2.96	.70	1.17	3.92
1921	1.44	2.83	6.20	6.00	10.0	25.7	102	91.2	31.7	12.4	4.13	1.78	24.6
1922	1.85	2.91	4.0	4.0	3.0	5.0	24.9	94.5	29.8	7.84	3.25	1.95	15.4
1923	-	-	-	-	-	-	37.5	39.6	20.8	12.4	5.58	2.98	-
1924	-	-	-	-	-	-	11.7	11.0	5.84	1.73	.23	0	-
1925	-	-	-	-	-	-	108	50.2	15.0	5.33	.61	.50	-
1926	-	-	-	-	-	-	8.74	8.94	2.68	1.03	.07	.26	-
1927	-	-	-	-	-	-	52.1	93.4	24.7	8.96	3.42	2.79	-
1928	-	-	-	-	-	-	38.2	41.9	13.2	6.76	1.96	.57	-
1929	-	-	-	-	-	-	3.62	3.69	2.96	1.28	.45	.12	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1916	-	-	-	-	-	-	-	-	-	-	-	433	-
1917	287	325	387	360	308	456	1,770	7,500	3,340	947	356	195	16,200
1918	152	173	290	357	295	463	1,170	1,170	549	241	115	46.4	5,020
1919	63.3	163	208	248	616	1,140	8,750	5,690	1,510	579	240	140	19,300
1920	103	117	123	123	115	347	601	600	422	182	43.0	69.6	2,850
1921	89.5	169	381	389	555	1,580	6,070	5,610	1,890	762	254	106	17,800
1922	114	173	246	246	186	307	1,480	5,810	1,770	482	200	116	11,100
1923	-	-	-	-	-	-	2,230	2,430	1,240	762	343	177	-
1924	-	-	-	-	-	-	696	676	348	106	14.1	0	-
1925	-	-	-	-	-	-	6,430	3,090	893	328	37.5	29.8	-
1926	-	-	-	-	-	-	520	550	159	63.3	4.3	15.5	-
1927	-	-	-	-	-	-	3,100	5,740	1,470	551	210	166	-
1928	-	-	-	-	-	-	2,270	2,580	786	416	121	33.9	-
1929	-	-	-	-	-	-	215	227	176	78.7	27.7	7.1	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30				Calendar year		
		Momentary maximum		Minimum day	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date					
1916	462	-	-	-	-	-	-	-
1917	462	a164	May 15-18, 1917	3.0	22.4	16,200	21.9	15,800
1918	482	a25	(b)	.6	6.94	5,020	6.69	4,840
1919	512	a164	(c)	-	26.7	19,300	26.6	19,300
1920	512	*16.3	Apr. 13, 1920	-	3.92	2,850	4.33	3,140
1921	532	140	Apr. 19, 1921	.9	24.6	17,800	24.5	17,700
1922	552	*128	May 19, 1922	-	15.4	11,100	-	-
1923	572	*56	Apr. 26, 1923	-	-	-	-	-
1924	592	14.1	Apr. 27, 1924	-	-	-	-	-
1925	612	180	Apr. 20, 1925	-	-	-	-	-
1926	632	-	-	-	-	-	-	-
1927	652	*151	Apr. 30, 1927	-	-	-	-	-
1928	672	61.0	May 1, 1928	-	-	-	-	-
1929	692	*7.5	Apr. 14, 1929	-	-	-	-	-

* Revised.

a Maximum observed.

b Apr. 28 to May 2, 1918.

c Apr. 7-12, Apr. 20 to May 3, 1919.

533. Stranger Creek at Inchelium, Wash.

Location.--Lat 48°17'50", long. 118°11'20", in sec. 5, T. 32 N., R. 37 E., on right bank half a mile upstream from mouth and half a mile south of Inchelium.

Drainage area.--About 74 sq mi.

Gage.--Staff gage and timber control. Altitude of gage is about 1,200 ft (from topographic map). Prior to Nov. 22, 1915, at datum 0.78 ft lower.

Extremes.--1914-17: Maximum discharge, 210 cfs (revised) Apr. 18, 1914 (gage height, 3.81 ft, revised); minimum not determined, probably occurred during period of ice effect in winter of 1914-15.

Remarks.--Several small diversions above station for irrigation above and below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	-	-	-	145	81.2	33.2	14.9	6.98	5.96	-
1915	8.43	9.18	5.11	5.85	6.29	16.5	58.1	34.1	28.2	14.7	8.41	4.92	16.6
1916	5.34	5.71	8.16	9.12	10.8	29.5	129	125	51.1	29.3	14.6	9.45	35.6
1917	6.65	7.07	8.71	8.28	11.3	13.7	39.9	106	54.9	16.9	7.49	5.27	23.9

* Not previously published; estimated on the basis of records for Hall Creek near Inchelium.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1914	-	-	-	-	-	-	8,630	4,990	1,980	916	429	355	-
1915	518	546	314	360	349	1,010	3,460	2,100	1,680	904	517	293	12,100
1916	328	340	502	561	621	1,810	7,680	7,680	3,040	1,800	898	562	25,800
1917	409	421	536	509	628	842	2,370	6,520	3,270	1,040	461	313	17,300

* Not previously published; estimated on the basis of records for Hall Creek near Inchelium.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year		
		Momentary		Maximum	Minimum	Mean	Runoff in acre-feet	Mean	Runoff in acre-feet
		Discharge	Date						
1914	392	*210	Apr. 18, 1914	-	-	-	-	-	-
1915	412	*86	Apr. 12, 1915	-	16.6	-	12,100	16.4	11,800
1916	442	*195	May 8, 1916	-	35.6	-	25,800	35.8	26,000
1917	462	*142	May 18, 1917	-	23.9	-	17,300	-	-

* Revised.

* Not previously published.

SPOKANE RIVER BASIN

534. Coeur d'Alene River at Prichard, Idaho 1/

Location.--Lat 47°40', long. 115°58', in sec. 20, T. 50 N., R. 4 E., on right bank at Prichard ranger station, 0.25 mile upstream from Prichard Creek, and 0.5 mile north of Prichard.

Drainage area.--441 sq mi.

Gage.--Staff gage. Altitude of gage is 2,403 ft (from river-profile map).

Extremes.--1911-14: Maximum discharge observed, 7,610 cfs May 10, 11, 1913 (gage height, 6.1 ft), from rating curve extended above 2,300 cfs; minimum observed, 124 cfs Oct. 23 to Nov. 1, 1911; minimum gage height observed, 0.80 ft Sept. 5-10, 1914.

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	502	210	466	728	612	3,330	2,850	1,000	310	178	251	-
1913	262	1,300	388	-	-	802	4,110	4,690	1,580	530	238	170	-
1914	189	409	333	725	403	1,600	3,430	1,630	462	227	153	171	830

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	29,900	12,900	28,700	41,900	37,600	198,000	175,000	59,500	19,100	10,900	14,900	-
1913	16,100	77,400	23,900	-	-	49,300	245,000	288,000	94,000	32,600	14,600	10,100	-
1914	11,600	24,300	20,500	44,600	22,400	98,400	204,000	113,000	28,700	14,000	9,410	10,200	601,000

1/ Published as North Fork Coeur d'Alene River at Prichard, Idaho.

Yearly discharge, in cubic feet per second, of Coeur d'Alene River at Prichard, Idaho											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1912	332	5,280	Apr. 11, 12, 1912	-	-	-	-	-	970	29.95	703,000
1913	362	7,610	May 10, 11, 1913	158	-	-	-	-	-	-	-
1914	392	6,530	Apr. 16, 1914	126	830	1.88	26.53	601,000	-	-	-

535. Coeur d'Alene River near Prichard, Idaho

Location.--Lat 47°38'30", long. 115°59'00", in lot 7, sec. 32, T. 50 N., R. 4 E., on right bank, 0.2 mile downstream from Beaver Creek and $\frac{1}{4}$ miles southwest of Prichard.

Drainage area.--583 sq mi.

Gage.--Staff gage. Altitude of gage is 2,360 ft (from river-profile map).

Average discharge.--6 years (1944-50), 1,456 cfs.

Extremes.--1944-50: Maximum daily discharge, 16,000 cfs Dec. 15, 1946, computed on basis of records for stations at Enaville and near Cataldo; minimum observed, 90 cfs Sept. 13, 1944 (gage height, 1.00 ft).

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1944	-	-	-	-	-	-	-	-	-	-	-	124
1945	123	155	159	1,017	1,158	1,021	2,294	4,633	1,032	315	165	216
1946	229	606	1,011	1,013	451	1,796	5,348	4,892	1,233	397	201	179
1947	245	1,405	3,218	1,224	1,888	2,235	3,695	2,626	974	377	212	214
1948	756	755	690	995	666	771	4,209	6,862	2,319	659	383	233
1949	209	315	276	197	676	1,396	5,444	5,696	1,017	335	207	186
1950	237	822	738	921	1,147	2,378	4,055	6,399	3,462	854	319	212

Monthly and yearly runoff, in acre-feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1944	-	-	-	-	-	-	-	-	-	-	-	7,410
1945	7,570	9,200	9,750	62,540	64,290	62,760	136,500	284,900	61,430	19,380	10,120	12,840
1946	14,050	36,070	62,140	62,280	25,070	110,400	318,100	500,800	73,370	24,430	12,370	10,650
1947	15,080	83,590	197,900	75,230	104,800	137,400	19,900	161,500	57,960	23,180	13,060	12,750
1948	46,500	44,950	42,440	61,210	38,340	47,390	250,400	421,900	138,000	40,500	23,560	13,840
1949	12,850	18,720	16,970	12,100	37,550	85,820	324,000	550,300	60,500	20,640	12,710	11,060
1950	14,560	46,890	45,400	56,610	63,710	146,200	241,300	393,500	206,000	52,500	19,640	12,630

Yearly discharge, in cubic feet per second											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1944	1042	-	-	-	-	-	-	-	-	-	-
1945	1042	9,820	May 4, 1945	104	1,024	1.76	23.84	741,300	1,142	26.60	827,000
1946	1082	11,700	Apr. 26, 1946	136	1,450	2.49	33.76	1,050,000	1,705	36.69	1,234,000
1947	1092	16,000	Dec. 15, 1946	120	1,523	2.61	35.45	1,102,000	1,298	30.22	939,700
1948	1122	11,300	May 21, 1948	178	1,610	2.76	37.60	1,169,000	1,493	34.85	1,084,000
1949	1152	11,000	May 11, 1949	148	1,330	2.28	30.98	963,200	1,414	32.92	1,024,000
1950	1182	14,300	May 14, 1950	159	1,797	3.08	41.83	1,301,000	-	-	-

536. North Fork Coeur d'Alene River near Enaville, Idaho $\frac{1}{4}$

Location.--Lat 47°37', long. 116°15', in sec. 6, T. 49 N., R. 2 E., on left bank 1.0 mile upstream from mouth, about 5 miles north of Enaville.

Drainage area.--170 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 2,192 ft (river-profile map).

Extremes.--1911-12: Maximum observed discharge, 2,250 cfs Apr. 11, 1912 (gage height, 12.3 ft); minimum observed, 30 cfs Oct. 23-29, 31, Nov. 1-5, 11-13, 1911 (gage height, 7.6 ft).

Remarks.--No diversion above station.

$\frac{1}{4}$ Formerly published as Little North Fork of Coeur d'Alene River near Enaville, Idaho.

Monthly and yearly mean discharge, in cubic feet per second, of North Fork Coeur d'Alene River near Enaville, Idaho

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	168	69.9	178	439	190	1,330	944	242	94.1	52.0	67.9	-
1913	69.4	449	125	-	-	-	-	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	-	10,000	4,300	10,900	25,300	11,700	79,100	58,000	14,400	5,790	3,200	4,040	-
1913	4,270	26,700	7,690	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff
		Discharge	Date				Inches	Acre-feet		Inches
1912	332	-	-	-	-	-	-	-	346	27.73
1913	362	-	-	-	-	-	-	-	-	-
										251,000

537. Coeur d'Alene River at Enaville, Idaho 1/

Location.--Lat 47°34'15", long. 116°15'00", in NW¹ sec. 30, T. 49 N., R. 2 E., on right bank 800 ft upstream from highway bridge, a quarter of a mile northwest of Enaville Post Office, 1.1 miles upstream from South Fork, and 3.5 miles downstream from North Fork.

Drainage area.--895 sq mi.

Gage.--Water-stage recorder since Dec. 23, 1939. Datum of gage is 2,100 ft above mean sea level, referenced to bench mark near mouth of North Fork, elevation 2,204.880 ft (U. S. Geol. Survey Bull. 567, p. 82). Mar. 3, 1911, to Apr. 12, 1913, staff gage a quarter of a mile downstream at different datum. Oct. 18 to Dec. 22, 1939, staff gage at present site and datum.

Average discharge.--11 years (1939-50), 1,817 cfs.

Extremes.--1911-13; 1939-50: Maximum discharge, 28,100 cfs Dec. 15, 1946 (gage height, 74.79 ft), from rating curve extended above 13,000 cfs by logarithmic plotting; minimum daily, 145 cfs Dec. 29, 1944; minimum gage height, 60.11 ft Nov. 19, 1944.

Remarks.--No appreciable diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	2,790	4,940	4,920	2,220	705	436	389	-
1912	252	-	-	-	1,840	1,200	5,780	4,850	1,640	728	416	524	-
1913	489	2,210	921	-	-	-	-	-	-	-	-	-	-
1940	221	228	876	501	1,458	4,720	4,678	2,312	636	295	191	205	1,359
1941	234	327	770	735	803	2,167	1,924	1,909	1,118	414	265	353	919
1942	409	900	3,413	881	775	1,354	4,854	2,358	1,674	859	355	251	1,508
1943	252	1,407	955	835	689	1,941	9,884	4,823	2,376	918	397	263	2,057
1944	310	283	771	324	446	633	3,166	1,900	736	313	210	254	777
1945	188	290	319	1,697	1,900	1,813	3,533	6,321	1,369	479	263	334	1,541
1946	354	1,112	1,930	1,729	818	3,115	8,120	6,860	1,844	572	270	251	2,253
1947	416	1,956	5,054	2,062	3,198	3,539	4,992	3,418	1,321	537	325	309	2,254
1948	1,108	1,288	1,297	1,836	1,308	1,567	6,569	9,850	3,052	1,004	608	365	2,474
1949	332	549	477	321	1,168	2,576	8,640	8,324	1,363	500	304	288	2,071
1950	367	1,193	1,112	1,634	2,021	4,536	6,618	9,317	4,555	1,173	464	331	2,779

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	160,000	294,000	503,000	132,000	43,300	26,800	23,100	-
1912	14,500	-	-	-	106,000	73,800	344,000	298,000	97,600	44,800	25,600	31,200	-
1913	30,100	132,000	56,600	-	-	-	-	-	-	-	-	-	-
1940	13,610	13,590	53,860	30,830	85,840	290,200	278,300	142,200	37,830	18,140	11,760	12,200	986,400
1941	14,380	19,460	47,320	45,170	44,590	133,300	114,500	117,400	66,520	25,460	16,270	20,980	865,400
1942	25,130	53,520	209,800	54,140	43,030	83,270	288,900	145,000	99,630	52,840	21,860	14,920	1,092,000
1943	15,510	83,740	58,720	51,360	38,270	119,400	588,100	298,500	141,400	56,430	24,420	15,630	1,489,000
1944	19,060	16,840	47,430	19,920	25,660	38,890	188,400	116,800	43,800	19,250	12,940	15,120	564,100
1945	11,560	17,230	19,630	104,300	105,500	111,500	210,200	388,600	81,450	29,460	16,150	19,900	1,115,000
1946	21,760	66,170	118,700	106,300	45,440	191,600	483,100	1,004,210	109,700	35,200	16,580	14,920	1,631,000
1947	25,570	116,400	80,128	80,128	177,800	217,600	297,000	210,100	78,600	33,030	20,010	18,410	1,632,000
1948	68,100	76,640	79,760	112,900	75,280	96,360	390,900	900,693	400,181	61,720	37,400	21,740	1,795,000
1949	20,430	32,660	29,350	19,710	64,870	158,400	514,100	811,900	81,100	30,720	18,710	17,150	1,489,000
1950	22,550	71,000	68,370	100,500	112,200	278,900	393,800	572,900	271,000	72,100	28,550	19,720	2,011,600

1/ Published as North Fork Coeur d'Alene River at Enaville, 1911-13.

Yearly discharge, in cubic feet per second, of Coeur d'Alene River at Enaville, Idaho

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	-	-	-	-	-	-	-	-	-	-
1912	332	-	-	-	-	-	-	-	-	-	-
1940	902	10,000	Mar. 28, 1940	162	1,359	1.52	20.67	986,400	1,359	20.68	986,500
1941	932	5,800	May 18, 1941	185	919	1.03	13.94	665,400	1,205	18.29	872,600
1942	962	12,200	Dec. 20, 1942	220	1,508	1.68	22.98	1,092,000	1,328	20.13	961,600
1943	992	17,700	Apr. 15, 1943	216	2,057	2.30	31.19	1,469,000	1,954	29.63	1,415,000
1944	1012	5,700	Apr. 13, 1944	170	777	.868	11.82	564,100	1,729	11.09	529,200
1945	1042	14,100	May 5, 1945	145	1,541	1.72	23.38	1,115,000	1,759	26.71	1,274,000
1946	1062	16,700	Apr. 26, 1946	213	2,253	2.52	34.19	1,631,000	2,593	39.34	1,877,000
1947	1092	28,100	Dec. 15, 1946	210	2,254	2.52	34.20	1,632,000	1,939	29.42	1,404,000
1948	1122	16,900	Apr. 22, 1948	258	2,474	2.76	37.64	1,796,000	2,278	34.65	1,654,000
1949	1152	16,400	May 11, 1949	223	2,071	2.31	31.59	1,499,000	2,180	33.06	1,578,480
1950	1182	23,100	May 14, 1950	251	2,779	3.11	42.14	2,011,600	-	-	-

538. Coeur d'Alene River near Cataldo, Idaho

Location.--Lat 47°34', long. 116°18', in sec. 26, T. 49 N., R. 1 E., on left bank $1\frac{1}{2}$ miles upstream from Cataldo and 3 miles downstream from South Fork.

Drainage area.--1,220 sq mi, approximately.

Gage.--Water-stage recorder since Oct. 11, 1925. Datum of gage is 2,100.00 ft above mean sea level, referenced to bench mark "2143 S" (U. S. Geol. Survey Bull. 567, p. 82). Prior to Dec. 31, 1912, staff gage on right bank at datum about 34 ft higher. July 29, 1920, to Oct. 31, 1925, staff gage on right bank at about present datum.

Average discharge.--31 years (1911-12, 1920-50), 2,421 cfs.

Extremes.--1911-12, 1920-50: Maximum discharge, 55,300 cfs Dec. 23, 1933 (gage height, 56.9 ft, from floodmark); from rating curve extended above 24,000 cfs by logarithmic plotting; minimum, 122 cfs Dec. 4, 1929; minimum gage height, 37.03 ft Sept. 6, 1931.

Remarks.--No appreciable diversion or regulation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	7,190	2,820	901	555	430	-
1912	345	1,120	636	1,160	2,430	1,600	8,500	7,990	2,520	837	483	594	2,340
1913	547	2,600	907	-	-	-	-	-	-	-	-	-	-
1920	-	-	-	-	-	-	-	-	-	-	444	625	-
1921	1,070	1,540	1,960	5,010	4,440	6,560	8,200	8,760	2,300	812	470	390	3,450
1922	410	488	3,060	635	496	830	4,920	9,230	2,790	728	434	362	2,040
1923	351	386	686	3,050	616	2,000	9,120	7,720	4,090	1,130	587	398	2,520
1924	460	552	845	551	4,770	2,370	4,990	5,570	1,080	530	358	305	1,850
1925	359	1,020	1,810	1,430	6,770	4,840	11,300	6,740	2,150	835	514	378	3,140
1926	334	363	906	631	1,900	3,290	5,050	2,180	768	404	314	568	1,390
1927	1,050	1,890	3,350	1,700	2,620	2,690	7,970	9,570	5,100	1,210	542	639	3,210
1928	1,980	6,530	3,720	2,860	1,770	4,910	5,800	8,350	1,710	735	422	339	3,270
1929	449	563	370	305	276	1,760	4,550	5,560	1,570	617	358	334	1,400
1930	317	238	511	241	1,530	2,240	4,790	2,570	1,520	601	329	278	1,260
1931	334	428	276	495	1,040	3,420	6,560	4,190	919	416	276	318	1,560
1932	322	394	353	762	1,980	4,850	12,100	10,900	3,400	906	462	380	3,060
1933	427	2,460	2,350	1,720	760	2,270	8,820	9,100	6,770	1,280	571	485	3,090
1934	871	2,131	13,230	8,323	4,265	6,490	6,336	2,444	971	516	320	298	3,862
1935	636	1,907	1,857	2,214	2,297	3,004	7,915	9,218	2,721	808	462	330	2,780
1936	324	338	317	550	383	2,026	10,730	6,296	1,742	656	347	321	1,997
1937	285	253	521	269	277	1,393	6,437	8,090	2,327	818	484	362	1,799
1938	281	1,531	2,541	2,721	1,278	3,759	10,200	5,846	1,892	735	407	323	2,628
1939	373	422	666	813	583	2,798	7,883	4,952	1,419	651	331	295	1,767
1940	317	323	1,093	739	1,994	5,624	6,000	3,426	954	427	273	288	1,786
1941	347	535	1,178	1,077	1,097	2,602	2,489	2,683	1,571	588	366	533	1,257
1942	677	1,276	4,232	1,250	1,268	2,005	6,204	3,400	2,452	1,263	509	365	2,076
1943	328	1,714	1,374	1,174	1,009	2,678	12,570	6,524	3,577	1,355	583	398	2,768
1944	384	439	946	434	603	837	3,905	2,863	1,034	453	299	340	1,043
1945	276	387	389	2,227	2,520	2,291	4,338	8,327	2,020	665	376	479	2,023
1946	476	1,476	2,590	2,574	1,072	4,032	9,750	8,880	2,570	854	398	358	2,928
1947	603	2,929	6,492	2,532	3,947	4,384	6,623	5,198	1,972	738	424	423	3,015
1948	1,442	1,682	1,670	2,573	1,677	1,978	8,397	12,750	4,412	1,512	898	502	3,295
1949	431	762	675	453	1,578	3,577	10,490	10,500	2,086	731	449	404	2,686
1950	489	1,616	1,687	2,312	3,198	5,968	8,396	11,600	6,687	1,906	733	485	3,757

SPOKANE RIVER BASIN

Monthly and yearly runoff, in acre-feet, of Coeur d'Alene River near Cataldo, Idaho													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	442,000	68,000	55,400	34,100	25,600	-
1912	21,200	66,600	39,100	71,300	140,000	98,400	506,000	491,000	150,000	51,500	29,700	35,300	1,700,000
1913	33,600	155,000	55,800	-	-	-	-	-	-	-	-	-	-
1920	-	-	-	-	-	-	-	-	-	-	27,300	37,200	-
1921	55,800	91,600	121,000	308,000	247,000	403,000	488,000	539,000	37,000	49,900	28,900	23,200	2,500,000
1922	25,200	29,000	188,000	39,000	27,500	51,000	223,000	568,000	166,000	44,800	28,700	21,500	1,480,000
1923	21,600	23,000	42,200	188,000	34,200	23,000	543,000	475,000	43,000	69,500	38,100	23,700	1,820,000
1924	28,300	32,800	52,000	33,900	274,000	46,000	297,000	342,000	64,300	32,600	22,000	18,100	1,340,000
1925	22,100	60,700	11,000	87,900	376,000	298,000	672,000	414,000	28,000	51,300	31,600	22,500	2,280,000
1926	20,500	21,600	55,700	38,800	106,000	202,000	300,000	134,000	45,700	24,800	19,300	33,800	1,000,000
1927	64,600	112,000	206,000	105,000	146,000	165,000	474,000	588,000	803,000	74,400	33,300	49,900	2,320,000
1928	122,000	589,000	229,000	176,000	102,000	302,000	345,000	513,000	102,000	45,200	25,900	20,200	2,370,000
1929	27,600	33,500	22,800	18,800	15,300	108,000	271,000	542,000	93,400	37,900	22,900	19,900	1,010,000
1930	19,500	14,200	31,400	14,800	85,000	138,000	265,000	158,000	90,400	37,000	20,200	16,500	910,000
1931	20,500	25,500	17,000	30,400	57,800	210,000	390,000	258,000	54,700	25,800	17,000	18,900	1,130,000
1932	19,800	23,400	21,700	46,900	114,000	298,000	720,000	670,000	202,000	55,700	28,400	22,600	2,220,000
1933	26,300	46,000	144,000	106,000	42,200	140,000	25,000	505,000	403,000	38,700	35,100	28,900	2,240,000
1934	53,560	126,800	13,700	511,800	236,800	589,599	707,700	150,150	57,780	31,700	19,690	17,740	2,796,000
1935	39,090	115,500	14,200	136,100	127,600	184,700	471,000	566,800	161,900	49,690	28,390	19,460	2,013,000
1936	19,910	20,110	19,510	33,810	22,010	24,600	39,500	587,200	103,600	40,350	21,360	19,100	1,450,000
1937	17,510	15,050	32,060	18,570	15,370	85,660	583,000	497,400	139,400	50,270	29,770	21,540	1,303,900
1938	17,260	91,130	56,300	167,300	70,970	231,000	307,000	559,400	112,600	45,200	25,010	19,240	1,903,000
1939	22,910	25,110	40,980	50,000	32,380	72,000	469,100	504,500	84,460	40,050	20,320	17,560	1,279,000
1940	19,470	19,230	67,220	45,430	114,700	354,800	557,000	210,600	56,790	26,240	16,800	17,110	1,296,000
1941	21,370	31,840	72,450	66,220	60,920	150,000	148,100	164,900	93,500	36,130	22,500	31,730	909,700
1942	41,600	75,920	60,200	76,880	70,390	23,300	569,200	209,000	145,900	77,670	31,300	21,730	1,503,000
1943	20,180	102,000	84,480	72,190	58,060	84,700	747,800	401,200	212,900	83,310	35,920	23,090	2,004,000
1944	23,600	26,130	58,170	26,660	34,700	51,490	232,400	106,000	21,510	27,860	18,360	20,260	757,200
1945	16,950	23,050	23,890	136,900	140,000	400,900	266,100	512,000	20,200	40,870	23,100	28,500	1,464,000
1946	29,300	87,830	159,300	158,300	58,530	247,900	580,200	546,000	152,900	52,480	24,440	21,330	2,120,000
1947	37,050	174,300	599,200	155,700	19,200	269,600	594,100	519,600	117,400	45,350	26,090	25,150	2,183,000
1948	88,660	100,100	102,700	158,200	96,440	21,600	499,700	707,840	500,862,500	32,990	55,200	29,870	2,392,000
1949	30,180	46,550	41,570	27,870	87,650	219,300	24,400	545,400	124,300	44,970	27,600	24,020	1,944,000
1950	30,080	96,170	103,700	142,200	77,600	368,668	204,999,600	713,100	897,900	17,200	45,040	28,840	2,720,000

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312	-	-	-	-	-	-	-	-	-	-
1912	322	-	-	300	2,350	1.92	26.15	1,700,000	2,500	27.95	916,000
1913	362	-	-	-	-	-	-	-	-	-	-
1920	512	-	-	-	-	-	-	-	-	-	-
1921	532	-	-	355	3,450	2.83	38.47	2,500,000	3,410	37.92	2,470,000
1922	552	-	-	315	2,040	1.67	22.75	1,480,000	1,830	20.35	1,320,000
1923	572	-	-	-	2,520	2.07	27.99	1,820,000	2,550	28.39	1,850,000
1924	592	-	-	260	1,850	1.52	20.65	1,340,000	1,960	21.90	1,420,000
1925	612	27,600	Feb. 5, 1925	280	3,140	2.57	34.97	2,280,000	3,010	33.50	2,180,000
1926	632	11,000	Apr. 19, 1926	260	1,390	1.14	15.42	1,000,000	1,780	19.79	1,290,000
1927	652	25,800	Apr. 27, 1927	454	3,210	2.63	35.67	2,320,000	3,700	41.15	2,680,000
1928	672	18,500	Nov. 26, 1927	317	3,270	2.68	36.41	2,370,000	2,360	26.33	1,720,000
1929	692	11,400	Apr. 29, 1929	197	1,400	1.15	15.56	1,010,000	1,370	15.28	993,000
1930	707	7,880	Apr. 8, 1930	141	1,260	1.03	13.99	910,000	1,250	13.96	908,000
1931	722	13,100	Apr. 8, 1931	206	1,560	1.28	17.29	1,130,000	1,560	17.31	1,130,000
1932	737	22,400	Apr. 14, 1932	201	3,060	2.51	34.18	2,220,000	3,410	38.06	2,470,000
1933	752	21,500	Apr. 28, 1933	340	3,090	2.53	34.34	2,240,000	4,021	44.69	2,913,000
1934	767	55,300	Dec. 23, 1933	254	3,862	3.17	42.90	2,796,000	2,857	31.77	2,069,000
1935	792	14,400	May 6, 1935	273	2,780	2.28	30.93	2,013,000	2,494	27.76	1,805,000
1936	812	23,100	Apr. 19, 1936	245	1,997	1.64	22.30	1,450,000	2,004	22.37	1,455,000
1937	832	17,300	May 4, 1937	210	1,799	1.47	20.01	1,503,000	2,076	23.08	1,503,000
1938	862	46,300	Apr. 18, 1938	182	2,628	2.15	29.23	1,903,000	2,386	26.54	1,727,000
1939	882	13,000	Apr. 29, 1939	270	1,767	1.45	19.66	1,279,000	1,791	19.92	1,296,000
1940	902	10,700	Mar. 28, 1940	235	1,786	1.46	19.93	1,296,000	1,613	20.23	1,316,000
1941	932	6,440	May 19, 1941	270	1,257	1.03	14.01	909,700	1,605	17.89	1,162,000
1942	962	13,000	Dec. 20, 1941	322	2,076	1.70	23.08	1,503,000	1,840	20.45	1,332,000
1943	982	22,000	Apr. 15, 1943	275	2,768	2.27	30.78	2,004,000	2,631	29.25	1,905,000
1944	1012	6,210	Apr. 13, 1944	259	1,043	.855	11.63	757,200	982	10.96	713,200
1945	1042	18,200	May 5, 1945	190	2,023	1.66	22.52	1,464,000	2,316	25.79	1,677,000
1946	1062	19,800	Apr. 20, 1946	298	2,928	2.40	32.58	2,120,000	3,389	37.72	2,454,000
1947	1092	36,000	Dec. 15, 1946	285	3,015	2.47	33.55	2,183,000	2,574	28.64	1,864,000
1948	1122	20,600	Apr. 22, 1948	357	3,295	2.70	36.76	2,392,000	3,057	34.10	2,219,000
1949	1152	19,400	May 12, 1949	334	2,686	2.20	29.89	1,944,000	2,840	31.60	2,056,000
1950	1182	26,200	May 14, 1950	357	3,757	3.08	41.80	2,720,000	-	-	-

539. St. Joe River at Avery, Idaho

Location.--Lat 47°15', long. 115°49', in sec. 15, T. 45 N., R. 5 E., on left bank at Avery and 0.5 mile downstream from North Fork.

Drainage area.--594 sq mi.

Gage.--Staff gage. Datum of gage is 2,474.13 ft above mean sea level, datum of 1912. Prior to Sept. 18, 1912, staff gages at sites within 700 ft downstream at different datums.

Extremes.--1911-17: Maximum discharge observed, 17,400 cfs May 15, 1917 (gage height, 7.1 ft), from rating curve extended above 4,800 cfs; minimum not determined, probably occurred during winter when discharge relation was seriously affected by ice.

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	3,570	4,920	3,340	977	462	343	-
1912	375	566	-	-	523	503	*2,480	5,570	3,450	960	457	423	-
1913	428	913	616	-	-	-	3,750	8,980	5,900	1,220	550	348	-
1914	326	491	399	470	420	1,390	3,830	5,180	1,640	695	402	-	-
1915	476	1,530	646	550	568	823	2,560	2,080	1,420	696	422	361	1,010
1916	343	400	441	440	566	1,950	3,850	5,710	7,040	2,500	663	431	2,030
1917	359	-	-	-	-	-	2,110	8,610	6,360	-	-	-	-

* Revised.

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	212,000	303,000	199,000	60,100	28,400	20,400	-
1912	23,100	33,700	-	-	30,100	30,900	48,000	342,000	205,000	59,000	28,100	25,200	-
1913	26,300	54,300	37,900	-	-	-	223,000	552,000	351,000	75,000	33,800	20,700	-
1914	20,000	29,200	24,500	28,900	23,300	85,500	228,000	319,000	97,600	42,700	24,700	-	-
1915	29,300	91,000	39,700	33,800	31,500	50,600	152,000	128,000	84,500	42,800	25,900	21,500	731,000
1916	21,100	23,800	27,100	27,100	32,600	120,000	229,000	351,000	419,000	154,000	40,800	25,600	1,470,000
1917	22,100	-	-	-	-	-	126,000	529,000	378,000	-	-	-	-

* Revised.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30					Calendar year				
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1911	312,332	8,600	May 5, 1911	-	-	-	-	-	-	-	-
1912	1286,332	8,120	May 10, 1912	-	-	-	-	-	-	-	-
1913	362	17,000	May 28, 1913	-	-	-	-	-	-	-	-
1914	412,392	7,070	May 15, 1914	-	-	-	-	-	-	-	-
1915	412	4,110	Apr. 19, 1915	330	1,010	1.70	22.85	731,000	899	20.06	643,000
1916	442	12,600	May 5, 1916	270	2,030	3.42	46.40	1,470,000	-	-	-
1917	462	17,400	May 15, 1917	-	-	-	-	-	-	-	-

540. St. Joe River at Calder, Idaho 1/

Location.--Lat 47°16', long. 116°11', in sec. 3, T. 45 N., R. 2 E., on right bank 150 ft southwest of Chicago, Milwaukee, St. Paul & Pacific Railway station at Calder.

Drainage area.--1,030 sq mi, approximately. At site April 1911 to September 1912, 1,050 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 2,096.76 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Apr. 14, 1911, to Sept. 30, 1912, staff gage 2½ miles downstream at different datum. July 13 to Dec. 21, 1920, staff gage at present site and datum.

Average discharge.--30 years (1920-50), 2,266 cfs.

Extremes.--1911-12, 1920-50: Maximum discharge, 53,000 cfs Dec. 23, 1933, slope-area determination of peak flow; maximum gage height, 93.1 ft Apr. 18, 1938, from flood mark; minimum discharge, 96 cfs Dec. 5, 1928 (gage height, 78.43 ft).

Remarks.--No diversion or regulation above station.

1/ Published as St. Joe River near Calder, April 1911 to September 1912.

Monthly and yearly mean discharge, in cubic feet per second, of St. Joe River at Calder, Idaho													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	7,360	4,300	1,330	682	564	-
1912	507	962	598	1,040	1,230	1,030	5,480	9,860	4,970	1,170	641	634	2,340
1920	-	-	-	-	-	-	-	-	-	-	647	805	-
1921	1,240	1,440	1,330	1,620	2,140	4,040	5,900	12,500	5,040	1,150	535	518	3,120
1922	479	559	2,000	481	456	689	3,170	9,450	5,850	1,200	596	401	2,120
1923	334	374	516	1,260	539	1,240	6,200	8,260	5,440	1,510	682	453	2,240
1924	460	551	800	539	2,180	1,250	4,100	7,680	1,830	761	447	397	1,730
1925	414	995	1,620	1,440	4,050	2,640	10,500	10,500	3,700	1,200	632	490	3,170
1926	390	581	792	508	1,110	2,270	5,260	3,590	1,150	554	405	549	1,410
1927	1,100	2,050	2,950	1,380	1,390	1,670	5,130	9,720	8,400	1,630	773	798	3,100
1928	1,620	6,020	3,530	2,670	1,540	3,380	4,480	12,220	3,410	1,130	550	381	3,420
1929	413	372	291	204	239	986	2,820	5,850	3,110	1,020	519	363	1,360
1930	323	258	590	290	992	1,580	5,850	3,770	2,110	820	468	373	1,450
1931	464	535	349	613	673	1,620	4,110	5,420	1,390	594	379	333	1,380
1932	333	391	389	437	934	2,100	7,470	12,000	4,770	1,280	598	457	2,600
1933	463	1,470	1,480	952	524	1,170	5,790	8,600	10,100	1,690	671	542	2,790
1934	1,433	2,824	8,887	5,442	3,342	6,414	9,178	4,404	1,445	632	380	344	3,733
1935	646	1,342	1,091	1,144	1,178	1,756	5,621	9,232	3,978	1,152	535	366	2,341
1936	344	332	324	353	344	1,078	9,307	8,122	2,787	882	465	363	2,056
1937	307	259	359	238	258	725	3,097	7,997	3,180	1,027	531	360	1,536
1938	354	672	1,017	992	778	2,072	9,112	8,458	3,778	1,149	578	407	2,449
1939	438	457	597	553	410	1,749	6,832	6,739	2,040	893	446	345	1,780
1940	336	302	757	555	1,400	3,522	5,236	5,251	1,772	638	358	357	1,688
1941	395	479	958	703	722	1,523	2,174	3,285	2,047	811	455	515	1,175
1942	726	1,323	2,983	1,100	1,007	1,201	5,487	3,960	2,875	1,510	618	422	1,936
1943	378	1,081	851	731	827	1,652	8,310	7,976	6,649	2,435	735	450	2,672
1944	468	404	656	378	469	616	2,788	3,833	1,652	672	402	359	1,059
1945	317	346	332	1,146	1,142	1,208	2,730	8,623	3,333	1,030	470	453	1,783
1946	393	778	996	1,030	699	1,714	6,665	9,341	3,644	1,228	557	441	2,296
1947	694	1,564	4,509	1,804	2,233	2,812	5,849	8,664	3,550	1,162	578	477	2,792
1948	1,143	1,359	1,256	1,921	1,298	1,215	5,633	13,480	7,120	1,703	948	537	3,137
1949	491	611	480	391	731	1,903	7,215	11,040	3,192	976	510	433	2,329
1950	437	646	684	1,090	2,062	2,791	5,655	10,370	10,650	3,251	953	531	3,325

Monthly and yearly runoff, in acre-feet													
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1911	-	-	-	-	-	-	-	453,000	256,000	81,800	41,900	33,600	-
1912	31,200	57,200	36,800	64,000	70,800	63,300	326,000	606,000	296,000	71,900	39,400	37,700	1,700,000
1920	-	-	-	-	-	-	-	-	-	-	39,800	47,900	-
1921	76,200	85,700	81,800	99,800	119,000	246,000	351,000	769,000	500,000	70,700	32,900	30,800	2,260,000
1922	29,500	33,500	23,000	29,600	25,300	42,400	189,000	581,000	548,000	73,800	36,600	23,900	1,540,000
1923	20,500	22,300	31,700	77,500	29,900	76,200	59,000	508,000	524,000	92,800	41,900	27,000	1,620,000
1924	28,300	32,800	36,900	33,100	25,000	76,900	24,000	472,000	109,000	46,800	27,500	25,800	1,280,000
1925	25,500	59,200	99,600	88,500	225,000	182,000	625,000	646,000	220,000	73,800	38,900	29,200	2,290,000
1926	24,000	22,700	48,700	31,300	61,600	40,000	513,000	221,000	68,400	34,100	24,900	32,700	1,020,000
1927	67,800	121,000	181,000	84,800	77,200	103,000	505,000	598,000	500,000	113,000	47,500	47,500	2,250,000
1928	99,800	558,000	217,000	164,000	88,600	208,000	267,000	750,000	203,000	69,500	33,800	22,700	2,480,000
1929	25,400	22,100	17,900	12,500	13,300	80,600	168,000	360,000	185,000	62,700	31,900	21,600	981,000
1930	19,900	15,400	36,300	17,800	55,100	97,200	348,000	232,000	126,000	50,400	28,700	22,200	1,050,000
1931	26,500	31,800	21,500	37,700	37,400	99,600	245,000	333,000	82,700	36,500	23,300	20,100	997,000
1932	20,500	23,300	23,900	26,900	53,700	29,000	444,000	738,000	884,000	77,500	36,800	25,900	1,680,000
1933	28,500	67,500	91,000	58,500	29,100	71,900	344,000	529,000	601,000	104,000	41,300	32,500	2,020,000
1934	88,100	169,000	546,500	334,600	165,600	394,400	546,100	270,800	85,980	38,870	23,390	20,480	2,703,000
1935	39,700	79,830	67,090	70,310	65,440	108,000	334,500	567,600	236,700	70,830	32,870	21,790	1,695,000
1936	21,160	19,730	19,900	23,540	19,610	66,280	553,800	499,400	164,800	54,220	28,590	21,600	1,493,000
1937	16,850	15,410	22,060	14,840	14,340	44,590	194,300	491,700	189,200	63,160	32,650	21,410	1,112,000
1938	21,780	39,970	62,560	61,020	43,220	27,400	464,200	520,100	224,800	70,650	35,440	24,230	1,775,000
1939	26,930	27,210	36,700	34,010	22,750	107,800	394,700	414,300	21,400	54,930	27,420	20,540	1,288,000
1940	20,660	17,970	46,520	32,910	80,530	204,200	311,500	322,900	105,400	39,200	21,890	21,270	1,225,000
1941	24,280	28,510	58,390	43,240	40,070	93,640	129,400	202,000	121,800	49,800	27,980	30,660	850,400
1942	44,620	78,710	183,400	67,620	55,950	73,840	326,500	502,435	500,711	92,850	37,990	25,120	1,401,000
1943	23,270	64,350	42,350	44,940	45,950	101,600	494,500	500,490	400,995	60,490	45,210	26,760	1,935,000
1944	28,770	24,040	30,340	23,220	27,000	37,880	165,900	235,700	98,300	41,340	24,690	21,350	769,500
1945	19,460	20,590	20,390	70,490	63,450	74,290	162,500	542,500	199,930	63,360	28,910	26,940	1,291,000
1946	24,160	46,290	61,380	63,310	36,280	105,400	396,600	574,400	216,900	75,500	34,220	26,240	1,663,000
1947	42,680	93,180	264,900	98,620	24,000	172,900	345,000	532,700	200,100	70,200	35,520	28,580	2,021,000
1948	70,250	80,780	77,150	118,100	74,680	74,690	333,400	829,800	423,600	104,700	58,160	31,940	2,277,000
1949	30,210	36,350	29,490	24,060	40,580	110,800	429,300	678,500	189,890	60,030	31,360	25,760	1,686,000
1950	26,860	50,360	54,370	67,000	114,500	171,600	348,400	637,900	645,900	199,900	58,590	31,610	2,407,000

Yearly discharge, in cubic feet per second, of St. Joe River at Calder, Idaho

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet
1911	332	-	-	-	-	-	-	-	-	-	-
1912	332	-	-	380	2,340	2.27	30.97	1,700,000	-	-	-
1920	512	-	-	-	-	-	-	-	-	-	-
1921	532	17,400	May 8, 1921	420	3,120	3.03	41.18	2,260,000	3,040	40.13	2,210,000
1922	552	17,600	May 18, 1922	310	2,120	2.06	27.94	1,540,000	1,970	25.90	1,420,000
1923	572	13,600	May 9, 1923	202	2,240	2.17	29.50	1,620,000	2,270	29.94	1,640,000
1924	592	13,100	May 13, 1924	311	1,730	1.68	22.87	1,260,000	1,950	24.43	1,340,000
1925	612	-	-	345	3,170	3.08	41.72	2,290,000	3,040	40.11	2,200,000
1926	632	11,500	Apr. 19, 1926	275	1,410	1.37	18.61	1,020,000	1,790	23.59	1,300,000
1927	652	18,000	May 16, 1927	534	3,100	3.01	40.85	2,250,000	3,520	46.43	2,550,000
1928	672	16,800	May 8, 1928	333	3,420	3.32	45.19	2,480,000	2,580	34.08	1,870,000
1929	692	9,360	May 23, 1929	147	1,360	1.32	17.86	981,000	1,360	17.97	987,000
1930	707	8,510	Apr. 15, 1930	175	1,450	1.41	19.07	1,050,000	1,460	19.26	1,060,000
1931	722	8,790	May 3, 1931	261	1,380	1.34	18.13	997,000	1,360	17.87	983,000
1932	737	17,400	May 14, 1932	250	2,600	2.52	34.22	1,880,000	2,790	36.86	2,023,000
1933	752	19,600	June 3, 1933	366	2,790	2.71	36.80	2,020,000	3,614	47.46	2,614,000
1934	767	53,000	Dec. 23, 1934	287	3,733	3.62	49.21	2,703,000	2,883	37.99	2,087,000
1935	792	13,400	May 23, 1935	317	2,341	2.27	30.85	1,695,000	2,167	28.57	1,569,000
1936	812	20,000	Apr. 18, 1936	212	2,056	2.00	27.18	1,493,000	2,050	27.09	1,488,000
1937	832	12,700	May 4, 1937	198	1,536	1.49	20.24	1,112,000	1,630	21.49	1,180,000
1938	862	46,000	Apr. 19, 1938	310	2,449	2.38	32.30	1,773,000	2,403	31.69	1,740,000
1939	882	13,800	Apr. 30, 1939	298	1,780	1.73	23.45	1,298,000	1,772	23.35	1,283,000
1940	902	8,140	May 11, 1940	232	1,688	1.64	22.32	1,225,000	1,724	22.97	1,252,000
1941	932	5,280	May 18, 1941	308	1,175	1.14	15.48	850,400	1,444	19.03	1,045,000
1942	962	10,400	Dec. 3, 1942	358	1,936	1.88	25.49	1,401,000	1,705	22.45	1,234,000
1943	982	14,800	Apr. 16, 1943	329	2,672	2.59	35.21	1,935,000	2,608	34.36	1,888,000
1944	1012	5,470	May 16, 1944	207	1,059	1.03	13.98	768,500	1,014	13.38	735,800
1945	1042	15,500	May 5, 1945	180	1,783	1.73	23.49	1,291,000	1,882	24.80	1,363,000
1946	1062	15,200	Apr. 26, 1946	326	2,296	2.23	30.27	1,663,000	2,668	35.17	1,932,000
1947	1092	23,600	Dec. 15, 1947	342	2,792	2.71	36.82	2,021,000	2,553	33.67	1,848,000
1948	1122	23,700	May 28, 1948	382	3,137	3.05	41.45	2,277,000	2,955	39.05	2,145,000
1949	1152	19,200	May 13, 1949	320	2,329	2.26	30.61	1,686,000	2,379	31.35	1,722,000
1950	1182	18,400	May 14, 1950	330	3,325	3.23	43.82	2,407,000	-	-	-

541. St. Maries River at Lotus, Idaho

Location.--Lat 47°14'40", long. 116°37'30", in sec. 17, T. 45 N., R. 2 W., on left bank 1 mile northwest of Lotus, 1 mile downstream from Carlton Creek, and 5½ miles southwest of St. Maries.

Drainage area.--431 sq mi.

Gage.--Water-stage recorder after Dec. 3, 1948. Datum of gage is 2,140.19 ft above mean sea level.

July 9, 1911, to Oct. 31, 1912, staff gage on right bank 0.8 mile upstream at different datum.

July 15, 1920, to Sept. 30, 1922, staff gage on left bank 6,300 ft upstream at datum 40.19 ft lower.

Oct. 1, 1922, to Sept. 30, 1945, staff gage on left bank 1.3 miles upstream at datum 19.81 ft higher.

Oct. 1, 1945, to Dec. 2, 1948, staff gage at present site and datum.

Average discharge.--30 years (1920-50), 503 cfs.

Extremes.--1911-12, 1920-50: Maximum discharge observed, 23,800 cfs Dec. 22, 23, 1933, from rating curve extended above 4,000 cfs by logarithmic plotting; maximum gage height, 12.95 ft Feb. 25 or 26, 1950 (ice jam); minimum discharge, 16 cfs (estimated) Nov. 21, 1929.

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	93.3	205	-	-	†904	491	3,350	2,530	735	211	104	151	-
1921	164	256	376	827	711	1,950	1,630	1,040	344	130	74.3	155	638
1922	277	372	412	81.9	53.2	70.6	1,810	1,810	552	97.1	79.5	57.5	474
1923	57.1	77.3	80.6	610	159	644	1,860	821	817	159	87.4	54.1	452
1924	69.6	125	204	148	1,170	495	764	647	146	66.5	48.9	54.0	324
1925	66.7	284	310	583	1,590	1,260	2,150	989	348	102	61.8	50.6	641
1926	69.6	76.6	244	148	787	902	810	319	135	65.6	54.0	96.5	305
1927	137	541	554	409	1,180	1,030	1,720	1,390	814	178	83.4	161	896
1928	360	1,800	1,110	922	662	2,010	1,640	1,170	270	118	60.0	50.5	688
1929	72.4	87.4	66.2	49.2	33.5	354	656	556	254	77.5	37.4	33.8	190
1930	48.6	43.7	114	28.2	381	496	583	456	264	69.6	41.9	54.9	214
1931	67.3	87.3	37.9	87.0	240	916	1,350	476	120	50.0	26.4	43.7	291
1932	59.3	65.8	54.3	115	382	1,450	2,810	2,120	497	121	55.5	44.8	647
1933	69.8	343	256	206	122	972	2,400	1,510	798	138	67.9	77.0	581
1934	169	359	3,322	2,290	869	1,587	1,080	869	160	77.1	45.3	46.2	846
1935	120	194	349	544	497	1,059	2,170	1,346	359	115	59.4	42.3	569

† Corrected.

Monthly and yearly mean discharge, in cubic feet per second, of St. Maries River at Lotus, Idaho--Con.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1936	56.7	70.5	89.7	138	113	817	2,058	1,015	396	97.5	43.4	49.2	411
1937	46.1	41.9	80.5	36.5	42.3	513	2,141	1,156	337	104	59.3	49.5	384
1938	66.5	280	577	618	382	1,567	2,002	789	246	92.9	54.6	60.2	562
1939	71.2	111	155	159	108	961	1,578	641	215	85.4	40.8	38.6	548
1940	54.3	54.8	138	161	1,043	1,353	885	510	126	56.1	35.8	63.1	369
1941	115	214	523	451	463	510	321	486	357	122	72.0	102	511
1942	149	257	736	199	464	578	926	632	392	168	57.3	51.0	383
1943	63.3	321	381	378	334	858	2,395	1,000	677	200	66.8	55.6	559
1944	72.7	83.1	202	117	131	223	813	339	162	65.0	38.9	41.2	190
1945	52.2	74.6	104	429	391	674	963	992	309	94.2	43.6	70.2	349
1946	63.3	264	468	637	372	1,484	1,855	1,042	316	117	59.8	57.7	562
1947	89.7	370	998	630	1,129	1,185	1,348	555	333	102	54.8	83.2	572
1948	239	621	652	1,062	995	857	2,588	2,910	976	297	209	104	958
1949	93.2	196	197	138	609	1,638	2,808	1,600	251	108	60.2	62.0	645
1950	89.0	143	110	145	1,111	1,801	2,699	1,916	1,084	273	108	73.8	791

Monthly and yearly runoff, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1912	5,740	12,200	-	-	52,000	30,200	198,000	156,000	43,700	13,000	6,400	8,980	-
1921	10,100	15,200	23,100	50,800	39,500	120,000	97,000	64,000	20,500	7,990	4,570	9,220	462,000
1922	17,000	22,100	25,300	5,040	2,950	4,340	108,000	11,000	32,800	5,970	4,890	3,420	343,000
1923	5,510	4,600	4,960	37,500	6,830	39,600	111,000	50,500	48,600	9,780	5,370	3,220	327,000
1924	4,280	7,440	12,500	9,100	67,300	30,400	45,500	39,800	8,690	4,090	3,010	3,210	235,000
1925	4,100	16,900	19,100	35,800	88,500	77,500	128,000	60,800	20,700	6,270	3,800	3,010	464,000
1926	4,280	4,560	15,000	9,100	43,700	55,500	48,200	19,600	8,030	4,030	3,320	5,740	221,000
1927	8,420	32,200	40,200	25,100	65,500	63,300	102,000	85,500	48,400	10,900	5,130	9,580	496,000
1928	22,100	107,000	68,200	58,700	38,100	124,000	97,600	71,900	16,100	7,260	3,690	3,000	616,000
1929	4,450	5,200	4,070	3,030	1,860	21,800	39,000	34,200	15,100	4,770	2,300	2,010	138,000
1930	2,990	2,660	7,010	1,730	21,200	30,500	34,700	28,000	15,700	4,280	2,590	3,670	155,000
1931	4,140	5,190	2,320	5,350	13,300	56,300	80,300	29,300	7,140	3,070	1,620	2,600	211,000
1932	3,650	3,920	3,340	7,070	22,000	89,200	167,000	30,000	29,600	7,440	3,410	2,670	469,000
1933	4,290	20,400	15,700	12,700	6,780	59,800	143,000	92,800	47,500	8,480	4,180	4,580	420,000
1934	10,350	21,370	204,300	40,800	48,270	85,310	64,970	17,550	9,530	4,740	2,780	2,750	612,700
1935	7,370	11,530	21,380	33,450	27,610	63,880	129,100	82,750	21,340	7,070	2,650	2,520	411,600
1936	3,490	4,200	5,510	8,490	6,510	50,210	122,500	62,430	23,580	5,990	2,670	2,930	298,500
1937	2,830	2,490	4,950	2,250	2,350	31,560	127,400	71,090	20,050	6,380	3,650	2,950	278,000
1938	4,090	16,630	35,470	37,990	21,220	96,370	119,100	48,520	14,670	5,710	3,360	3,580	406,700
1939	4,380	6,610	9,550	9,760	6,010	59,100	93,880	39,440	12,800	5,250	2,510	2,300	251,600
1940	3,540	3,260	8,460	9,900	59,990	81,980	52,660	31,360	7,820	3,450	2,200	3,750	267,900
1941	7,080	12,720	32,150	27,720	25,730	31,340	19,100	29,880	21,270	7,510	4,430	6,070	225,000
1942	9,140	15,320	45,260	12,250	25,750	35,570	55,100	38,870	23,520	10,300	3,520	3,350	277,400
1943	3,890	19,080	23,450	23,250	18,530	52,760	142,500	61,480	40,290	12,280	4,110	3,510	404,900
1944	4,470	4,940	12,410	7,170	7,540	13,770	48,380	29,840	8,670	3,990	7,390	2,450	138,000
1945	3,210	4,440	6,420	26,350	21,720	41,440	57,290	60,970	18,390	5,790	2,680	4,180	252,900
1946	3,890	15,700	28,750	39,180	20,640	91,220	110,400	64,050	18,780	7,190	3,680	3,440	406,900
1947	5,510	22,030	61,370	38,750	62,720	72,840	80,210	35,980	19,820	6,300	3,370	4,950	413,800
1948	14,610	36,930	40,100	65,280	57,220	52,720	154,000	78,900	59,080	18,260	12,830	6,190	695,100
1949	5,730	11,640	12,090	8,510	33,820	100,700	167,100	98,410	14,930	6,630	3,700	3,690	467,000
1950	5,470	8,520	6,740	8,940	61,720	110,800	160,600	17,800	64,490	16,770	6,630	4,390	572,900

† Corrected.

Yearly discharge, in cubic feet per second

Year	W.S.P. no.	Water year ending Sept. 30						Calendar year					
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		Mean	Runoff
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet		
1912	332	4,670	Apr. 11, 1912	-	-	-	-	-	-	-	-	-	-
1921	532	8,660	Mar. 18, 1921	60	638	1.46	19.80	462,000	661	20.50	479,000		
1922	552	2,780	(a)	40	474	1.08	14.74	347,000	403	12.53	291,000		
1923	572	3,950	Apr. 3, 1923	32	452	1.03	14.03	327,000	467	14.51	339,000		
1924	592	-	-	36	324	.741	10.11	235,000	346	10.79	251,000		
1925	612	-	-	44	641	1.47	19.92	464,000	619	19.22	448,000		
1926	632	2,800	Feb. 8, 1926	41	305	.698	9.48	221,000	384	11.93	278,000		
1927	652	3,810	Feb. 21, 1927	64	686	1.57	21.31	496,000	847	26.32	613,000		
1928	672	6,370	Nov. 25, 1927	44	848	1.94	26.39	616,000	594	18.49	432,000		
1929	692	1,500	Apr. 15, 1929	23	190	.435	5.91	138,000	169	5.87	137,000		
1930	707	2,270	Mar. 25, 1930	16	214	.490	6.63	155,000	212	6.59	154,000		
1931	722	3,990	Apr. 1, 1931	21	291	.666	9.04	211,000	290	9.01	210,000		
1932	737	5,060	Mar. 19, 1932	30	647	1.48	20.15	469,000	704	21.42	499,000		
1933	752	3,740	Apr. 27, 28, 1933	42	581	1.33	18.03	420,000	851	26.42	616,000		
1934	767	23,800	Dec. 22, 23, 1933	34	846	1.94	26.29	612,700	576	17.89	417,000		
1935	792	4,330	(b)	39	569	1.30	17.66	411,600	531	16.50	384,600		
1936	812	3,880	Apr. 18, 1936	32	411	.941	12.81	298,500	407	12.68	295,600		
1937	832	6,940	Apr. 15, 1937	21	384	.879	11.93	278,000	447	13.90	323,900		
1938	862	7,980	Apr. 18, 1938	38	562	1.29	17.44	406,700	513	15.91	371,100		
1939	882	3,460	Mar. 26, 1939	32	348	.796	10.81	251,600	340	10.57	246,100		
1940	902	4,220	Feb. 26, 1940	26	369	.844	11.48	267,900	420	13.07	304,800		

a Apr. 22, May 5, 1922.

b Mar. 13, Apr. 16, 1935.

Yearly discharge, in cubic feet per second, of St. Maries River at Lotus, Idaho--Continued

Yearly discharge, in cubic feet per second, of St. Marys River at Nevada, Idaho—Continued											
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year			
		Maximum observed		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acres-feet		Inches	Acres-feet
1941	932	3,280	Nov. 29, 30, 1940	60	311	0.712	9.64	225,000	335	10.40	242,800
1942	962	2,570	Dec. 3, 1941	48	383	.876	11.90	277,400	371	10.91	254,100
1943	982	5,950	Apr. 1, 1943	44	559	1.278	17.38	404,800	525	16.31	380,500
1944	1012	2,120	Apr. 13, 1944	30	190	.435	5.91	138,000	179	5.59	130,200
1945	1042	2,000	Jan. 13, 1945	33	349	.799	10.86	252,900	397	12.32	287,200
1946	1062	2,830	(c)	48	562	1.29	17.47	406,900	618	19.22	447,500
1947	1092	7,710	Dec. 15, 1946	43	572	1.31	17.75	413,800	575	17.86	416,600
1948	1122	11,300	Feb. 26, 1948	68	958	2.19	29.83	695,100	872	27.17	632,900
1949	1152	d5,050	Apr. 20, 1949	44	645	1.48	20.04	467,000	633	19.66	458,200
1950	1182	d8,670	Mar. 18, 1950	60	791	1.81	24.58	572,900	-	-	-

c Jan. 5, Apr. 19, 1946.

d Momentary maximum.

542. Coeur d'Alene Lake at Coeur d'Alene, Idaho

Location.--Lat 47°40', long. 116°46', in sec. 24, T. 50 N., R. 4 W., 500 feet southwest of south end of Eleventh Street, Coeur d'Alene.

Drainage area.--3,700 sq mi (revised), approximately.

Gage.--Water-stage recorder. Datum of gage is 2,100 ft above mean sea level, referred to originally accepted elevation (2,157.40 ft) of Geological Survey bench mark in south-east corner of Merriam Building (see Water-Supply Paper 882). Apr. 26, 1903, to Feb. 13, 1905, staff gage at mouth of St. Joe River, datum about 18.7 ft higher. Feb. 14, 1905, to Mar. 23, 1921, staff gage at present site and datum.

Extremes.--1903-50: Maximum contents, 834,900 acre-ft Dec. 25, 1933 (elevation, 2,139.05 ft); minimum, 2,700 acre-ft below zero of contents table Oct. 10-12, 1904, Sept. 24, 25, 1905, Oct. 14 to Nov. 3, 1906 (elevation, 2,119.9 ft).
Maximum contents known prior to 1903, 753,300 acre-ft May 31, 1894 (elevation, 2,137.6 ft, from high-water marks).

Remarks.--Water is impounded by dam at Post Falls for power generation at Post Falls and other plants on Spokane River. Storage is within natural range of lake stage. Contents given herein are those above elevation of 2,120.00 ft. Capacity of lake between elevations 2,120 and 2,140 ft is 889,000 acre-ft. Contents records prior to 1947 not previously published.

Cooperation.--Record of elevations and area curve, which is basis of capacity table, furnished by Washington Water Power Co.

Contents, in acre-feet, on last day of month.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1903	-	-	-	-	-	-	293,200	288,100	165,800	53,700	24,100	16,100
1904	24,100	61,800	72,600	61,800	64,500	129,800	467,600	303,400	124,300	40,200	8,000	0
1905	2,700	10,700	16,100	24,100	30,800	110,600	133,800	132,500	79,400	22,800	2,700	4,000
1906	29,500	26,800	21,400	48,300	129,800	129,800	253,000	146,100	84,800	29,500	6,700	0
1907	-2,700	135,200	165,800	61,800	201,000	174,800	270,400	311,100	151,700	117,400	97,000	78,000
1908	42,900	22,800	41,600	51,400	65,800	167,200	360,700	211,100	147,500	158,700	131,200	106,600
1909	98,400	86,100	53,700	129,800	101,100	110,600	162,900	250,400	202,900	179,500	135,200	97,000
1910	71,200	227,900	86,100	99,700	67,200	419,000	486,500	215,400	167,200	110,600	61,800	36,200
1911	38,800	147,500	78,000	51,000	32,200	171,700	255,400	224,300	177,900	135,200	109,200	69,900
1912	42,100	77,200	51,000	113,400	116,100	109,800	257,900	368,600	157,900	160,700	145,300	75,500
1913	41,700	93,000	47,000	69,900	86,100	133,800	464,900	579,000	199,100	177,900	172,300	148,900
1914	111,700	83,400	59,600	181,800	138,000	173,600	300,500	188,000	174,200	167,000	130,300	117,700
1915	125,400	146,700	86,900	51,000	87,200	150,600	143,900	178,500	176,700	151,700	113,400	76,400
1916	45,600	46,100	101,400	74,800	113,400	415,800	412,600	308,500	286,100	137,400	148,900	140,200
1917	118,800	118,800	98,100	87,700	78,000	52,600	433,000	628,000	275,000	169,000	151,100	85,600
1918	39,700	15,000	510,500	189,900	113,400	260,900	301,400	181,800	171,400	163,500	143,900	112,300
1919	102,500	94,800	79,500	189,800	136,600	214,500	424,400	281,000	150,600	129,200	98,600	71,000
1920	44,500	41,800	44,500	114,500	135,800	136,300	192,300	212,400	173,600	174,200	147,200	153,900
1921	146,100	130,100	141,000	107,400	160,700	278,500	325,700	357,000	177,000	173,900	148,100	127,600
1922	112,600	100,300	85,600	49,400	45,600	77,500	244,700	353,800	174,200	169,100	149,200	126,200
1923	110,600	98,800	92,700	90,800	58,600	133,000	339,700	279,900	178,200	177,600	167,500	130,500
1924	116,400	112,000	100,300	82,300	156,200	78,000	199,900	175,700	177,900	156,700	119,100	99,700
1925	90,200	123,000	115,000	117,200	181,400	207,700	348,500	307,500	175,700	171,700	129,500	94,800
1926	70,400	59,100	111,200	92,400	114,200	148,100	235,100	200,600	199,900	144,200	119,400	121,300
1927	151,700	174,800	96,500	91,300	168,100	150,300	429,800	353,300	187,600	174,800	134,900	156,200
1928	130,300	363,000	119,100	133,300	91,000	288,100	283,000	348,500	175,700	166,700	135,200	112,300
1929	98,400	95,500	75,500	54,500	39,900	146,900	216,500	189,400	178,500	171,100	130,900	89,400
1930	73,100	50,200	84,500	51,800	132,900	185,500	190,900	188,000	187,600	177,200	134,900	104,700
1931	91,300	96,700	82,600	105,500	127,300	169,300	200,200	183,100	187,300	163,500	117,700	93,200
1932	74,500	84,200	102,800	79,900	152,500	272,900	451,400	406,800	175,100	174,800	154,500	132,500
1933	124,600	124,300	111,400	100,000	71,000	157,300	476,800	370,200	212,400	174,800	166,400	160,100
1934	157,300	151,200	600,000	344,900	152,500	347,500	298,800	175,700	174,500	155,100	121,900	104,400
1935	138,300	128,700	121,600	133,000	108,700	141,200	402,600	347,500	177,900	175,400	145,600	102,800
1936	78,800	83,700	87,400	113,900	63,400	32,700	545,200	201,400	177,900	171,400	131,200	98,100
1937	54,800	57,800	56,700	21,400	12,900	105,200	306,500	267,400	178,900	176,400	151,700	111,700
1938	101,100	149,500	144,800	121,300	90,200	174,800	468,700	264,900	176,000	187,200	141,000	112,000
1939	88,500	76,400	100,500	110,600	70,200	229,500	341,800	177,000	181,100	162,300	101,500	59,100
1940	40,700	43,200	95,400	86,900	175,100	239,500	213,700	179,500	177,000	151,700	112,000	96,500

Contents, in acre-feet, on last day of month, of Coeur d'Alene Lake at Coeur d'Alene, Idaho--Con.												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1941	91,900	110,100	141,800	120,200	104,900	151,700	233,700	257,900	236,600	228,100	187,600	180,500
1942	167,200	161,800	164,100	130,900	100,000	118,000	201,800	215,400	237,100	239,500	223,400	199,100
1943	179,500	184,200	162,600	118,800	94,000	229,500	406,500	508,000	186,000	236,500	220,200	195,400
1944	178,500	142,300	115,900	68,900	29,200	42,600	149,200	234,200	236,600	204,100	160,400	131,700
1945	99,400	71,500	58,500	118,900	131,200	148,300	186,200	258,900	236,600	178,500	174,200	175,700
1946	152,300	162,300	179,800	117,200	104,900	216,300	437,400	301,400	177,900	173,200	172,000	168,700
1947	175,100	223,800	223,400	179,200	162,300	189,400	290,600	216,700	237,100	180,100	178,900	172,600
1948	184,500	231,800	187,000	138,000	175,100	136,300	428,600	643,500	177,900	237,100	238,000	231,800
1949	192,700	214,500	145,600	64,500	155,100	178,200	471,400	327,700	236,600	234,700	217,200	236,600
1950	235,600	234,200	205,300	172,000	224,300	228,100	339,200	477,500	302,900	234,700	233,700	236,000

543. Hayden Creek below North Fork, near Hayden Lake, Idaho

Location.--Lat 47°49'20", long. 116°39'20", in NW¹ sec. 25, T. 52 N., R. 3 W., on right bank 0.35 mile downstream from North Fork, 2¹/₂ miles upstream from mouth, and 7 miles northeast of Hayden Lake Post Office.

Drainage area.--22.0 sq mi.

Gage.--Water-stage recorder since Nov. 2, 1948. Altitude of gage is 2,370 ft (from topographic map). Apr. 1 to Nov. 1, 1948, staff gage at same site and datum.

Extremes.--1948-50: Maximum discharge, 774 cfs Mar. 18, 1950 (gage height, 4.73 ft), from rating curve extended above 300 cfs on basis of slope-area determination at gage height 4.38 ft; minimum recorded, 3.6 cfs about Nov. 8, 1949.

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1948	-	-	-	-	-	-	155	167	37.5	20.4	14.7	5.84
1949	5.47	10.9	8.89	8.22	21.4	62.2	154	171.7	14.4	8.12	4.12	4.79
1950	5.91	14.5	12.0	14.8	49.3	160	160	137	39.4	17.1	8.33	6.05

Monthly and yearly runoff, in acre-feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1948	-	-	-	-	-	-	9,210	10,290	2,230	1,250	901	353
1949	336	646	534	383	1,190	3,820	9,310	4,410	857	499	315	285
1950	363	865	740	911	2,740	9,820	9,540	8,410	2,350	1,050	512	360

† Corrected.

Yearly discharge, in cubic feet per second												
Year	W.S.P. no.	Water year ending Sept. 30						Calendar year				
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff	Mean	Runoff			The year
		Discharge	Date						Inches	Acre-feet	Inches	
1948	1122	680	Apr. 17, 1948	-	-	-	-	-	-	-	-	-
1949	1152	295	Apr. 12, 1949	4.2	31.2	1.42	19.27	22.580	31.8	19.65	23,040	-
1950	1182	774	Mar. 18, 1950	4.0	52.0	2.36	32.12	37,860	-	-	-	-

544. Hayden Creek near Hayden Lake, Idaho

Location.--Lat 47°49'20", long. 116°41'10", in sec. 27, T. 52 N., R. 3 W., on left bank 0.1 mile upstream from Lancaster Creek, 0.5 mile upstream from mouth, and 5 miles northeast of Hayden Lake Post Office.

Drainage area.--26.0 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 2,270 ft (from topographic map).

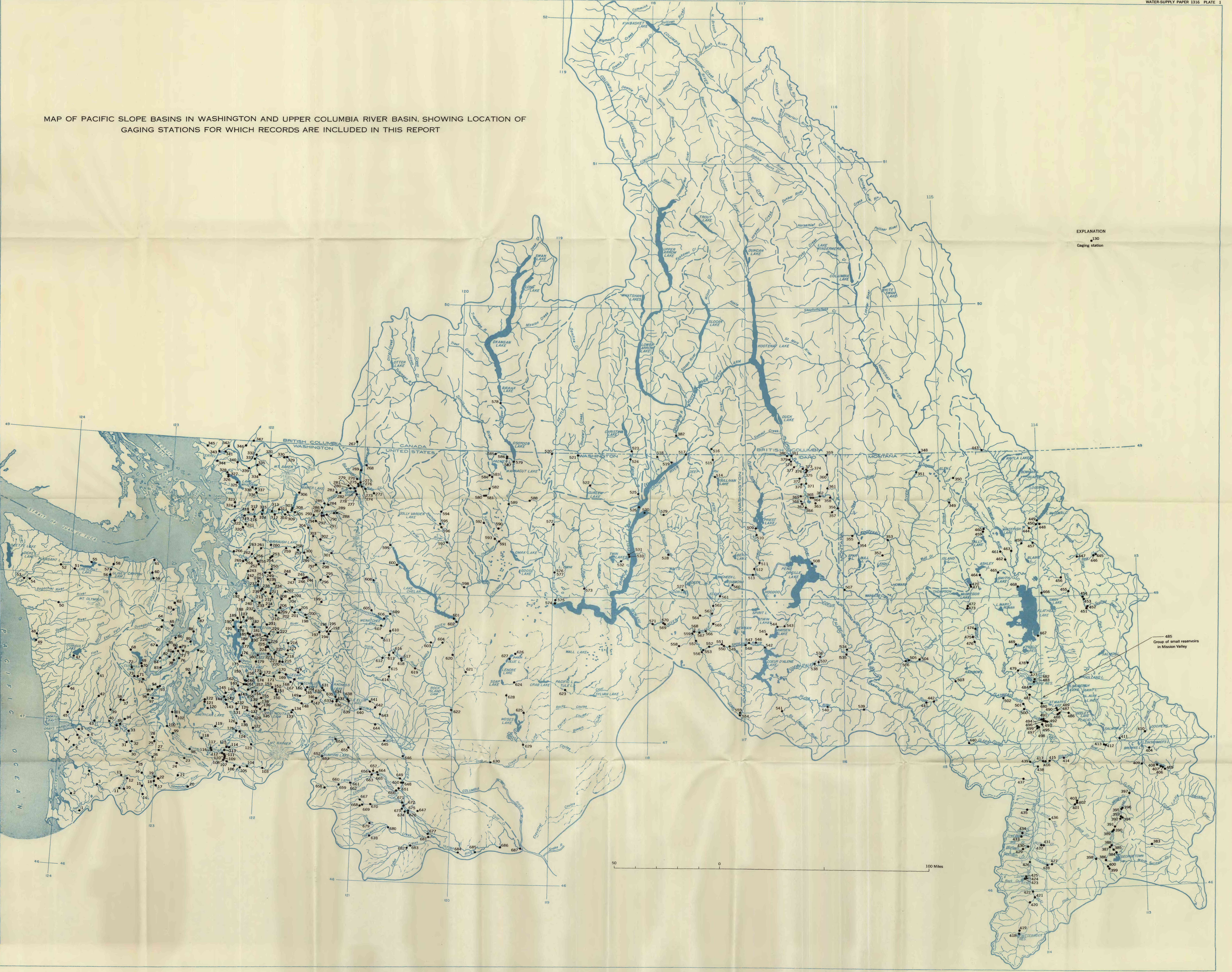
Extremes.--1946-48: Maximum discharge, 445 cfs Dec. 15, 1946 (gage height, 3.37 ft), from rating curve extended above 250 cfs; minimum, 3.2 cfs Sept. 5, 6, 1947 (gage height, 0.25 ft).

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1946	-	-	-	-	-	-	156	63.7	17.7	7.41	4.29	4.14
1947	5.21	19.4	64.2	38.0	52.9	61.3	73.1	27.6	15.3	7.05	4.53	5.39
1948	17.7	26.4	36.9	62.5	25.4	38.3	-	-	-	-	-	-

Monthly and yearly runoff, in acre-feet												
Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1946	-	-	-	-	-	-	9,270	3,920	1,050	455	264	246
1947	321	1,150	3,950	2,340	2,940	3,770	4,350	1,700	912	434	278	321
1948	1,090	1,570	2,270	3,850	1,480	2,350	-	-	-	-	-	-

MAP OF PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN, SHOWING LOCATION OF GAGING STATIONS FOR WHICH RECORDS ARE INCLUDED IN THIS REPORT



EXPLANATION
● 130
Gaging station

485
Group of small reservoirs
in Mission Valley