UNITED STATES DEPARTMENT OF THE INTERIOR
HAROLD L. ICKES, Secretary

GEOLOGICAL SURVEY
W. C. MENDENHALL, Director

Water-Supply Paper 862

SURFACE WATER SUPPLY of the UNITED STATES 1938

PART 12

PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN

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Prepared in cooperation with the States of
IDAHO, MONTANA, AND WASHINGTON

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1940

For sale by the Superintendent of Documents, Washington, D. C. - - - Price 25 cents (paper cover)

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ILLUSTRATION

SURFACE WATER SUPPLY OF PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN, 1938

SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of stage and flow made on streams, lakes, and reservoirs in the United States during the water year ending September 30, 1938. The work was begun in 1888 in connection with special studies relating to irrigation. Measurements of stream flow have been made at about 7,800 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July 1938, 3,830 gaging stations were being maintained by the Geological Survey and cooperating organizations. Many miscellaneous discharge measurements were made at other points.

In the execution of the work many State and private organizations have cooperated, either by furnishing data or by assisting in collecting data. Aknowledgments for cooperation of the first kind are made in connection with the description of each station affected; cooperation of the second kind is acknowledged on page 9.

DEFINITION OF TERMS

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

"Second-feet" is an abbreviation for "cubic feet per second." A second-foot is the rate of discharge of water flowing in a channel when the cross-sectional area is 1 square foot and the average velocity is 1 foot per second.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

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

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

"Second-foot-day" is the volume of water represented by a flow of 1 second-foot for 24 hours. It is equivalent to 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons and represents a run-off of 0.0372 inches from one square mile.

"Stage-discharge relation" is an abbreviation for the term "relation of gage height to discharge."

"Control" is a term used to designate the natural section or reach of the channel or artificial structure below the gage which determines the stage-discharge relation at the gage.

EXPLANATION OF DATA

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

measurements in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. Typical gaging stations, equipped with water-stage recorder and measuring cable and car, are shown on plate 1.

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

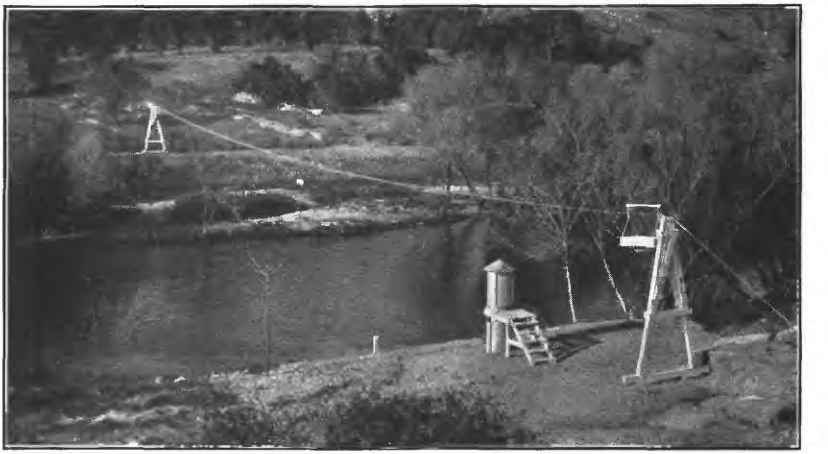
The data presented for each gaging station in the area covered by this report usually comprise a description of the station, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and run-off. Skeleton rating tables are published except for those stations whose daily discharge for the greater part of the year was determined by the shifting-control method, the slope method, or other special methods.

The description of the station gives the type of gage, its latitude and longitude determined from the best available maps, and information in regard to diversions that decrease the flow at the gage, artificial regulation from pondage or storage, and the accuracy of the records. Under "Average discharge" is given the average discharge for the number of years indicated. It is given only for stations for which there are 10 or more complete years of record. Information under "Extremes" gives the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation, and also the minimum discharge if useful; and the minimum gage height except when it is of no importance. Unless otherwise qualified, the maximum discharge corresponds to the crest stage, obtained by use of a water-stage recorder or a nonrecording gage read at the time of the crest. Likewise the minimum represents the lowest discharge, unless otherwise qualified. The peak discharge for the year with the time of its occurrence is given below the table of monthly discharge for some stations. Selected lower peaks are also given if the peak discharge exceeded the mean discharge for that day by more than 10 percent. This supplementary information is generally not given for stations having drainage areas of less than 10 square miles or more than 10,000 square miles.

The table of daily discharge gives, for stations equipped with nonrecording gages, the discharge in second-feet corresponding to once-daily or the mean of twice-daily readings of the gage. For flashy floods the mean daily discharge is determined from gage-height graphs based on gage readings made once or twice daily or oftener, as stated in the station description. For stations equipped with water-stage recorders the table gives the discharge corresponding to the mean daily gage height except for stations on streams subject to sudden or rapid fluctuation. For stations subject to such fluctuation the mean daily gage height may not indicate the true mean daily discharge, which must be obtained by averaging the discharge for intervals of the day or by using the discharge integrator, an instrument for obtaining the mean daily discharge from a continuous gage-height graph and containing as an essential element the rating curve of the station.

In the table of monthly discharge the column headed "Second-foot-days" gives the sum for each month of the figures for that month given in the table of daily discharge. The column headed "Maximum" gives the maximum daily discharge and not the discharge when the water surface was at crest height. Likewise, in the column headed "Minimum" the quantity

A. ARTIFICIAL CONTROL, RECORDER HOUSE, AND MEASURING CABLE ON OLENTANGY RIVER, DELAWARE, OHIO.



B. RECORDER HOUSE AND MEASURING CABLE ON KAWEAH RIVER, THREE RIVERS, CALIF.

TYPICAL RIVER-MEASUREMENT STATIONS.

given is the minimum daily discharge. The column headed "Mean" is the average flow in cubic feet per second during the month.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily (1) on the permanency of the stage-discharge relation and (2) on the accuracy of observation of stage, measurements of flow, and interpretation of records.

The station description gives a statement in regard to the general accuracy of the records. "Excellent" indicates that, in general, the daily records are accurate within 5 percent; "good", within 10 percent; "fair", within 15 percent; and "poor", within 20 percent or more.

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

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

The table of monthly discharge gives a general idea of the flow at the station. The table of daily discharge allows more detailed studies of the variation in flow. It should be borne in mind, however, that the observations in each succeeding year may be expected to throw new light on data previously published, and that greater degrees of refinement in computations and records may be warranted with increased data and use of improved equipment.

PUBLICATIONS

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

Part 1. North Atlantic slope basins (St. John River to York River).
2. South Atlantic slope and eastern Gulf of Mexico basins (James River to Mississippi River).
3. Ohio River Basin.
4. St. Lawrence River Basin.
5. Hudson Bay and upper Mississippi River basins.
6. Missouri River Basin.
7. Lower Mississippi River Basin.
8. Western Gulf of Mexico basins.
9. Colorado River Basin.
10. The Great Basin.
11. Pacific slope basins in California.
12. Pacific slope basins in Washington and upper Columbia River Basin.
13. Snake River Basin.
14. Pacific slope basins in Oregon and lower Columbia River Basin.

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

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

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

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

Augusta, Maine, Statehouse.
Boston, Mass., 945 Post Office Building.
Hartford, Conn., 203 Federal Building.
Albany, N. Y., 526 Federal Building.
Trenton, N. J., 228 Federal Building.
Harrisburg, Pa., 490 Education Building.
Charlottesville, Va., University of Virginia.
South Charleston, W. Va., Naval Ordnance Plant.
Asheville, N. C., 220 Post Office Building.
Columbia, S. C., 119 United States Courthouse.
Atlanta, Ga., Georgia School of Technology.
Ocala, Fla., Post Office Building.
Montgomery, Ala., 507 Post Office Building.
Chattanooga, Tenn., 442 Post Office Building.
Louisville, Ky., 641 Federal Building.
Columbus, Ohio, 404 Engineering Experiment Station, Ohio State University.
Indianapolis, Ind., 316 Federal Building.
Urbana, Ill., 14 Post Office Annex.
Madison, Wis., 337 N. State Capitol.
St. Paul, Minn., 808 New Post Office Building.
Iowa City, Iowa, 402 Hydraulic Laboratory, University of Iowa.
St. Louis, Mo., 906 Customhouse, 1114 Market Street.
Rolla, Mo., Missouri Geological Survey Building, Missouri School of Mines and Metallurgy.
Topeka, Kans., 305 Federal Building.
Fort Smith, Ark., 6 Post Office Building.
Austin, Tex., State Highway Building.
Santa Fe, N. Mex., 204 United States Courthouse.
Tucson, Ariz., 210 Post Office Building.
Denver, Colo., 230 Customhouse.
Salt Lake City, Utah, 303 Federal Building.
Idaho Falls, Idaho, 204 Federal Building.
Boise, Idaho, 429 Federal Building.
Helena, Mont., 412 Federal Building.
Tacoma, Wash., 406 Federal Building.
Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 208 Federal Office Building.
Los Angeles, Calif., G-31 Post Office and Courthouse.
Honolulu, Hawaii, 225 Federal Building.

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

Records of flow of streams in the United States have been published in the reports tabulated as follows:

Stream-flow data 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 Sept. 1890.
12th A, pt. 2	....do.....	1884 to June 30, 1891.
13th A, pt. 3	....do.....	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871-93)....	1888 to Dec. 31, 1893.
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 (also many data covering earlier years).	1895.
W 11.....	Gage heights (also gage heights for earlier years)	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895-96.

Stream-flow data in reports of the Geological Survey--Continued

Report	Character of data	Year
W 15.....	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas River.	1897.
W 16.....	Descriptions, measurements, and gage heights western Mississippi River below junction of Missouri and Platte Rivers, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27.....	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28.....	Measurements, ratings, and gage heights, Arkansas River and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)...	1898.
W 35 to 39...	Descriptions, measurements, gage heights, and ratings.	1899.
21st A, pt. 4	Monthly discharge.....	1899.
W 47 to 52...	Descriptions, measurements, gage heights, and ratings.	1900.
22d A, pt. 4.	Monthly discharge.....	1900.
W 65, 66.....	Descriptions, measurements, gage heights, and ratings.	1901.
W 75.....	Monthly discharge.....	1901.

Note.- The reports that contain records after 1901 are given in the table on page 6.

The table on the following page gives, by years and drainage basins, the numbers of the papers on surface water supply published from 1899 to 1938. The data for any particular station will, in general, be found in the reports covering the years during which the station was maintained. For example, the data from 1910 to 1920 for any station in the area covered by part 3 are published in Water-Supply Papers 283, 303, 323, 353, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

The records at most of the stations discussed in these reports extend over a series of years. Miscellaneous measurements at many points other than regular gaging stations have been made each year and are published under "Miscellaneous discharge measurements" at the end of each report, the streams and points of measurement listed appearing in the same relative order as the streams and gaging stations in the body of the report. An index of the records obtained prior to 1904 has been published in Water-Supply Paper 119.

Numbers of water-supply papers containing results of stream measurements, 1899-1938

(For basins included see p. 3)

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1899 a...	35	b 35, 36	36	36	36	c 36, 37	37	37	d 37, 38	38, e 39	38, f 39	38	38	38
1900 g...	47, h 48	48	48, i 49	49	49	49, j 50	50	50	50	51	51	51	51	51
1901.....	65, 75	65, 75	65, 75	65, 75	k 65, 66, 75	66, 75	k 65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902.....	82	b 82, 83	83	m 82, 83	k 83, 85	84	k 83, 84	84	85	85	85	85	85	85
1903.....	97	b 97, 98	98	97	k 98, 99, n 100	99	k 98, 99	99	100	100	100	100	100	100
1904.....	o 124, p 125, q 126	q 126, 127	128	129	k 128, 130	130, r 131	k 128, 131	132	133	133, s 134	134	135	135	135
1905.....	o 165, p 166, q 167	q 167, 168	169	170	171	172	k 169, 173	174	175, t 177	176, s 177	177	178	178	u 177, 178
1906.....	o 201, p 202, q 203	q 203, 204	205	206	207	208	k 205, 209	210	211, t 213	212, s 213	213	214	214	214
1907-8...	241	242	243	244	245	246	247	248	249	250, s 251	251	252	252	252
1909.....	261	262	263	264	265	266	267	268	269	270, s 271	271	272	272	272
1910.....	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911.....	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912.....	321	322	323	324	325	326	327	328	329	330	331	332-A	332-B	332-C
1913.....	351	352	353	354	355	356	357	358	359	360	361	362-A	362-B	362-C
1914.....	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915.....	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916.....	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917.....	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918.....	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919-20..	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921.....	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922.....	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923.....	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924.....	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925.....	601	602	603	604	605	606	607	608	609	610	611	612	613	614
1926.....	621	622	623	624	625	626	627	628	629	630	631	632	633	634
1927.....	641	642	643	644	645	646	647	648	649	650	651	652	653	654
1928.....	661	662	663	664	665	666	667	668	669	670	671	672	673	674
1929.....	681	682	683	684	685	686	687	688	689	690	691	692	693	694
1930.....	696	697	698	699	700	701	702	703	704	705	706	707	708	709
1931.....	711	712	713	714	715	716	717	718	719	720	721	722	723	724
1932.....	726	727	728	729	730	731	732	733	734	735	736	737	738	739
1933.....	741	742	743	744	745	746	747	748	749	750	751	752	753	754
1934.....	756	757	758	759	760	761	762	763	764	765	766	767	768	769
1935.....	781	782	783	784	785	786	787	788	789	790	791	792	793	794
1936.....	801	802	803	804	805	806	807	808	809	810	811	812	813	814
1937.....	821	822	823	824	825	826	827	828	829	830	831	832	833	834
1938.....	851	852	853	854	855	856	857	858	859	860	861	862	863	864

a Rating tables and index to Water-Supply Papers 35-39 contained in Water-Supply Paper 39. Tables of monthly discharge for 1899 in 21st Annual Report, part 4.
b James River only.
c Gallatin River.
d Green and Gunnison Rivers and Colorado River above Gunnison River.
e Mojave River only.
f Kings and Kern Rivers and south Pacific slope basins.
g Rating tables and index to Water-Supply Papers 47-52 and data on precipitation, wells, and irrigation in California and Utah contained in Water-Supply Paper 52. Monthly discharge for 1900 in 22d Annual Report, part 4.
h Wissahickon and Schuylkill Rivers to James River.
i Scioto River.
j Loup, Platte, and Elkhorn Rivers and tributaries below Platte River.
k Tributaries of Mississippi River from east.
m Lake Ontario and tributaries to St. Lawrence River proper.
n Hudson Bay only.
o New England rivers only.
p Hudson River to Delaware River, inclusive.
q Susquehanna River to Yadkin River, inclusive.
r Platte and Kansas Rivers.
s The Great Basin in California, except Truckee and Carson River Basins.
t Below junction with Gila River.
u Rogue, Umpqua, and Siletz Rivers only.

From time to time reports have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which have been revised), as well as some records not contained in the annual series of water-supply papers. The following table gives the numbers and titles of these reports, arranged in alphabetical order by States and drainage basins.

Reports containing compilation of discharge by States and drainage basins.

Water-Supply Paper	Year ending	State or drainage basin and title
		STATE
107	1903	Alabama, Water powers of, with an appendix on stream measurements in Mississippi.
298	1912	California, Water resources of, part 1, Stream measurements in Sacramento River Basin.
299	1912	California, Water resources of, part 2, Stream measurements in San Joaquin River Basin.
300	1912	California, Water resources of, part 3, Stream measurements in the Great Basin and Pacific coast river basins.
447	1918	California, Surface water supply of the southern Pacific slope of.
597e	1927	California, Surface water supply of Sacramento River Basin.
636d	1927	California, Surface water supply of San Joaquin River Basin.
636e	1927	California, Surface water supply of Pacific slope basins in.
637a	1927	California, Surface water supply of minor San Francisco Bay, northern Pacific, and Great basins in.
74	1900	Colorado, Water resources of.
197	1905	Georgia, Water resources of.
415	1915	Massachusetts, Surface waters of.
230	1906	Nebraska, Surface water supply of.
370	1910	Oregon, Surface water supply of.
850	1937	Texas, Summary of records of surface waters of.
424	1916	Vermont, Surface waters of.
492	1919	Washington, Summary of hydrometric data in.
469	1921	Wyoming, Surface waters of, and their utilization.
		DRAINAGE BASIN
395	1914	Colorado River (Colo., Utah, etc.) and its utilization, 1916.
617	1927	Colorado River, upper (Colo., Utah), and its utilization, 1929.
517	1920	Great Salt Lake Basin, Water powers of, 1924.
618	1926	Green River (Wyo., Utah) and its utilization, 1930.
198	1906	Kennebec River Basin (Maine), Water resources of, 1907.
		Milk River. (See St. Mary and Milk Rivers.)
536	1920	New-Kanawha River Basin (W. Va., Va., N. C.), Surface water supply of, 1925.
279	1909	Penobscot River Basin (Maine), Water resources of, 1912.
192	1906	Potomac River Basin (W. Va., Va., Md., etc.), 1907.
358	1913	Rio Grande Basin (N. Mex., Tex., etc.), Water resources of, 1888-1913.
491	1917	St. Mary and Milk Rivers (Mont. and Canada), Water supply of, 1920.
109	1904	Susquehanna River Basin (Pa., Md.), Hydrography of, 1905.

In addition to the records noted above, records of discharge have been published 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.

State reports containing compilation of records of discharge

State	Year ending	Report	Issued by
Alabama....	1915	Bull. 17, Water powers of Alabama.....	Geological Survey of Alabama.
Arkansas...	1928	Stream gaging report 1.....	Arkansas Geological Survey.
Georgia....	1920	Bull. 38, Water powers of Georgia.....	Geological Survey of Georgia.
Illinois...	1937	Stream flow data of Illinois.....	Division of Waterways.
Do.....	1911	Water resources of Illinois.....	Rivers and Lakes Commission.
Indiana....	1927	Pub. 72, Surface water supply of Indiana.	Department of Conservation.
Do.....	[a]1930	Pub. 112, Surface water supply of Indiana.	Do.
Iowa.....	1932	Stream-flow records of Iowa.....	Iowa State Planning Board.
Kansas.....	[b]1919	Surface waters of Kansas.....	Kansas Water Commission.
Do.....	[c]1924	.....do.....	Do.

State reports containing compilation of records of discharge--Continued

State	Year ending	Report	Issued by
Kansas.....	[d]1928	Surface waters of Kansas.....	Kansas State Board of Agriculture.
Do.....	[e]1935	Stream-flow data of Kansas.....	Do.
Kentucky...	1920	Surface waters of Kentucky.....	Kentucky Geological Survey.
Minnesota..	1912	Water resources investigation of Minnesota.	State Drainage Commission.
Missouri...	1926	Reports of Bureau of Geology and Mines, vol. 20, 2d series, Water Resources of Missouri.	Missouri Bureau of Geology and Mines.
Nebraska...	1914	1st hydrographic report.....	Bureau of Water Power, Irrigation and Drainage.
Do.....	[f]1928	2d hydrographic report.....	Do.
New Jersey.	1928	Bull. 33, Surface water supply of New Jersey.	Department of Conservation and Development.
Do.....	[g]1934	Special Report 5, Surface water supply of New Jersey.	State Water Policy Commission.
New Mexico.	1925	Surface water supply of New Mexico....	Office of the State Engineer.
North Carolina.	1923	Bull. 34, Discharge records of North Carolina streams.	Department of Conservation and Development.
Do.....	[h]1936	Bull. 39, Discharge records of North Carolina streams.	Do.
Oregon.....	1914	Bull. 4, Water resources of the State of Oregon.	Office of the State Engineer.
Do.....	[i]1924	Bull. 7, Water resources of the State of Oregon.	Do.
Do.....	[j]1930	Bull. 8, Water resources of the State of Oregon.	Do.
Do.....	[k]1936	Bull. 9, Water resources of the State of Oregon.	Do.
Pennsylvania	1911	Report of Water Supply Commission of Pennsylvania.	Water Supply Commission of Pennsylvania
Do.....	[l]1932	Stream-flow records of Pennsylvania...	Department of Forests and Waters.
Tennessee..	1924	Bull. 34, Water resources of Tennessee.	Department of Education.
Do.....	[m]1930	Bull. 40, Surface waters of Tennessee.	Do.
Utah.....	1905	5th Biennial Report, State Engineer...	Office of the State Engineer.
Virginia...	1927	Bull. 31, Water resources of Virginia.	Conservation and Development Commission.
Washington.	1933	Bull. 5, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.
Wisconsin..	1914	1st report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.
Do.....	[n]1923	2d report of Railroad Commission of Wisconsin to Legislature on water powers.	Do.

a Includes records for the years 1927-30.
b Includes records for the years 1895-1919.
c Includes records for the years 1919-24.
d Includes records for the years 1924-28.
e Includes records for the years 1928-35.
f Includes records for the years 1914-28.
g Includes records for the years 1928-34.
h Includes records for the years 1889-1936; records of daily and monthly discharge are not included.
i Includes records for the years 1914-24.
j Includes records for the years 1924-30.
k Includes records for the years 1930-36.
l Includes records for the years 1928-32.
m Includes average weekly discharge for the years 1920-30.
n Includes records for the years 1914-23.

Note.- In addition to the records contained in the reports listed above, the following States have issued annual or biennial reports in which are contained records of discharge: California, Colorado, Idaho, Indiana, Missouri, Montana, Nebraska, New Mexico, New York (also New York City Board of Water Supply), North Dakota, Oregon, Pennsylvaria, Utah, Washington, and Wyoming.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

Records of daily discharge of Reservation Drain at Alfalfa, Wash., for 1923-38 were collected by the Office of Indian Affairs and have not been published. Records for some earlier years were published in water-supply papers of the Geological Survey.

Unpublished records of daily discharge for 1938 and earlier years have been collected by the Bureau of Reclamation for many canals in Washington in connection with irrigation projects.

COOPERATION

The work was done under cooperative agreements with the several States as follows: In Idaho, with the Department of Reclamation, R. W. Faris, commissioner. In Montana, with the office of the State engineer, J. S. James, succeeded by E. B. Donahue; and with the State Water Conservation Board. In Washington, with the Department of Conservation and Development, John Brooke Fink, director, and C. J. Bartholet, supervisor of hydraulics. Division of Water Resources; with the cities of Aberdeen, Everett, Seattle, and Tacoma; with King and Pierce Counties, through the Intercounty River Improvement Commission; with Skagit and Whatcom Counties; and with Wenatchee Reclamation District.

Acknowledgment of financial assistance in collecting records published herein is due also to the United States Department of State, the Bureau of Reclamation and Office of Indian Affairs of the United States Department of the Interior, and the Forest Service and Weather Bureau of the United States Department of Agriculture.

Full cooperation exists between this organization and the Dominion Water and Power Bureau, Department of Mines and Resources, Canada. On waters adjacent to the international boundary certain stations are maintained jointly by the United States and Canada under the terms of the Boundary Waters Treaty of 1909, and others are maintained under a subsequent agreement between the two Governments. The records from all these stations are obtained in such a manner as to be equally acceptable and available in either country. These stations are herein designated "international gaging stations."

Assistance in collecting the records was also rendered by the following municipalities, corporations, and individuals: In Idaho, by the city of Sandpoint and the Washington Water Power Co.; in Montana, by the Rocky Mountain Power Co. and the Glacier Silver Lead Co.; in Washington, by the Crown Zellerbach Corporation, Hugh L. Cooper Co., R. G. Hall, West Coast Power Co., the Puget Sound Power & Light Co., the Washington Water Power Co., and the Western Washington Electric Light & Power Co.

Funds for the construction, repair, and improvement of gaging stations were allocated to the Geological Survey by the Federal Emergency Administration of Public Works.

DIVISION OF WORK

The data for the stations in the several States were collected and prepared for publication under the supervision of district engineers as follows: In Idaho (except for Pend Oreille River at Priest River) and for Clark Fork near Heron, Mont., Flathead River at Flathead, British Columbia, Kootenai River at Newgate, British Columbia, and Kootenai River near Rexford, Mont., T. R. Newell; in Montana (except for the stations noted above), W. A. Lamb until February 9, 1938, succeeded by A. H. Tuttle; in Washington and for Pend Oreille River at Priest River, Idaho, G. L. Parker.

Basins between Columbia River and Puget Sound

NASELLE RIVER BASIN

Naselle River near Naselle, Wash.

Location.- Staff gage, lat. 46°22', long. 123°44', in SW¼ sec. 1, T. 10 N., R. 9 W., 1⅛ miles upstream from Salmon Creek and 3⅛ miles east of Naselle.

Drainage area.- 66 square miles.

Records available.- May 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 5,670 second-feet Nov. 25 (gage height, 11.32 feet); minimum observed, 24 second-feet Sept. 2, 3 (gage height, 1.86 feet).

1929-38: Maximum discharge observed, 10,400 second-feet Jan. 22, 1935 (gage height, 15.9 feet, from floodmarks), from rating curve extended above 3,000 second-feet; minimum observed, 22 second-feet Oct. 6, 7, 1929; minimum gage height observed, 1.72 feet Aug. 29, 1935.

Remarks.- Records good except those above 3,000 second-feet, which are poor. Gage read twice daily. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 1 to June 30)

Oct. 1 to Nov. 7
July 1 to Sept. 30

1.8	20	3.5	405
2.0	37	4.0	625
2.2	65	5.0	1,120
2.5	128	6.0	1,720
3.0	250		

Nov. 8 to Apr. 30

2.0	37	3.5	465	7.0	2,370
2.2	73	4.0	670	8.0	3,070
2.5	140	5.0	1,170	9.0	3,790
3.0	290	6.0	1,770	10.0	4,590
				11.0	5,400

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	490	388	670	1,010	323	323	428	211	89	47	29	25
2	405	370	585	760	323	340	392	226	89	47	29	24
3	262	335	505	625	410	306	357	226	85	47	29	24
4	212	290	446	545	545	306	374	274	77	47	29	30
5	176	250	392	446	585	323	340	306	73	46	29	59
6	152	275	340	374	670	290	306	258	71	44	29	40
7	142	445	306	340	670	274	274	226	73	42	29	34
8	128	3,210	290	306	585	258	258	211	69	41	29	33
9	118	2,190	392	290	585	242	242	196	69	40	29	31
10	106	1,410	715	306	545	226	226	211	67	44	29	28
11	104	1,010	860	306	505	211	226	258	67	56	35	27
12	100	1,060	670	357	625	226	226	258	67	44	33	27
13	94	1,770	585	485	670	242	196	258	65	40	33	26
14	89	2,250	670	1,110	585	374	196	242	67	37	34	26
15	96	1,890	715	860	505	505	485	211	65	37	33	26
16	262	1,770	1,710	670	446	1,010	1,290	193	65	37	32	26
17	275	1,410	2,010	625	410	1,060	2,250	184	69	36	37	25
18	238	1,060	1,470	670	374	1,950	2,370	170	67	36	40	27
19	238	1,290	960	625	357	1,410	1,350	162	64	35	34	28
20	535	1,590	715	1,060	545	1,010	910	148	60	35	32	27
21	558	1,350	585	1,410	625	760	670	140	54	35	32	27
22	405	1,650	485	1,060	585	1,110	545	138	51	34	31	26
23	370	2,010	428	910	585	1,350	446	132	51	32	31	25
24	275	2,650	392	760	545	1,350	392	122	51	32	31	27
25	250	4,910	545	670	485	1,170	357	115	51	32	31	30
26	250	2,310	960	545	446	910	323	113	51	32	31	29
27	468	1,710	1,710	485	392	715	290	113	51	32	30	27
28	1,180	1,710	4,590	428	357	670	258	108	49	31	30	27
29	920	1,230	3,000	410	-	585	226	104	47	31	30	28
30	625	860	2,010	374	-	505	226	97	47	30	29	28
31	468	-	1,350	340	-	465	-	93	-	30	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	9,991	1,180	89	322	4.88	5.63	19,820
November	44,653	4,910	250	1,488	22.5	25.10	88,570
December	31,061	4,590	290	1,002	15.2	17.52	61,610
Calendar year 1937	191,973	4,910	37	526	7.97	108.06	380,800
January	19,162	1,410	290	618	9.36	10.79	38,010
February	14,283	670	323	510	7.73	8.05	28,330
March	20,476	1,950	211	661	10.0	11.53	40,610
April	16,429	2,370	196	548	8.30	9.26	35,590
May	5,704	306	93	184	2.79	3.22	11,310
June	1,921	89	47	64.0	.970	1.08	3,810
July	1,189	56	30	38.4	.582	.67	2,360
August	965	40	26	31.1	.471	.54	1,910
September	867	59	24	28.9	.438	.49	1,720
Water year 1937-38	166,701	4,910	24	457	6.92	93.88	330,600

North River near Raymond, Wash.

Location.- Water-stage recorder, lat. 46°49', long. 123°51', in sec. 6, T. 15 N., R. 9 W., 1¼ miles upstream from Salmon Creek and 10 miles northwest of Raymond.

Records available.- August 1927 to September 1938.

Average discharge.- 11 years, 1,007 second-feet.

Extremes.- Maximum discharge during year (not determined), occurred Dec. 28 or 29, while recorder was not operating; minimum, 24 second-feet Sept. 17 (gage height, 1.18 feet). 1927-38: Maximum discharge, about 35,000 second-feet Dec. 10, 1933 (gage height, 15.8 feet, from floodmarks), from rating curve extended above 6,300 second-feet; minimum, that of Sept. 17, 1938.

Remarks.- Records excellent except those for period of missing gage heights, Dec. 27-30, Apr. 17-25, which were computed on basis of records for Chehalis River near Grand Mound and are poor. Splash dam 800 feet above gage no longer operating.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 27

1.5	66	3.5	990
2.0	168	4.0	1,500
2.5	320	5.0	2,800
3.0	600		

Note.- Same as following table above 5.85 feet.

Dec. 28 to Sept. 30

1.1	17	3.0	620	7.0	6,850
1.3	37	3.5	1,060	8.0	9,600
1.5	65	4.0	1,600	10.0	15,730
2.0	164	5.0	2,870	12.0	22,200
2.5	312	6.0	4,600		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	458	593	1,790	3,580	1,050	620	1,120	485	180	84	49	32
2	446	488	1,500	2,590	1,070	662	988	485	169	84	47	30
3	324	446	1,280	2,020	1,170	688	907	506	164	86	47	29
4	243	416	1,100	1,660	1,540	637	880	549	159	84	46	34
5	243	375	954	1,440	2,140	628	826	596	152	84	46	46
6	208	370	844	1,240	2,660	604	714	527	147	81	46	44
7	176	504	764	1,100	2,800	557	637	440	140	78	46	45
8	160	2,880	698	979	2,590	520	596	397	136	76	45	46
9	146	5,220	691	898	2,590	478	573	376	133	76	42	40
10	134	4,500	1,050	871	2,200	458	534	355	129	78	44	35
11	127	2,300	1,560	835	1,960	440	492	452	125	76	50	34
12	122	1,970	1,500	826	1,720	446	471	534	122	79	52	33
13	118	4,130	1,340	1,100	1,540	506	446	471	120	81	53	30
14	114	7,620	1,500	2,240	1,440	773	408	403	120	76	53	28
15	110	7,360	1,730	2,940	1,260	1,020	945	351	120	68	52	26
16	203	5,010	2,510	2,260	1,100	1,490	1,490	325	125	64	52	25
17	252	3,270	3,810	1,840	1,010	1,780	2,600	305	122	59	53	25
18	299	2,370	3,720	1,780	925	2,800	3,400	289	118	56	53	27
19	231	2,440	2,650	1,780	853	3,840	3,500	279	116	54	52	32
20	602	3,620	1,850	1,900	907	2,870	2,600	267	112	53	52	34
21	691	3,900	1,440	2,730	979	2,140	2,000	254	110	53	52	35
22	565	2,950	1,220	2,800	898	2,020	1,590	242	102	52	50	34
23	390	2,880	1,100	2,460	907	2,730	1,270	233	98	53	46	32
24	320	3,190	1,090	2,200	918	3,660	1,050	221	93	53	45	37
25	288	6,120	1,310	1,900	835	3,160	890	212	91	54	44	35
26	265	6,360	5,000	1,600	782	2,400	764	204	88	53	45	32
27	336	5,220	8,600	1,380	722	*2,170	705	201	86	53	44	30
28	1,110	3,900	14,000	1,270	662	*1,940	637	196	86	53	42	32
29	1,730	3,270	20,000	1,290	-	1,720	580	196	88	53	42	32
30	1,210	2,370	10,000	1,160	-	1,490	520	193	86	50	41	32
31	780	-	5,890	1,070	-	1,280	-	187	-	49	33	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	12,401	1,730	110	400	24,600
November	96,042	7,620	370	3,201	190,500
December	102,491	20,000	691	3,306	203,300
Calendar year 1937	442,943	20,000	68	1,214	878,600
January	53,739	3,580	826	1,734	106,600
February	39,226	2,800	662	1,401	77,800
March	46,527	3,840	440	1,501	92,280
April	34,133	3,500	408	1,138	67,700
May	10,731	596	187	346	21,280
June	3,635	180	86	121	7,210
July	2,053	86	49	66.2	4,070
August	1,464	53	33	47.2	2,900
September	1,006	46	25	33.5	2,000
Water year 1937-38	403,448	20,000	25	1,105	800,200

*Discharge interpolated.

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Chehalis River near Grand Mound, Wash.

Location.- Water-stage recorder, lat. 46°47', long. 123°02', in NE¼ sec. 22, T. 15 N., R. 3 W., at Meadow, 1½ miles southwest of Grand Mound and about 6 miles downstream from Skookumchuck River. Zero of gage is 123.27 feet above mean sea level (general adjustment of 1929).

Drainage area.- 928 square miles.

Records available.- October 1928 to September 1938.

Average discharge.- 10 years, 2,740 second-feet.

Extremes.- Maximum discharge during year, 48,400 second-feet Dec. 29 (gage height, 18.39 feet); minimum, 108 second-feet Sept. 24.
1928-38: Maximum discharge, that of Dec. 29, 1937; minimum, that of Sept. 24,1938.

Remarks.- Records good. Cities of Centralia and Chehalis divert about 15 second-feet from Newaukum River, a tributary, for municipal supply. No noticeable regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Nov. 8 and July 1 to Sept. 30)

2.2	90	4.0	1,230	14.0	23,100
2.5	174	5.0	2,460	17.0	38,800
2.8	288	7.0	5,350	19.0	53,000
3.1	450	9.0	9,050		
3.4	666	11.0	13,750		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	748	1,050	6,010	17,600	3,160	2,670	3,510	1,460	523	284	162	133
2	876	867	4,740	11,400	3,230	2,670	3,090	1,460	490	284	171	133
3	604	813	4,140	7,860	3,160	2,600	2,880	1,370	476	288	168	133
4	509	768	3,720	5,840	3,440	2,600	3,230	1,450	470	298	174	138
5	444	691	3,160	4,590	3,720	2,810	3,160	1,530	444	298	156	133
6	402	683	2,810	3,860	7,340	2,740	2,810	1,440	438	275	147	144
7	363	666	2,530	3,440	9,050	2,460	2,460	1,320	450	266	144	200
8	347	3,220	2,390	3,090	8,050	2,190	2,260	1,210	408	254	153	184
9	341	13,500	2,190	2,810	6,550	2,060	2,190	1,160	402	241	168	165
10	312	11,200	3,160	2,600	5,670	1,930	2,120	1,110	402	241	162	150
11	312	7,100	5,670	2,530	5,040	1,810	2,000	1,260	396	241	153	138
12	336	5,190	5,840	2,600	4,440	1,750	2,060	1,360	390	266	156	127
13	298	6,580	4,740	3,580	4,440	1,870	2,000	1,220	385	258	156	127
14	279	14,300	4,440	5,980	4,890	2,000	1,810	1,140	374	237	156	127
15	271	14,800	4,290	11,400	4,290	3,160	1,690	1,000	385	218	184	119
16	326	11,400	5,190	8,850	3,720	6,980	2,810	950	385	211	197	127
17	559	9,470	9,470	6,910	3,300	8,250	5,040	921	390	204	174	119
18	700	7,100	10,800	6,910	2,950	8,450	10,700	858	408	200	174	111
19	566	6,550	8,050	7,100	2,740	12,700	11,000	822	390	204	190	119
20	496	9,680	5,840	6,010	2,600	11,000	7,100	768	379	194	190	119
21	635	10,800	4,590	6,370	3,230	8,050	5,040	759	358	187	181	122
22	635	8,650	3,860	6,910	3,160	6,190	3,860	674	336	181	147	116
23	552	9,890	3,440	7,100	3,300	9,330	3,370	658	322	187	141	111
24	509	10,800	3,440	6,550	3,510	12,700	2,810	627	302	174	138	116
25	496	13,000	3,370	5,670	3,440	10,800	2,530	604	271	177	138	116
26	463	16,800	6,790	4,740	3,230	8,250	2,260	581	288	187	144	116
27	470	14,800	14,600	4,140	2,950	6,190	2,000	574	298	184	141	119
28	793	13,200	26,800	3,720	2,810	5,840	1,870	588	302	181	150	116
29	3,510	11,400	46,300	3,720	-	5,350	1,690	545	293	177	136	116
30	2,060	8,250	35,800	3,370	-	4,590	1,630	516	288	165	138	124
31	1,370	-	25,300	3,090	-	4,000	-	530	-	162	130	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	20,582	3,510	271	664	0.716	0.83	40,820
November	243,218	16,800	666	8,107	8.74	9.75	482,400
December	273,470	46,300	2,190	8,822	9.51	10.96	542,400
Calendar year 1937	1,304,513	46,300	243	3,574	3.85	52.30	2,587,000
January	180,340	17,600	2,530	5,817	6.27	7.23	357,700
February	117,410	9,050	2,600	4,193	4.52	4.71	232,900
March	163,990	12,700	1,750	5,290	5.70	6.57	325,300
April	100,980	11,000	1,630	3,366	3.63	4.05	200,300
May	30,465	1,530	516	983	1.06	1.22	60,430
June	11,443	523	271	381	.411	.46	22,700
July	6,924	298	162	223	.240	.28	13,730
August	4,919	197	130	159	.171	.20	9,760
September	3,918	200	111	131	.141	.16	7,770
Water year 1937-38	1,157,659	46,300	111	3,172	3.42	46.42	2,296,000

Satsop River near Satsop, Wash.

Location.- Water-stage recorder, lat. 47°00', long. 123°30', in sec. 36, T. 18 N., R. 7 W., 1 mile west of Satsop and 1½ miles upstream from mouth. Prior to Mar. 19, 1938, staff gage at same site.

Drainage area.- 315 square miles.

Records available.- March 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 30,100 second-feet Dec. 28 (gage height, 14.3 feet), from rating curve extended above 14,000 second-feet; minimum discharge, 166 second-feet Sept. 21.
1929-38: Maximum discharge observed, 52,500 second-feet Jan. 22, 1935 (gage height, 18.0 feet, from floodmarks), from rating curve extended above 17,000 second-feet; minimum discharge, that of Sept. 21, 1938.

Remarks.- Records fair except those for period of rapidly changing stage, Oct. 1 to Mar. 18, which are poor. Gage read once daily Oct. 1 to Mar. 18. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Sept. 4-30)

Oct. 1 to Dec. 28

2.2	190	4.5	2,340	8.0	9,240
2.5	325	5.0	3,050	10.0	14,000
3.0	665	6.0	4,850	12.0	19,800
3.5	1,120	7.0	6,950	15.0	33,920
4.0	1,690				

Dec. 29 to Sept. 3

2.0	110	5.0	2,800
2.5	260	6.0	4,800
3.0	540	7.0	6,950
3.5	950	8.0	9,240
4.0	1,460	10.0	14,000
4.5	2,050	12.0	19,800

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,070	1,820	3,540	6,730	2,470	2,470	2,320	1,350	650	410	290	228
2	1,450	1,690	3,050	6,290	2,800	2,630	2,180	1,300	650	410	285	228
3	1,020	1,690	2,900	4,170	2,800	2,320	2,050	1,300	610	410	285	224
4	830	1,450	2,620	3,560	3,760	2,800	2,050	1,350	610	410	280	234
5	665	1,340	2,340	2,980	3,560	2,470	1,920	1,300	610	410	270	270
6	*590	1,230	2,210	2,800	3,760	2,180	1,800	1,200	575	385	270	260
7	520	3,720	2,080	2,470	3,560	1,920	1,680	1,150	575	385	270	236
8	485	12,300	1,950	2,180	3,170	1,800	1,680	1,100	540	385	265	220
9	450	6,730	1,950	2,050	2,980	1,800	1,680	1,050	540	385	265	208
10	398	4,650	3,370	2,050	2,980	1,680	1,660	1,050	540	385	260	205
11	385	3,720	4,270	1,920	2,630	1,680	1,570	1,150	540	410	270	202
12	373	4,080	3,540	2,180	2,470	1,680	1,570	1,300	505	385	270	193
13	355	8,780	2,900	2,630	2,630	2,470	1,570	1,250	505	360	270	193
14	337	13,500	4,080	7,400	2,630	2,320	1,460	1,200	540	355	275	190
15	349	9,240	4,270	5,220	2,320	3,360	1,980	*1,160	540	345	260	190
16	705	9,470	7,170	4,380	2,180	4,590	4,590	*1,120	505	340	256	187
17	520	6,730	6,730	3,960	1,920	3,760	8,750	*1,090	505	335	260	184
18	745	4,460	5,050	4,380	2,050	6,510	10,600	1,050	470	335	270	190
19	665	5,250	4,080	4,170	1,920	5,850	5,850	1,000	470	330	260	199
20	5,660	9,930	3,210	3,560	2,630	4,380	3,960	950	470	325	252	202
21	3,210	6,510	2,760	5,220	3,360	3,560	3,170	905	470	320	248	193
22	2,080	6,080	2,480	5,010	4,590	3,170	2,630	905	440	315	244	211
23	1,570	6,950	2,340	4,170	2,800	4,590	2,320	860	440	310	240	202
24	1,340	8,090	2,210	3,560	2,800	6,290	2,180	815	440	315	240	199
25	1,340	16,900	2,080	2,980	2,800	5,430	1,920	770	440	310	240	199
26	1,230	8,780	3,050	2,630	2,470	4,170	1,800	770	440	305	240	202
27	3,900	7,630	3,050	2,320	2,470	3,560	1,680	730	440	305	236	196
28	11,100	8,320	30,100	2,630	2,470	4,590	1,570	730	410	305	236	193
29	4,460	5,660	14,200	2,470	-	3,560	1,460	690	410	305	236	196
30	2,900	4,460	13,900	2,320	-	2,980	1,400	690	410	300	232	199
31	2,080	-	9,470	2,180	-	2,470	-	690	-	290	232	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	52,782	11,100	337	1,703	5.41	6.24	104,700
November	191,160	16,900	1,230	6,372	20.2	22.54	379,200
December	156,850	30,100	1,950	5,060	16.1	18.56	311,100
Calendar year 1937	883,572	30,100	206	2,421	7.69	104.32	1,753,000
January	110,570	7,400	1,920	3,567	11.3	13.03	219,300
February	78,980	4,590	1,920	2,821	8.96	9.33	156,700
March	103,040	6,510	1,680	3,324	10.6	12.22	204,400
April	81,070	10,600	1,400	2,702	8.58	9.57	160,800
May	31,975	1,350	690	1,031	3.27	3.77	63,420
June	15,290	650	410	510	1.62	1.81	30,330
July	10,875	410	290	351	1.11	1.28	21,570
August	8,007	290	232	258	.819	.94	15,880
September	6,233	270	184	208	.660	.74	12,360
Water year 1937-38	846,832	30,100	184	2,320	7.37	100.03	1,680,000

*Discharge interpolated.

Wynoochee River at Oxbow, near Aberdeen, Wash.

Location.- Water-stage recorder, lat. 47°19'30", long. 123°38'20", in sec. 12, T. 21 N., R. 8 W., 1 mile downstream from Oxbow and 24 miles northeast of Aberdeer. Discharge measurements made 1½ miles upstream.

Drainage area.- About 65 square miles, above measuring section (uncertain because of inadequate maps).

Records available.- May 1925 to September 1938.

Average discharge.- 13 years, 774 second-feet.

Extremes.- Maximum discharge recorded during year, 11,100 second-feet Oct. 28 (gage height, 23.2 feet), but stage and discharge known to have been higher Dec. 28, when recorder was not operating; minimum discharge, 88 second-feet Sept. 13, 14, 15, 16, 17, 18.

1925-38: Maximum discharge, about 18,000 second-feet Jan. 22, 1935 (gage height, 30.3 feet, from floodmarks), from rating curve extended above 5,300 second-feet; minimum, 76 second-feet Sept. 23, 1930.

Remarks.- Records excellent except those for periods of missing gage heights, Dec. 27-29, Jan. 20-22 (computed on basis of records for South Fork of Skokomish River near Union), which are poor, and those for Oct. 10-13, July 15-28 (interpolated), which are good. No diversion or regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

2.0	90	4.0	305	8.0	1,340	14.0	3,960	22.0	10,000
2.5	122	5.0	520	9.0	1,650	16.0	5,350	23.2	11,080
3.0	171	6.0	770	10.0	1,990	18.0	6,750		
3.5	229	7.0	1,048	12.0	2,810	20.0	8,350		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,050	770	1,190	1,990	852	1,110	668	668	374	188	112	90
2	899	999	1,080	1,560	880	1,370	630	606	385	182	108	90
3	520	992	1,020	1,280	936	1,050	643	580	374	176	108	90
4	428	770	880	1,110	1,020	1,050	668	556	396	171	108	102
5	334	693	770	992	936	880	618	520	406	171	108	105
6	279	668	718	880	824	770	580	484	417	171	108	102
7	249	924	643	797	770	718	556	462	406	166	105	99
8	229	4,420	606	744	693	643	606	462	374	166	105	96
9	210	2,060	606	693	643	618	630	462	324	166	105	93
10	201	1,590	1,930	693	606	580	580	462	296	176	105	90
11	192	1,400	2,450	643	568	580	580	556	296	171	105	90
12	184	1,900	1,520	880	580	808	606	693	305	166	105	90
13	175	2,860	1,140	1,440	718	1,340	556	630	314	160	105	88
14	166	2,800	1,520	2,860	668	1,400	520	556	296	160	105	88
15	182	2,100	1,400	1,490	593	1,400	1,200	544	279	157	102	88
16	700	3,430	2,560	1,280	544	1,490	1,880	544	271	154	102	88
17	520	2,100	2,020	1,160	508	1,140	3,780	496	264	150	105	88
18	344	1,520	1,560	1,190	496	1,370	3,160	450	249	147	105	90
19	323	1,830	1,220	1,080	484	1,220	1,650	450	242	144	102	90
20	1,690	3,820	1,020	1,000	921	964	1,220	508	242	141	99	105
21	1,050	1,960	880	1,100	964	824	1,020	556	256	138	99	118
22	668	2,380	797	1,200	797	770	936	568	264	134	96	99
23	593	3,120	718	1,160	824	936	852	580	249	131	96	93
24	580	3,450	668	964	880	1,250	797	580	236	128	96	102
25	606	5,890	630	852	908	1,080	744	568	229	125	96	108
26	595	2,660	668	770	908	936	718	544	216	122	96	99
27	2,170	3,520	1,500	718	908	1,270	668	544	210	118	93	93
28	5,940	2,740	11,000	797	936	1,430	668	496	204	115	93	90
29	1,850	1,780	7,000	797	-	1,050	693	428	198	112	93	90
30	1,220	1,430	4,740	718	-	852	718	406	193	112	93	96
31	936	-	2,610	693	-	744	-	385	-	112	93	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	25,083	5,940	166	809	49,750
November	66,576	5,890	668	2,219	132,100
December	57,064	11,000	606	1,841	113,200
Calendar year 1937	336,718	11,000	103	933	667,900
January	33,531	2,860	643	1,082	66,510
February	21,365	1,020	484	733	42,380
March	31,643	1,490	580	1,021	62,760
April	29,145	3,780	520	972	57,810
May	16,344	693	385	527	32,420
June	8,765	417	193	292	17,390
July	4,630	188	112	149	9,180
August	3,151	112	93	102	6,250
September	2,850	118	88	95.0	5,650
Water year 1937-38	300,147	11,000	88	822	595,400

Peak discharge.- Oct. 28 (7 a.m.) 11,100 sec.-ft.; Nov. 25 (8:30 a.m.) 7,790 sec.-ft.

Quinault River at Quinault Lake, Wash.

Location.- Water-stage recorder, lat. 47°27'30", long. 123°53'30", in sec. 25, T. 23 N., R. 10 W., at outlet of Quinault Lake, 4 miles southwest of Quinault.

Drainage area.- 264 square miles.

Records available.- October 1911 to December 1922, July to November 1924, September 1925 to November 1932, and May 1933 to September 1938 in reports of Geological Survey. October 1911 to September 1933 (monthly discharge only) in State Water-Supply Bulletin 5.

Average discharge.- 27 years, 2,713 second-feet.

Extremes.- Maximum discharge during year, 23,400 second-feet Dec. 29 (gage height, 12.86 feet); minimum, 322 second-feet Sept. 17, 18 (gage height, 2.07 feet).
1911-22, 1924-32, 1933-38: Maximum discharge, 37,000 second-feet Dec. 12, 1921 (gage height, 16.3 feet, former datum); minimum, 285 second-feet Sept. 20, 1924 (gage height, 0.74 foot, former datum).

Remarks.- Records excellent. No diversion; slight regulation caused by natural storage in lake.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

2.0	280	4.5	2,500	9.0	11,250
2.5	560	5.0	3,210	10.0	13,850
3.0	950	6.0	4,800	11.0	16,900
3.5	1,400	7.0	6,730	12.0	20,300
4.0	1,910	8.0	8,880	13.0	23,800

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,380	3,440	4,980	8,660	2,020	2,370	2,130	2,840	2,500	1,860	734	382
2	2,440	2,980	4,140	6,310	2,020	3,140	1,910	2,700	2,440	1,750	713	382
3	2,370	3,440	3,660	4,980	2,130	3,140	1,860	2,500	2,440	1,650	685	370
4	2,080	3,060	3,210	4,140	2,370	2,910	1,800	2,370	2,500	1,550	657	388
5	1,750	2,700	2,910	3,510	2,370	2,560	1,750	2,250	2,700	1,450	636	400
6	1,500	2,500	2,630	3,140	2,440	2,370	1,700	2,130	2,840	1,450	622	406
7	1,300	2,500	2,370	2,770	2,370	2,130	1,600	1,960	2,980	1,450	608	418
8	1,160	8,200	2,250	2,560	2,190	1,960	1,600	1,910	2,980	1,450	622	406
9	1,070	9,340	2,130	2,370	2,080	1,860	1,700	1,910	2,630	1,450	568	394
10	966	6,940	3,250	2,310	1,960	1,750	1,750	1,910	2,310	1,400	556	376
11	902	5,530	7,690	2,250	1,860	1,700	1,750	2,020	2,190	1,400	550	376
12	854	5,340	7,570	2,440	1,750	1,910	1,750	2,440	2,190	1,350	544	370
13	806	6,310	5,720	3,140	1,800	2,630	1,750	2,770	2,310	1,300	532	358
14	769	7,150	5,340	5,720	1,860	3,210	1,700	2,700	2,250	1,260	526	352
15	748	6,520	5,160	5,530	1,750	3,740	1,960	2,630	2,130	1,300	514	346
16	958	6,940	6,520	4,630	1,650	3,980	2,910	2,560	2,080	1,300	502	340
17	1,300	7,150	6,730	4,060	1,550	3,820	6,520	2,500	2,020	1,260	514	328
18	1,300	5,720	6,110	3,660	1,500	3,820	10,300	2,370	1,910	1,260	520	334
19	1,210	4,980	4,800	3,440	1,400	3,900	8,000	2,250	1,910	1,210	508	340
20	2,540	7,150	3,980	3,140	1,500	3,440	5,530	2,310	1,960	1,160	496	406
21	3,510	7,150	3,360	3,280	1,800	2,980	4,300	2,500	2,190	1,120	484	490
22	2,910	6,730	2,980	3,440	1,860	2,560	3,660	2,840	2,370	1,110	466	514
23	2,440	8,660	2,700	3,360	1,800	2,630	3,280	3,140	2,500	1,090	460	496
24	2,190	9,340	2,500	3,060	1,860	3,060	2,980	3,360	2,500	1,040	448	508
25	1,960	15,000	2,310	2,770	1,960	3,060	2,770	3,510	2,370	990	436	520
26	1,860	12,800	2,370	2,500	2,020	2,770	2,700	3,510	2,250	942	430	508
27	3,200	11,500	2,720	2,310	2,130	2,840	2,560	3,580	2,130	910	418	478
28	12,300	12,000	16,200	2,250	2,250	3,440	2,500	3,660	2,080	886	418	454
29	10,500	8,660	22,800	2,190	-	3,210	2,560	3,360	2,080	846	406	442
30	6,520	6,310	19,200	2,130	-	2,770	2,770	2,980	2,020	806	400	448
31	4,460	-	12,500	2,020	-	2,370	-	2,700	-	776	388	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	79,253	12,300	748	2,557	9.69	11.17	157,200
November	206,040	15,000	2,500	6,868	26.0	29.01	408,700
December	180,790	22,800	2,130	5,832	22.1	25.48	358,600
Calendar year 1937	1,128,645	22,800	480	3,092	11.7	159.01	2,239,000
January	108,070	8,660	2,020	3,486	13.2	15.22	214,400
February	54,250	2,440	1,400	1,938	7.34	7.64	107,600
March	88,030	3,980	1,700	2,840	10.8	12.45	174,600
April	90,050	10,300	1,600	3,002	11.4	12.72	178,600
May	82,170	3,660	1,910	2,651	10.0	11.53	163,000
June	69,760	2,980	1,910	2,325	8.81	9.83	138,400
July	38,776	1,860	776	1,251	4.74	5.46	76,910
August	16,361	734	388	528	2.00	2.31	32,450
September	12,330	520	328	411	1.56	1.74	24,460
Water year 1937-38	1,025,880	22,800	328	2,811	10.6	144.56	2,035,000

Peak discharge.- Oct. 28 (1:30-2:30 p.m.) 15,300 sec.-ft.; Nov. 8 (8-9 p.m.) 10,570 sec.-ft.; Nov. 25 (3:30-4:30 p.m.) 17,200 sec.-ft.; Dec. 11 (5:30-8:30 p.m.) 8,660 sec.-ft.; Dec. 29 (1-2 a.m.) 23,400 sec.-ft.

Queets River near Clearwater, Wash.

Location.- Water-stage recorder, lat. 47°32', long. 124 19', in SW¼ sec. 36, T. 24 N., R. 13 W., on Quinault Indian Reservation, 2 miles downstream from Clearwater River and 4 miles southwest of Clearwater. Zero of gage is 14.5 feet above mean sea level (river survey of Geological Survey).

Drainage area.- 454 square miles.

Records available.- September 1930 to September 1938.

Extremes.- Maximum discharge during year, 57,500 second-feet Dec. 28 (gage height, 20.50 feet), from rating curve extended above 30,000 second-feet; minimum, 384 second-feet Aug. 31 (gage height, 4.78 feet).
1930-38: Maximum discharge, about 100,000 second-feet Jan. 22, 1935 (gage height, 27.0 feet, present datum, from floodmarks), from rating curve extended above 31,000 second-feet; minimum, that of Aug. 31, 1938; minimum gage height, 3.58 feet, present datum, Oct. 11, 1932.

Remarks.- Records excellent except those for Oct. 1-27 and July 1 to Sept. 30, which are good, and those above 30,000 second-feet, which are fair. Shifting-control method used July 1-31. Discharge for Aug. 5-13 interpolated. No diversion or regulation.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,670	3,750	5,460	8,450	3,200	3,990	3,280	2,390	1,700	1,190	533	401
2	5,400	4,530	4,660	6,770	3,590	5,050	3,060	2,330	1,650	1,110	507	401
3	2,920	4,720	4,470	5,460	4,230	4,190	2,850	2,270	1,600	1,070	488	401
4	2,700	3,450	3,670	4,660	5,460	3,430	2,920	2,580	1,700	1,030	500	431
5	1,910	3,510	3,280	4,100	4,560	3,060	2,710	2,520	1,760	1,030	*499	488
6	1,580	3,670	2,920	3,670	4,760	2,710	2,450	2,150	1,820	1,030	*498	474
7	1,380	6,130	2,710	3,280	4,470	2,450	2,330	1,980	1,920	1,030	*496	578
8	1,240	28,200	2,520	3,060	4,360	2,270	2,450	2,040	1,700	1,030	*495	488
9	1,150	11,700	2,450	2,920	4,470	2,150	2,780	1,980	1,450	960	*494	431
10	1,070	7,710	8,000	3,200	3,590	2,040	2,450	1,920	1,320	960	*493	419
11	988	6,540	13,300	2,920	3,200	2,230	2,450	2,930	1,360	1,190	*492	419
12	930	8,700	7,470	4,160	3,200	3,600	2,580	3,670	1,500	960	*490	413
13	882	11,300	5,460	7,600	3,920	5,150	2,330	3,130	1,550	890	*489	413
14	842	10,100	8,310	14,800	3,510	7,400	2,150	2,520	1,360	925	488	401
15	930	7,950	7,380	7,000	2,990	6,770	4,790	2,450	1,400	925	481	401
16	3,320	11,000	15,600	5,880	2,640	6,770	6,770	2,330	1,400	890	468	407
17	2,650	8,200	11,900	5,150	2,450	5,250	21,500	2,210	1,450	925	507	401
18	1,680	5,880	7,950	5,460	2,330	8,200	16,200	1,980	1,320	860	566	407
19	1,900	6,100	5,880	4,850	2,210	6,770	7,950	1,920	1,320	830	488	437
20	16,600	10,700	4,760	5,450	5,090	5,150	5,460	2,090	1,450	830	455	1,310
21	7,980	7,230	4,010	7,230	5,050	4,380	4,380	2,210	1,650	830	449	1,250
22	4,360	8,200	3,590	7,000	3,840	4,100	3,920	2,270	1,700	830	431	722
23	3,990	11,600	3,200	5,670	3,670	7,470	3,590	2,270	1,650	800	419	566
24	3,560	15,600	3,060	4,850	3,750	8,200	3,130	2,330	1,550	740	413	613
25	3,480	28,700	2,920	4,100	3,920	6,320	2,920	2,270	1,400	728	419	826
26	3,590	13,500	6,320	3,590	3,670	4,950	2,710	2,150	1,360	704	425	606
27	14,400	24,500	7,620	3,200	3,510	9,100	2,520	2,270	1,360	686	437	526
28	33,500	16,100	41,500	3,430	3,430	9,060	2,450	2,150	1,360	656	425	481
29	10,400	9,230	31,000	3,130	-	5,880	2,580	1,980	1,400	626	407	468
30	6,320	6,770	18,900	2,780	-	4,560	2,520	1,820	1,320	570	401	481
31	4,660	-	11,600	2,760	-	3,750	-	1,700	-	540	401	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	151,982	33,500	842	4,903	10.8	12.45	301,500
November	305,250	28,700	3,430	10,180	22.4	24.99	605,500
December	261,870	41,500	2,450	8,447	18.6	21.44	519,400
Calendar year 1937	1,666,630	41,500	478	4,566	10.1	136.39	3,306,000
January	156,600	14,800	2,780	5,052	11.1	12.80	310,600
February	105,090	5,460	2,210	3,753	8.27	8.61	208,400
March	156,400	9,100	2,040	5,045	11.1	12.80	310,200
April	130,180	21,500	2,150	4,339	9.56	10.67	258,200
May	70,810	3,670	1,700	2,284	5.03	5.80	140,400
June	45,480	1,920	1,320	1,516	3.34	3.73	90,210
July	27,375	1,190	540	883	1.94	2.24	54,300
August	14,554	566	401	469	1.03	1.19	28,870
September	16,060	1,310	401	535	1.18	1.32	31,850
Water year 1937-38	1,441,651	41,500	401	3,950	8.70	118.04	2,859,000

Peak discharge.- Oct. 28 (6:30 a.m.) 53,900 sec.-ft.; Nov. 8 (7:45 a.m.) 41,800 sec.-ft.; Nov.25 (10:30 a.m.) 37,400 sec.-ft.; Dec. 28 (1 p.m.) 57,500 sec.-ft.
*Discharge interpolated.

Clearwater River near Clearwater, Wash.

Location.- Water-stage recorder, lat. 47°35', long. 124°18', in lot 4, sec. 18, T. 24 N., R. 12 W., 1½ miles north of Clearwater and 3 miles upstream from mouth. Prior to Sept. 1, 1937, staff gage at same site; readings reduced to same datum.

Records available.- July 1937 to September 1938. October 1931 to September 1932 at site a quarter of a mile upstream.

Extremes.- Maximum discharge during period July 1937 to September 1938, 29,200 second-feet Oct. 28 (gage height, 14.90 feet), from rating curve extended above 6,000 second-feet by velocity-area method; minimum, 60 second-feet Sept. 15, 16, 17, 18, 1938.
1931-32, 1937-38: Maximum discharge, that of Oct. 28, 1937; minimum, that of Sept. 15, 16, 17, 18, 1938.
Discharge known to have been greater Jan. 21 or 22, 1935 (stage and discharge not determined).

Remarks.- Records good except those for periods of missing gage heights, July 1-21, Aug. 20, 22, 23, 25, 26, 1937 (computed on basis of records for Queets River near Clearwater), and those above 8,000 second-feet, which are poor. Gage read once or twice daily July 22 to Sept. 1, 1937. No diversion or regulation.

Rating tables, July 1937 to September 1938 (gage height, in feet, and discharge, in second-feet)

July 22 to Nov. 27				Nov. 28 to Sept. 30					
5.8	55	8.0	2,150	5.6	50	7.5	1,500	10.0	7,250
6.0	100	8.5	3,170	5.8	95	8.0	2,350	11.0	10,700
6.2	190	9.0	4,370	6.0	165	8.5	3,350	12.0	14,600
6.5	360	9.5	5,740	6.2	270	9.0	4,450	13.0	19,200
7.0	750	10.0	7,250	6.5	460	9.5	5,750	15.0	29,700
7.5	1,350			7.0	880				

Note.- Same as following table above 10.0 feet.

Discharge, in second-feet, 1937-38

1937

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											*73	288
2											70	240
3											70	220
4											67	210
5											67	215
6											73	200
7											76	180
8											*79	170
9											82	155
10											145	150
11												
12										150	402	145
13											195	140
14											165	140
15											155	140
16											*128	140
17											100	136
18											94	128
19											88	116
20											82	108
21											80	104
22											145	104
23										104	400	97
24										94	350	94
25										91	300	91
26										88	250	94
27										85	350	116
28										82	312	116
29										82	252	104
30										76	*324	116
31										73	395	1,260
										76	402	-

Discharge, in second-feet, of Clearwater River near Clearwater, Wash., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,580	1,090	1,600	2,540	990	1,070	1,040	495	226	113	80	70
2	1,540	1,350	1,360	1,910	1,160	1,180	913	530	210	113	82	70
3	872	1,310	1,330	1,500	1,420	1,090	860	538	200	110	80	68
4	820	1,010	1,050	1,230	1,910	880	891	642	195	107	78	80
5	596	1,070	902	1,090	1,620	771	790	618	190	104	78	110
6	486	1,130	810	957	1,600	690	726	516	185	101	80	107
7	423	2,340	744	820	1,530	634	666	474	180	101	78	157
8	374	11,700	682	726	1,520	594	674	488	180	101	66	110
9	348	3,960	682	699	1,560	546	726	446	175	98	66	85
10	324	2,540	2,030	780	1,260	516	626	425	170	137	68	80
11	294	1,990	3,140	699	1,090	610	634	717	165	226	72	72
12	276	2,640	2,160	1,100	1,110	935	658	902	161	133	80	68
13	258	4,120	1,590	3,020	1,320	1,380	594	735	157	110	82	64
14	246	3,510	2,640	5,770	1,190	2,730	546	618	161	107	92	64
15	282	2,640	2,690	2,440	1,040	2,330	1,500	546	161	101	85	62
16	908	3,390	6,660	1,930	891	1,950	1,820	495	210	95	75	62
17	682	2,640	4,340	1,620	780	1,650	7,840	453	200	92	104	62
18	486	1,800	2,740	1,900	735	3,010	5,230	425	165	90	133	64
19	741	1,800	1,880	1,600	699	2,440	2,540	404	153	88	*120	72
20	6,600	3,170	1,440	1,980	1,850	1,790	1,650	378	145	88	*106	510
21	2,960	2,300	1,180	2,540	1,750	1,490	1,260	360	145	88	*93	348
22	1,500	2,130	1,050	2,330	1,330	1,360	1,110	348	141	88	80	161
23	1,380	3,480	902	1,880	1,260	2,960	935	330	133	85	78	113
24	1,180	5,850	840	1,560	1,240	3,350	820	312	129	82	78	174
25	1,130	10,300	826	1,280	1,240	2,310	744	294	125	82	72	205
26	1,480	4,500	2,050	1,090	1,130	1,780	666	276	125	82	72	137
27	6,030	10,200	3,040	946	1,040	4,020	610	264	119	82	72	113
28	15,100	5,750	16,200	979	946	3,580	562	254	119	82	68	101
29	3,780	3,140	10,300	840	-	2,140	523	248	113	82	68	101
30	2,080	2,120	5,810	744	-	1,540	495	259	113	82	68	133
31	1,430	-	3,670	771	-	1,220	-	254	-	80	68	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
July 1937	4,001	-	73	129	7,940
August	5,771	402	67	186	11,450
September	5,517	1,260	91	184	10,940
The period					30,330
October 1937	56,186	15,100	246	1,812	111,400
November	104,970	11,700	1,010	3,499	208,200
December	86,338	16,200	682	2,785	171,200
Calendar year					
January 1938	49,271	5,770	699	1,589	97,730
February	35,211	1,910	699	1,258	69,840
March	52,546	4,020	516	1,695	104,200
April	38,649	7,840	495	1,288	76,660
May	14,044	902	248	453	27,860
June	4,851	226	113	162	9,620
July	3,130	226	80	101	6,210
August	2,522	133	66	81.4	5,000
September	3,623	510	62	121	7,190
Water year 1937-38	451,341	16,200	62	1,237	895,100

Peak discharge.- Oct. 28 (5 a.m.) 29,200 sec.-ft.; Nov. 8 (5:30 a.m.) 19,200 sec.-ft.; Dec. 28 (10:20 a.m.) 24,800 sec.-ft.

*Discharge interpolated.

Hoh River near Spruce, Wash.

Location.- Water-stage recorder, lat. 47°48', long. 124°06', in sec. 34, T. 27 N., R. 11 W., 2¾ miles below Spruce and 5 miles below South Fork.

Drainage area.- 193 square miles.

Records available.- August 1926 to September 1938.

Average discharge.- 12 years, 1,973 second-feet.

Extremes.- Maximum discharge during year, 21,500 second-feet Oct. 28 (gage height, 15.36 feet), from rating curve extended above 8,000 second-feet by velocity-area method; minimum, 598 second-feet Sept. 8 (gage height, 1.66 feet).
1926-38: Maximum discharge, about 40,000 second-feet Nov. 5, 1934 (gage height, 21.2 feet, from high-water mark in gage structure), from rating curve extended above 8,000 second-feet (gage observer noted water higher on this day than at any other time during his 43 years of residence on the stream); minimum discharge, 247 second-feet Nov. 14, 15, 1929; minimum gage height, 0.71 foot Nov. 10, 1936.

Remarks.- Records excellent except those above 3,000 second-feet, which are fair. No diversion or artificial regulation.

Rating tables, water year 1937 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 28				Dec. 28 to Sept. 30					
2.2	631	5.0	2,330	1.5	550	4.0	1,710	10.0	9,700
2.5	730	6.0	3,300	2.0	720	5.0	2,580	12.0	13,500
3.0	950	7.0	4,520	2.5	910	6.0	3,700	14.0	17,800
3.5	1,240	8.0	5,920	3.0	1,120	7.0	4,950	15.5	21,800
4.0	1,580	10.0	9,300	3.5	1,370	8.0	6,360		
4.5	1,930	12.0	13,200						

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,090	1,650	2,590	4,060	1,270	1,870	1,270	1,630	1,430	1,370	910	772
2	1,820	2,150	2,330	3,220	1,270	2,040	1,170	1,450	1,490	1,270	830	810
3	1,120	2,170	2,170	2,680	1,320	1,630	1,170	1,320	1,490	1,220	850	850
4	925	1,680	1,930	2,310	1,430	1,370	1,170	1,370	1,710	1,270	930	772
5	828	1,680	1,760	2,130	1,320	1,270	1,120	1,270	1,870	1,270	910	720
6	748	1,620	1,620	1,870	1,270	1,170	1,070	1,170	2,040	1,430	890	755
7	696	2,120	1,510	1,710	1,220	1,070	1,010	1,120	2,220	1,430	830	755
8	680	9,440	1,370	1,560	1,220	1,010	1,220	1,220	1,790	1,430	790	668
9	680	4,220	1,340	1,490	1,120	950	1,370	1,220	1,370	1,220	790	685
10	663	2,980	4,430	1,710	1,070	910	1,220	1,170	1,220	1,280	790	790
11	647	2,590	6,730	1,560	1,010	1,060	1,170	1,430	1,320	1,490	772	790
12	663	2,780	3,540	2,310	1,010	1,370	1,120	1,710	1,560	1,220	720	810
13	663	3,660	2,590	3,340	1,070	1,710	1,030	1,710	1,630	1,320	755	766
14	663	3,540	3,540	5,610	1,010	2,130	1,010	1,490	1,370	1,490	870	755
15	730	2,880	3,190	3,220	970	2,040	1,410	1,490	1,430	1,560	830	830
16	1,600	3,540	4,420	2,580	930	2,310	1,870	1,430	1,490	1,630	870	870
17	1,150	2,980	4,260	2,220	890	1,790	5,310	1,370	1,430	1,490	970	897
18	785	2,330	3,190	2,310	870	2,490	5,740	1,220	1,220	1,370	910	910
19	762	2,720	2,500	2,040	850	2,220	3,460	1,270	1,320	1,430	830	1,010
20	3,780	5,470	2,170	2,040	1,370	1,790	2,580	1,490	1,710	1,430	810	1,750
21	2,170	3,300	1,930	2,220	1,370	1,490	2,130	1,710	2,220	1,710	790	1,600
22	1,650	4,580	1,790	2,400	1,220	1,430	1,950	1,950	2,400	1,710	702	1,000
23	1,680	5,190	1,620	2,040	1,270	1,950	1,870	2,130	2,490	1,430	668	860
24	1,370	5,300	1,510	1,790	1,430	2,220	1,710	2,310	2,130	1,320	720	910
25	1,210	10,300	1,400	1,630	1,560	1,950	1,630	2,220	1,870	1,320	790	843
26	1,160	5,190	1,860	1,490	1,560	1,710	1,560	2,220	1,710	1,370	870	755
27	3,900	8,860	2,930	1,430	1,560	2,690	1,490	2,400	1,710	1,320	870	702
28	12,400	6,100	15,500	1,430	1,490	2,580	1,560	2,220	1,790	1,220	772	702
29	4,100	4,020	12,700	1,320	-	1,950	1,710	2,040	1,870	1,120	738	772
30	2,410	3,080	8,240	1,220	-	1,630	1,790	1,710	1,630	990	738	830
31	*2,030	-	5,510	1,220	-	1,370	-	1,490	-	930	790	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	55,773	12,400	647	1,799	9.32	10.74	110,600
November	118,120	10,300	1,620	3,937	20.4	22.76	234,300
December	112,170	15,500	1,340	3,618	18.7	21.56	222,500
Calendar year 1937	737,276	15,500	534	2,020	10.5	142.10	1,462,000
January	68,160	5,610	1,220	2,199	11.4	13.14	135,200
February	33,950	1,560	850	1,212	6.28	6.54	67,340
March	53,170	2,690	910	1,715	8.89	10.25	105,500
April	53,890	5,740	1,010	1,796	9.31	10.39	106,900
May	49,930	2,400	1,120	1,611	8.35	9.63	99,030
June	50,930	2,490	1,220	1,698	8.80	9.82	101,000
July	42,060	1,710	930	1,357	7.03	8.10	83,420
August	25,305	970	668	816	4.23	4.88	50,190
September	25,939	1,750	668	865	4.48	5.00	51,450
Water year 1937-38	689,397	15,500	647	1,889	9.79	132.81	1,367,000

Peak discharge.- Oct. 28 (7 a.m.) 21,500 sec.-ft.; Nov. 8 (7:10 a.m.) 13,600 sec.-ft.; Nov. 25 (8 a.m.) 13,600 sec.-ft.; Nov. 27 (3-4 p.m.) 12,000 sec.-ft.; Dec. 28 (10 a.m.) 21,000 sec.-ft.
*Discharge interpolated.

Soleduck River near Fairholm, Wash.

Location.- Water-stage recorder, lat. 48°02'30", long.123°57'30", in lot 4, sec. 35, T. 30 N., R. 10 W., 300 feet downstream from South Fork, 2.5 miles (revised) southwest of Fairholm, and 17 miles west of Beaver.

Drainage area.- 79 square miles.

Records available.- October 1917 to September 1921, October 1933 to September 1938.

Extremes.- Maximum discharge during year, 14,600 second-feet Dec. 28 (gage height, 11.06 feet), from rating curve extended above 3,000 second-feet; minimum, 66 second-feet Sept. 17, 18 (gage height, 1.15 feet).

1917-21, 1933-38: Maximum discharge, 24,300 second-feet Dec. 21, 1933 (gage height, 14.9 feet), from rating curve extended above 5,000 second-feet; minimum, 58 second-feet Sept. 29, Oct. 2, 3, 1918 (gage height, 0.48 foot, former datum).

Remarks.- Records excellent except those for period of missing gage heights, Apr. 6-9 (computed on basis of records for Hoh River near Spruce), and those above 3,000 second-feet, which are fair. Staff gage read once or twice daily July 23 to Sept. 10. No diversion or regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Sept. 6-13)

1.0	53	3.0	600	7.0	5,330
1.2	71	3.5	900	8.0	7,350
1.4	96	4.0	1,260	9.0	9,580
1.7	150	5.0	2,200	10.0	12,000
2.0	228	6.0	3,580	11.1	14,600
2.5	391				

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	414	384	858	1,420	433	843	406	610	477	308	122	81
2	362	512	764	1,110	418	935	377	537	482	289	118	83
3	214	537	728	935	402	716	373	503	477	283	116	83
4	174	402	640	830	387	595	384	494	520	277	115	*83
5	142	402	582	758	369	524	373	461	559	267	111	*84
6	125	391	541	686	359	469	360	429	591	277	111	84
7	115	590	511	640	352	425	345	410	600	270	*110	83
8	108	3,740	473	610	328	395	440	449	490	261	108	78
9	104	1,410	469	610	308	369	535	445	395	237	102	78
10	98	1,000	1,790	692	292	348	498	433	373	240	102	77
11	95	824	2,520	645	280	432	453	554	399	249	100	73
12	92	812	1,300	1,080	274	563	437	686	457	222	102	71
13	90	1,000	935	1,780	267	656	410	605	453	217	100	69
14	87	794	1,180	2,910	252	794	387	507	391	217	102	68
15	87	698	1,200	1,380	240	770	548	490	410	217	96	68
16	148	1,250	1,720	1,080	231	872	776	486	425	208	93	67
17	167	1,110	1,640	886	228	650	2,170	469	395	197	98	66
18	127	872	1,220	858	228	851	2,130	421	348	187	96	68
19	146	1,070	935	740	225	698	1,140	457	366	182	93	75
20	872	2,040	776	740	364	568	844	554	445	179	92	95
21	403	1,300	674	818	362	494	710	630	507	174	*90	100
22	256	1,510	620	900	341	445	692	686	515	172	88	81
23	231	1,740	572	734	362	591	686	734	520	167	88	76
24	208	2,010	537	625	453	630	615	764	469	*156	83	73
25	184	4,490	507	568	600	586	605	746	410	144	83	75
26	182	1,890	586	528	662	541	582	734	384	142	83	72
27	865	3,930	1,270	498	692	822	559	770	373	142	82	69
28	4,410	2,290	9,750	511	710	858	591	710	377	137	*82	68
29	982	1,420	6,930	473	-	625	650	640	377	133	82	69
30	605	1,080	3,480	441	-	520	640	559	341	127	82	73
31	457	-	1,940	425	-	449	-	503	-	*124	81	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	12,552	4,410	87	405	5.13	5.91	24,900
November	41,498	4,490	384	1,383	17.5	19.52	82,310
December	47,648	9,750	469	1,537	19.5	22.48	94,510
Calendar year 1937	232,492	9,750	72	637	8.06	109.52	461,200
January	26,911	2,910	425	868	11.0	12.68	53,380
February	10,419	710	225	372	4.71	4.90	20,670
March	19,034	935	348	614	7.77	8.96	37,750
April	19,716	2,170	345	657	8.32	9.28	39,110
May	17,476	770	410	564	7.14	8.23	34,660
June	13,326	600	341	444	5.62	6.27	26,430
July	6,402	308	124	207	2.62	3.02	12,700
August	3,011	122	81	97.1	1.23	1.42	5,970
September	2,289	100	66	76.3	.966	1.08	4,540
Water year 1937-38	220,282	9,750	66	604	7.65	103.75	436,900

Peak discharge.- Oct. 28 (4:30 a.m.) 10,000 sec.-ft.; Nov. 8 (6:15 a.m.) 5,910 sec.-ft.; Nov.25 (8 a.m.) 6,510 sec.-ft.; Nov. 27 (1:45 p.m.) 5,910 sec.-ft.; Dec. 28 (7:45 a.m.) 14,600 sec.-ft.
*Discharge interpolated.

Elwha River at McDonald Bridge, near Port Angeles, Wash.

Location.- Water-stage recorder, lat. 48°03'20", long. 123°34'55", in NE¼NW¼ sec. 33, T. 30 N., R. 7 W., at McDonald Bridge, 7 miles upstream from mouth and 8 miles southwest of Port Angeles. Zero of gage is 200.00 feet above mean sea level (general adjustment of 1929).
Drainage area.- 262 square miles.
Records available.- October 1897 to December 1901, October 1918 to September 1938.
Average discharge.- 24 years, 1,474 second-feet.
Extremes.- Maximum discharge during year, 18,600 second-feet Dec. 28 (gage height, 19.6 feet), from rating curve extended logarithmically above 4,000 second-feet; minimum, 13 second-feet (regulated) Sept. 17, 18; minimum daily discharge, 14 second-feet (regulated) Sept. 18.
1897-1901, 1918-38: Maximum discharge, 26,700 second-feet Dec. 21, 1933 (gage height, 10.5 feet, former site and datum, from floodmarks) computed on basis of spillway and turbine records at Glines Canyon Reservoir; minimum daily discharge, 11 second-feet (regulated) Sept. 18, 25, 1932.
Remarks.- Records good except those below 400 second-feet, which are fair, and those for period of missing gage heights, May 4-22 (computed on basis of plant superintendent's report of flow at Glines Canyon), and those above 5,000 second-feet, which are poor. Flow regulated for development of power by operation of Glines Canyon Reservoir (capacity at elevation 610 feet, 38,650 acre-feet). Flow that is diverted through power house is returned to river above gage. Reservoir gage heights furnished by Crown-Zellerbach Corporation.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	676	900	2,330	2,650	1,260	1,200	832	*1,830	2,350	1,990	828	1,060
2	649	1,220	1,940	*1,900	1,240	1,570	358	1,900	2,380	1,740	1,130	436
3	*762	1,390	1,930	2,340	1,210	1,440	*614	1,760	2,450	*1,680	1,040	29
4	796	1,530	1,660	2,240	1,210	1,500	998	1,700	2,680	1,670	1,040	*25
5	638	1,410	*1,310	1,810	1,180	1,550	1,370	1,500	*3,130	1,570	1,010	25
6	701	1,190	1,390	1,810	*594	*962	1,460	1,300	3,140	1,600	464	680
7	562	*904	1,460	1,700	757	1,030	1,440	1,100	3,490	1,830	*70	1,090
8	583	2,530	1,460	1,540	†852	1,150	984	*1,500	2,990	1,810	566	1,100
9	464	2,120	1,360	*1,610	948	976	454	1,600	2,420	1,430	1,010	421
10	*410	1,680	3,030	1,660	936	991	*211	1,400	2,150	*1,280	1,010	25
11	414	1,540	5,120	1,660	993	1,020	998	1,600	2,010	1,520	942	*20
12	420	1,510	*2,580	2,030	1,020	1,060	1,470	2,200	*2,370	1,540	1,000	18
13	399	1,660	2,240	2,480	*572	*655	1,430	2,100	2,840	1,570	417	234
14	448	*1,940	2,810	4,080	702	1,300	1,440	1,700	2,210	1,580	*60	1,020
15	388	1,220	2,560	2,680	990	1,510	1,010	*2,100	2,120	1,540	568	1,010
16	413	1,570	2,270	*1,980	950	1,540	644	1,700	2,230	1,450	913	501
17	*242	1,870	2,640	1,820	998	1,410	*2,300	1,800	2,190	*1,060	869	20
18	324	1,500	2,480	1,860	1,070	1,580	4,090	1,600	1,960	1,440	897	*14
19	459	1,620	*1,770	1,720	544	1,160	2,770	1,700	*1,990	1,480	857	86
20	695	4,230	1,680	1,700	*176	*1,090	2,130	2,300	2,530	1,450	388	268
21	956	*2,720	1,670	1,650	626	1,320	1,950	2,500	3,000	1,420	*47	306
22	988	3,700	1,680	1,680	836	1,460	2,190	*3,400	3,090	1,450	510	300
23	935	4,140	1,660	*1,310	808	1,450	1,630	3,080	3,220	1,320	922	203
24	*424	3,620	1,120	1,360	801	1,420	*1,680	3,200	2,900	*784	861	20
25	560	6,650	1,310	1,340	856	1,480	1,760	3,540	2,570	852	894	*19
26	674	4,280	*1,640	1,460	889	874	1,890	3,280	*2,400	1,130	1,040	702
27	755	5,560	1,540	1,520	*584	*460	1,760	3,370	2,350	1,080	506	992
28	4,740	*4,540	11,400	1,370	793	1,130	1,920	3,540	2,180	1,390	*42	974
29	1,730	3,020	11,700	1,300	-	1,470	2,390	*3,440	2,420	1,560	595	944
30	1,560	2,670	7,680	*571	-	1,460	2,200	2,650	2,240	885	1,020	518
31	*1,100	-	4,540	956	-	1,370	-	2,390	-	*83	1,090	-

Month	Observed				Gain or loss in storage in Glines Canyon Reservoir (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	4,740	242	802	49,320	+2,520	51,840	843	3.22	3.71
November	6,650	900	2,481	147,600	+450	148,000	2,487	9.49	10.59
December	11,700	1,120	2,902	178,400	-2,910	175,500	2,854	10.9	12.57
Calendar year 1937	11,700	101	1,505	1,089,000	-2,590	1,087,000	1,501	5.73	77.74
January	4,080	571	1,800	110,700	+3,250	114,000	1,854	7.08	8.16
February	1,260	176	871	48,390	-170	48,220	868	3.31	3.45
March	1,580	460	1,245	76,540	-3,160	73,380	1,193	4.55	5.25
April	4,090	211	1,546	91,980	+2,470	94,450	1,587	6.06	6.76
May	3,540	1,100	2,219	136,400	+800	137,200	2,231	8.52	9.82
June	3,490	1,960	2,533	150,700	-90	150,600	2,531	9.66	10.78
July	1,990	83	1,393	85,650	-640	85,010	1,383	5.28	6.09
August	1,130	42	729	44,840	-4,780	40,060	652	2.49	2.87
September	1,100	14	435	25,910	+160	26,070	438	1.67	1.86
Water year 1937-38	11,700	14	1,584	1,146,000	-2,100	1,144,000	1,581	6.03	81.91

Peak discharge.- Oct. 28 (7:20 a.m.) 12,400 sec.-ft.; Nov. 25 (9-10 a.m.) 8,970 sec.-ft.; Dec. 28 (10 a.m.) 18,600 sec.-ft.
*Sunday.
†Discharge interpolated.

Dungeness River near Sequim, Wash.

Location.- Water-stage recorder, lat. 48°00'40", long. 123°07'50", in SW¼SE¼ sec. 12, T. 29 N., R. 4 W., three-quarters of a mile upstream from Canyon Creek, 4½ miles southwest of Sequim, and 11½ miles upstream from mouth.

Drainage area.- 156 square miles.

Records available.- June 1937 to September 1938. July 1897 to July 1898 at site about 2 miles downstream; June 1923 to September 1930, at site half a mile downstream.

Extremes.- Maximum discharge during year, 5,380 second-feet Dec. 28 (gage height, 6.85 feet), from rating curve extended above 1,200 second-feet; minimum, 102 second-feet Oct. 11, 12 (gage height, 2.64 feet).
1897-98, 1923-30, 1937-38: Maximum discharge, that of Dec. 28, 1937; minimum discharge observed, 77 second-feet Sept. 10, 1928.

Remarks.- Records excellent except those above 1,200 second-feet, which are poor. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 27				Dec. 28 to Sept. 30			
2.6	95	4.0	660	2.6	105	5.0	1,870
3.0	179	4.5	1,120	3.0	202	5.5	2,650
3.5	375	5.0	1,700	3.5	435	6.0	3,550
				4.0	770	7.0	5,750
				4.5	1,250		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	146	161	344	676	236	418	188	634	794	690	321	160
2	138	174	312	549	225	391	188	574	810	627	298	165
3	123	182	281	471	236	345	194	525	842	600	285	172
4	116	161	261	424	229	316	213	477	913	627	294	170
5	110	156	245	391	225	290	217	435	1,000	588	298	162
6	105	144	234	370	217	276	213	402	1,070	634	294	165
7	105	140	231	345	210	254	217	402	1,220	669	280	162
8	105	619	217	330	199	249	285	447	1,030	662	258	150
9	105	380	217	326	199	240	365	465	834	600	244	148
10	107	290	577	370	194	232	340	459	722	562	240	160
11	104	253	902	386	191	232	321	471	722	568	240	150
12	104	224	611	477	186	244	308	588	810	525	232	148
13	107	217	465	513	217	276	290	676	868	543	221	148
14	107	198	470	714	206	290	285	627	778	568	244	143
15	109	185	425	620	188	294	308	634	786	588	225	148
16	123	303	380	543	180	365	360	634	770	*571	225	148
17	129	312	370	471	178	290	758	620	738	*553	244	148
18	116	249	330	424	175	285	1,070	568	655	*536	232	152
19	107	265	298	380	172	262	770	568	706	*518	213	168
20	127	776	277	350	175	240	627	641	877	501	206	172
21	135	566	261	340	180	225	574	738	1,040	555	202	183
22	120	740	253	330	183	217	562	868	1,130	549	197	152
23	118	776	234	298	186	213	543	990	1,110	*524	183	143
24	116	604	238	285	210	206	531	1,080	1,030	*498	178	143
25	110	1,020	228	276	258	199	525	1,120	913	*472	180	148
26	107	724	234	262	290	197	537	1,140	850	*447	183	134
27	171	590	351	262	340	213	525	1,230	826	*422	191	127
28	898	524	3,240	267	408	229	555	1,220	826	396	178	123
29	352	440	2,740	254	-	217	607	1,130	877	380	170	127
30	231	385	1,700	244	-	202	669	922	810	345	168	129
31	185	-	913	240	-	194	-	810	-	321	162	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	4,836	898	104	156	1.00	1.15	9,590
November	11,758	1,020	140	392	2.51	2.80	23,320
December	17,839	3,240	217	575	3.69	4.25	35,380
Calendar year							
January	12,188	714	240	393	2.52	2.90	24,170
February	6,093	408	172	218	1.40	1.46	12,090
March	8,101	418	194	261	1.67	1.92	16,070
April	13,145	1,070	188	438	2.81	3.14	26,070
May	22,095	1,230	402	713	4.57	5.27	43,820
June	26,357	1,220	655	879	5.63	6.28	52,280
July	16,639	690	321	537	3.44	3.97	33,000
August	7,086	321	162	229	1.47	1.70	14,050
September	4,548	183	123	152	.974	1.09	9,020
Water year 1937-38	150,685	3,240	104	413	2.65	35.93	298,900

Peak discharge.- Oct. 28 (6:20 a.m.) 1,830 sec.-ft.; Nov. 25 (11:25 a.m.) 1,240 sec.-ft.; Dec. 28 (9:50 a.m.) 5,380 sec.-ft.; Apr. 18 (2:30 a.m. and 3:15 a.m.) 1,240 sec.-ft.
*Interpolated.

DOSEWALLIPS RIVER BASIN

Dosewallips River near Brinnon, Wash.

Location.- Water-stage recorder, lat. 47°43', long. 123°00', in SW¼ sec. 24, T. 26 N., R. 3 W., half a mile above Corringenda ranger station, 5½ miles northwest of Brinnon and 7½ miles upstream from mouth.

Drainage area.- 94 square miles.

Records available.- October 1930 to September 1938.

Extremes.- Maximum discharge during year, 3,870 second-feet Dec. 28 (gage height, 6.30 feet); minimum, 121 second-feet Sept. 27 (gage height, 2.06 feet).
1930-38: Maximum discharge, about 10,900 second-feet Nov. 5, 1934 (gage height, 9.57 feet), from rating curve extended above 4,500 second-feet; minimum, 65 second-feet Dec. 4, 1936 (gage height, 1.71 feet).

Remarks.- Records excellent. No diversion or regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

2.0	110	3.0	440	4.5	1,500
2.3	170	3.5	705	5.5	2,670
2.7	315	4.0	1,050	6.3	3,870

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	431	221	565	872	307	515	239	907	970	824	331	173
2	367	323	510	717	299	575	235	753	1,030	747	303	179
3	197	331	460	623	343	510	247	669	1,090	717	303	188
4	170	251	422	565	343	490	267	590	1,220	729	311	170
5	154	228	395	515	343	470	271	530	1,360	717	311	158
6	141	200	383	475	331	445	263	505	1,450	772	295	156
7	136	194	375	450	307	413	259	505	1,550	798	275	154
8	138	1,290	351	431	283	387	311	555	1,260	759	259	145
9	139	621	351	418	263	375	383	585	970	675	251	149
10	136	575	914	445	255	363	375	580	872	634	247	161
11	132	525	1,450	445	247	363	371	606	935	623	235	156
12	132	495	928	530	243	422	359	778	1,090	585	224	154
13	134	515	711	580	327	550	343	851	1,130	618	232	149
14	130	440	784	872	295	540	343	778	994	669	243	149
15	136	400	669	711	259	550	395	810	978	669	228	154
16	212	846	612	645	243	590	510	851	963	687	232	154
17	165	681	623	575	228	490	1,080	804	914	645	255	156
18	136	555	555	530	218	500	1,400	699	824	596	235	163
19	126	608	495	480	214	465	921	741	914	585	218	182
20	290	1,580	455	460	243	404	729	900	1,180	575	214	238
21	200	970	426	455	255	363	669	1,090	1,400	601	214	210
22	163	1,420	408	440	255	335	657	1,310	1,500	596	197	161
23	168	1,500	375	408	259	323	651	1,450	1,450	530	182	147
24	152	1,180	379	379	291	311	645	1,550	1,260	480	185	156
25	143	2,090	359	359	331	295	651	1,500	1,090	455	191	143
26	138	1,310	359	343	355	287	687	1,500	1,030	450	207	136
27	360	1,130	421	331	400	299	675	1,600	1,020	440	204	130
28	1,880	970	2,670	343	460	319	735	1,550	1,030	418	188	130
29	564	753	2,400	335	-	295	872	1,360	1,050	391	176	136
30	355	645	1,880	315	-	271	978	1,090	942	351	173	138
31	267	-	1,180	315	-	251	-	978	-	335	173	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	7,992	1,880	126	258	2.74	3.16	15,850
November	22,847	2,090	194	762	8.11	9.05	45,320
December	22,865	2,670	351	738	7.85	9.05	45,350
Calendar year 1937	180,654	2,670	81	495	5.27	71.45	358,300
January	15,362	872	315	496	5.28	6.09	30,470
February	8,197	460	214	293	3.12	3.25	16,260
March	12,766	590	251	412	4.38	5.05	25,320
April	16,521	1,400	235	551	5.86	6.54	32,770
May	28,975	1,600	505	935	9.95	11.47	57,470
June	33,466	1,550	824	1,116	11.9	13.28	66,380
July	18,671	824	335	602	6.40	7.38	37,030
August	7,292	331	173	235	2.50	2.88	14,460
September	4,775	238	130	159	1.69	1.89	9,470
Water year 1937-38	199,729	2,670	126	547	5.82	79.09	396,200

Peak discharge.- Oct. 28 (5:45 a.m.) 3,700 sec.-ft.; Nov. 25 (10 a.m.) 2,670 sec.-ft.; Dec. 28 (11 a.m.) 3,870 sec.-ft.

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

Location.- Staff gage, lat. 47°31', long. 123°20', in NW¼ sec. 4, T. 23 N., R. 5 W., three-quarters of a mile upstream from Lake Cushman, 2 miles upstream from Dry Creek, and 11½ miles northwest of Hoodsport.

Drainage area.- 60 square miles.

Records available.- July 1924 to September 1938.

Average discharge.- 14 years, 464 second-feet.

Extremes.- Maximum discharge during year, 10,200 second-feet Oct. 28 (gage height, 9.3 feet, from floodmarks), from rating curve extended above 3,200 second-feet; minimum discharge observed, 50 second-feet Sept. 28, 29 (gage height, 1.51 feet).
1924-38: Maximum discharge, about 23,300 second-feet Nov. 5, 1934 (gage height, 14.4 feet, from floodmarks), from rating curve extended above 3,200 second-feet; minimum discharge recorded, 16 second-feet Sept. 23, 1930 (gage height, 1.12 feet).

Remarks.- Records good. Gage read once daily. No diversion or regulation.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,150	345	705	1,050	334	598	259	845	655	421	134	66
2	610	490	650	810	314	715	242	685	685	376	126	66
3	314	465	595	715	334	625	259	598	665	334	124	66
4	*226	368	540	655	334	598	277	544	745	334	126	66
5	196	345	515	598	314	518	277	493	810	334	122	70
6	167	305	595	544	295	493	259	493	845	355	118	64
7	145	345	465	518	259	468	277	468	845	355	113	63
8	134	1,870	390	493	242	421	334	516	685	355	111	60
9	126	*1,180	465	468	226	421	396	518	598	314	105	59
10	116	865	2,080	518	226	421	398	518	544	314	103	60
11	109	735	2,450	493	226	398	376	598	570	295	102	60
12	103	765	1,260	625	226	598	376	685	625	295	98	60
13	96	900	940	715	242	880	355	685	625	277	95	58
14	93	798	1,060	1,100	226	810	376	625	598	295	95	58
15	113	650	900	845	226	778	570	685	570	295	93	57
16	422	1,970	1,020	685	196	685	960	715	544	277	96	57
17	196	1,310	1,260	625	196	570	1,500	625	518	259	98	56
18	137	980	900	570	1e2	518	1,700	598	468	259	98	56
19	128	1,260	735	518	169	468	1,000	625	493	242	90	61
20	498	2,200	650	468	211	376	778	715	570	242	86	72
21	295	1,400	595	518	242	334	715	845	655	226	84	85
22	211	2,450	540	570	242	295	685	960	685	226	79	68
23	182	2,320	490	493	242	314	655	1,000	655	211	76	58
24	182	1,670	465	444	259	355	655	1,100	598	196	73	57
25	164	2,860	440	421	314	355	655	1,100	544	182	73	58
26	147	1,490	440	376	334	314	685	1,050	518	182	73	54
27	*376	1,580	490	334	376	398	655	1,100	518	169	73	51
28	3,960	1,310	3,450	398	493	421	685	960	493	169	70	50
29	735	1,020	3,610	376	-	355	810	910	493	159	66	*50
30	540	830	2,420	355	-	295	880	715	468	150	69	52
31	415	-	*1,500	334	-	277	-	655	-	139	68	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	12,286	3,960	93	396	6.60	7.61	24,370
November	35,076	2,860	305	1,169	19.5	21.76	69,570
December	32,615	3,610	390	1,052	17.5	20.18	64,690
Calendar year 1937	204,351	3,960	49	560	9.33	126.67	405,300
January	17,632	1,100	334	569	9.48	10.93	34,970
February	7,480	493	169	267	4.45	4.63	14,840
March	15,072	880	277	486	8.10	9.34	29,890
April	18,051	1,700	242	602	10.0	11.16	35,800
May	22,531	1,100	468	727	12.1	13.95	44,690
June	18,305	845	468	610	10.2	11.38	36,310
July	8,237	421	139	266	4.43	5.11	16,340
August	2,939	134	68	94.8	1.58	1.82	5,830
September	1,818	85	50	60.6	1.01	1.13	3,610
Water year 1937-38	192.042	3,960	50	526	8.77	119.00	380,900

*Missing gage height; discharge computed on basis of records for South Fork of Skokomish River near Union and Dosewallips River near Brinnon.

South Fork of Skokomish River near Union, Wash.

Location.- Water-stage recorder, lat. 47°20'30", long. 123°16'30", in NE¼ sec. 2, T. 21 N., R. 5 W., 2½ miles upstream from North Fork, 5 miles upstream from Vance Creek, and 8 miles west of Union.

Drainage area.- 81 square miles.

Records available.- August 1931 to September 1938.

Extremes.- Maximum discharge during year, 13,800 second-feet Dec. 28 (gage height, 10.31 feet), from rating curve extended above 3,500 second-feet; minimum, 62 second-feet Sept. 18 (gage height, 4.51 feet).
1931-38: Maximum discharge, 17,000 second-feet Jan. 22, 1935 (gage height, 11.0 feet), from rating curve extended above 4,000 second-feet; minimum, that of Sept. 18, 1938.

Remarks.- Records good except those for period of missing gage heights, Oct. 1-3, Oct. 29 to Nov. 5 (computed on basis of records for Dosewallips River near Brinnon and Quinault River at Quinault Lake), and those above 5,000 second-feet, which are poor. Shifting-control method used throughout the year. No diversion or regulation.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	900	550	1,050	2,080	676	1,210	648	736	354	187	116	71
2	530	630	950	1,520	699	1,550	613	648	354	180	114	71
3	400	700	882	1,250	769	1,180	620	592	349	173	111	71
4	349	550	801	1,060	854	1,290	648	559	359	166	111	73
5	286	500	736	970	801	1,110	641	514	359	163	109	75
6	250	471	692	882	714	940	613	477	359	159	106	78
7	225	527	655	818	669	826	592	465	359	159	106	75
8	206	2,640	613	752	613	752	641	465	344	159	103	71
9	191	1,710	606	706	566	729	714	465	314	152	101	73
10	183	1,380	2,420	699	540	692	655	454	291	156	101	71
11	173	1,200	3,070	684	527	699	641	490	272	159	96	65
12	166	1,420	1,690	801	527	882	641	573	286	156	96	67
13	159	2,380	1,190	1,080	620	1,470	620	553	291	152	96	67
14	152	2,900	1,260	2,110	627	1,330	586	496	272	152	93	65
15	152	2,240	1,200	1,290	566	1,410	1,050	496	263	146	91	65
16	332	4,040	2,020	1,090	533	1,750	1,930	496	259	143	91	63
17	349	2,500	1,660	1,030	502	1,260	2,730	465	250	143	91	63
18	259	1,590	1,280	1,100	496	1,290	2,730	430	238	140	89	63
19	229	1,790	1,040	1,020	477	1,180	1,620	430	234	134	84	63
20	635	3,590	882	930	721	950	1,200	465	234	134	84	67
21	586	2,110	793	1,020	873	818	1,000	496	242	131	80	73
22	408	2,400	736	1,120	744	752	911	521	250	131	80	71
23	349	3,120	669	990	744	854	873	540	242	128	80	71
24	334	3,070	641	854	826	1,060	818	540	234	125	80	69
25	324	5,330	613	769	892	970	785	527	221	119	78	71
26	304	2,710	627	714	920	845	777	508	210	119	78	69
27	1,070	2,380	988	669	950	920	706	496	202	122	78	67
28	5,120	2,130	9,460	722	970	1,200	699	471	198	122	75	67
29	1,100	1,500	6,760	729	-	950	752	419	194	122	78	67
30	800	1,230	5,250	669	-	801	785	391	191	119	75	67
31	650	-	2,900	634	-	706	-	370	-	116	75	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	17,171	5,120	152	554	6.84	7.89	34,060
November	59,288	5,330	471	1,976	24.4	27.22	117,600
December	54,134	9,460	606	1,746	21.6	24.90	107,400
Calendar year 1937	300,266	9,460	100	823	10.2	137.88	595,600
January	30,762	2,110	634	992	12.2	14.07	61,020
February	19,416	970	477	693	8.56	8.91	38,510
March	32,376	1,750	692	1,044	12.9	14.87	64,220
April	28,239	2,730	586	941	11.6	12.94	56,010
May	15,548	736	370	502	6.20	7.15	30,840
June	8,225	359	191	274	3.38	3.77	16,310
July	4,467	187	116	144	1.78	2.05	8,860
August	2,646	116	75	91.8	1.13	1.30	5,640
September	2,069	78	63	69.0	.852	.95	4,100
Water year 1937-38	274,541	9,460	63	752	9.28	126.02	544,600

Peak discharge.- Nov. 25 (8 a.m.) 6,570 sec.-ft.; Dec. 28 (9:30 a.m.) 13,800 sec.-ft.

Nisqually River near Alder, Wash.

Location.- Water-stage recorder, lat. 46°46'05", long. 122°16'05", in SW¼ sec. 23, T. 15 N., R. 4 E., 2½ miles southeast of Alder and 8 miles downstream from Mineral Creek.

Drainage area.- 252 square miles.

Records available.- August 1931 to September 1938.

Extremes.- Maximum discharge during year, 9,620 second-feet Apr. 18 (gage height, 8.20 feet); minimum, 216 second-feet Sept. 9 (gage height, 1.58 feet).
1931-38: Maximum discharge, 25,000 second-feet Dec. 22, 1933 (gage height, 13.2 feet), from rating curve extended above 10,000 second-feet; minimum, 142 second-feet Nov. 3, 1935 (gage height, 1.31 feet).

Remarks.- Records excellent. No diversion or regulation. Gage-height record collected in cooperation with city of Tacoma.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 29				Dec. 30 to Sept. 30	
1.5	210	4.5	2,340	1.5	191
2.0	370	5.0	3,010	2.0	374
2.5	590	6.0	4,700	2.5	650
3.0	900	7.0	6,660	3.0	980
3.5	1,320	8.0	9,100	3.5	1,340
4.0	1,790			4.0	1,790

Note. Same as preceding table above 3.9 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	472	610	2,060	3,010	1,120	1,120	845	1,790	1,080	780	494	486
2	350	535	1,740	2,340	1,080	1,190	832	1,600	1,160	715	*501	612
3	323	520	1,590	1,940	1,020	1,160	845	1,380	1,080	676	*509	652
4	300	468	1,360	1,690	945	1,050	910	1,340	1,160	670	516	506
5	261	454	1,230	1,510	945	1,220	910	1,260	1,260	631	539	327
6	271	429	1,100	1,340	1,020	1,160	878	1,160	1,340	715	551	315
7	271	441	996	1,260	910	1,050	826	1,080	1,420	780	*540	263
8	287	3,490	908	1,160	845	980	910	1,120	1,300	845	*528	246
9	310	3,960	872	1,080	800	945	1,160	1,120	980	767	*516	246
10	333	2,520	1,620	1,190	786	910	1,160	1,080	832	689	*505	263
11	333	2,110	2,400	1,220	760	845	1,120	1,420	878	682	*494	352
12	329	1,890	2,220	1,640	734	845	1,080	1,740	1,020	650	*482	446
13	313	2,920	1,890	2,060	728	980	1,020	1,740	1,080	754	*470	426
14	310	4,610	2,000	4,700	734	1,120	945	1,600	980	910	*459	438
15	287	3,660	1,840	5,460	702	1,300	980	1,560	980	945	*448	455
16	497	2,940	2,160	3,660	663	1,640	1,450	1,600	980	910	436	466
17	568	2,280	2,790	2,790	637	1,380	3,880	1,420	910	832	483	499
18	384	1,890	2,790	2,460	624	2,000	8,350	1,260	741	767	431	472
19	333	1,890	2,220	2,110	612	1,790	4,520	1,160	715	741	383	441
20	764	2,860	1,840	1,840	656	1,420	2,860	1,260	826	774	412	384
21	774	2,860	1,590	1,940	728	1,220	2,280	1,420	1,120	845	452	428
22	590	2,860	1,410	2,340	702	1,190	2,000	1,640	1,300	826	357	435
23	520	3,660	1,280	2,110	741	1,380	1,840	1,840	1,260	774	383	404
24	429	3,320	1,180	1,790	819	1,340	1,740	1,940	1,190	689	426	348
25	388	6,110	1,060	1,600	826	1,300	1,600	1,940	1,050	689	483	274
26	388	5,270	1,460	1,420	826	1,190	1,510	1,840	945	696	551	315
27	718	4,340	2,110	1,340	910	1,160	1,420	1,790	845	663	592	352
28	1,170	5,270	6,030	1,300	980	1,260	1,380	1,690	910	624	475	352
29	1,210	3,490	6,660	1,300	-	1,120	1,510	1,420	980	586	454	288
30	851	2,590	7,410	1,220	-	1,020	1,740	1,260	910	539	447	285
31	706	-	4,340	1,160	-	910	-	1,120	-	516	488	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	15,060	1,210	271	486	1.93	2.22	29,870
November	80,247	6,110	429	2,675	10.6	11.83	159,200
December	70,156	7,410	872	2,263	8.98	10.35	139,200
Calendar year 1937	495,716	7,410	150	1,358	5.39	73.14	983,300
January	61,980	5,460	1,080	1,999	7.93	9.14	122,900
February	22,853	1,120	612	816	3.24	3.37	45,330
March	37,195	2,000	845	1,200	4.76	5.49	73,780
April	52,501	8,350	826	1,750	6.94	7.74	104,100
May	45,590	1,940	1,080	1,471	5.84	6.73	90,430
June	31,232	1,420	715	1,041	4.13	4.61	61,950
July	22,680	945	516	732	2.90	3.34	44,990
August	14,805	592	357	478	1.90	2.19	29,370
September	11,776	652	246	393	1.56	1.74	23,360
Water year 1937-38	466,075	8,350	246	1,277	5.07	68.75	924,500

Peak discharge.- Nov. 25 (6:30 p.m.) 8,100 sec.-ft.; Dec. 30 (12:30 a.m.) 8,850 sec.-ft.; Jan. 15 (12:20 a.m.) 6,230 sec.-ft.; Apr. 18 (6:15 a.m.) 9,620 sec.-ft.
*Discharge interpolated.

Little Nisqually River near Alder, Wash.

Location.- Water-stage recorder, lat. 46°47'20", long. 122°18'45", in NW¼ sec. 16, T. 15 N., R. 4 E., 1,500 feet upstream from mouth, 3,000 feet upstream from diversion dam of Tacoma municipal power plant on Nisqually River, and 1½ miles southwest of Alder.
Drainage area.- 27.2 square miles.
Records available.- August 1920 to September 1938.
Average discharge.- 18 years, 123 second-feet.
Extremes.- Maximum discharge during year, 1,720 second-feet Dec. 28, 29 (gage height, 5.6 feet); minimum, 4.4 second-feet Sept. 22, 23 (gage height, 0.52 foot).
1920-38: Maximum discharge, 2,430 second-feet Dec. 20, 21, 1933 (gage height, 6.8 feet); minimum, 0.9 second-foot July 17, 1926.
Remarks.- Records excellent. No diversion or regulation. Gage-height record collected in cooperation with city of Tacoma.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 30

0.5	2.0	3.5	725
.7	11.4	4.0	940
1.0	37	4.5	1,170
1.5	105	5.0	1,420
2.0	209	5.5	1,670
2.5	337	6.0	1,950
3.0	525		

Dec. 31 to Sept. 30

0.5	3.6
.7	14.6
1.0	42
1.5	105
2.0	209

Note.- Same as preceding table above 2.0 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	45	172	353	114	193	100	109	41	15	8.0	6.5
2	40	40	140	254	105	198	94	*103	38	15	8.6	6.5
3	33	41	130	200	116	164	102	*97	37	15	8.0	6.0
4	27	38	111	168	90	147	116	*91	35	15	8.0	6.0
5	23	37	98	145	90	139	119	85	34	15	8.0	5.6
6	20	34	90	133	93	131	112	81	33	14	8.0	6.0
7	19	40	82	121	86	116	107	76	32	15	8.0	6.5
8	18	773	74	110	80	110	129	76	30	14	8.0	6.5
9	17	565	74	107	75	102	164	76	29	13	7.5	6.5
10	16	300	206	121	73	96	154	73	28	12	7.5	6.0
11	15	246	317	135	72	92	135	87	27	15	7.5	6.0
12	14	242	271	241	71	94	123	98	26	12	7.5	6.0
13	14	536	216	343	73	127	114	96	25	12	8.6	6.0
14	14	745	194	828	72	171	104	85	25	12	12	5.6
16	13	585	178	665	69	240	121	78	24	11	9.2	5.6
16	27	473	298	391	65	416	333	75	27	10	8.0	5.6
17	37	325	445	303	61	261	743	71	27	10	9.2	5.2
18	30	232	365	311	60	356	828	67	24	10	8.6	5.2
19	26	256	251	261	59	289	413	63	23	10	8.0	5.2
20	26	398	187	223	75	207	264	63	22	10	8.0	5.2
21	25	334	148	281	92	158	200	70	21	10	7.5	4.8
22	24	394	126	356	89	149	171	75	20	9.2	7.0	4.8
23	22	565	107	286	102	207	154	76	19	9.2	6.5	4.8
24	21	567	100	223	131	209	139	72	18	9.2	6.5	5.2
25	19	1,240	90	182	143	193	127	70	18	8.6	6.5	4.8
26	19	705	143	151	145	168	118	65	18	8.6	6.5	5.2
27	25	469	498	137	162	160	107	60	17	8.0	6.5	5.6
28	95	461	1,570	141	171	177	100	55	16	8.0	6.5	5.6
29	107	303	1,420	141	-	154	110	50	16	8.0	6.5	6.0
30	72	223	1,250	127	-	131	116	45	16	8.0	6.5	6.5
31	56	-	605	118	-	114	-	42	-	8.0	6.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	980	107	13	31.6	1.16	1.34	1,940
November	11,212	1,240	34	374	13.8	15.40	22,240
December	9,956	1,570	74	321	11.8	13.60	19,750
Calendar year 1937	56,231	1,570	5	154	5.66	77.02	111,500
January	7,556	828	107	244	8.97	10.34	14,990
February	2,634	171	59	94.1	3.46	3.60	5,220
March	5,469	416	92	176	6.47	7.46	10,850
April	5,717	828	94	191	7.02	7.83	11,340
May	2,330	109	42	75.2	2.76	3.18	4,620
June	766	41	16	25.5	.938	1.05	1,520
July	349.8	15	8.0	11.3	.415	.48	694
August	239.2	12	6.5	7.72	.284	.33	474
September	171.0	6.5	4.8	5.70	.210	.23	339
Water year 1937-38	47,380.0	1,570	4.8	130	4.78	64.84	93,980

Peak discharge.- Nov. 25 (11:30 a.m.) 1,420 sec.-ft.; Dec. 28 (2 a.m. & 5:30 p.m.) 1,720 sec.-ft.; Dec. 29 (12 p.m.) 1,720 sec.-ft.; Jan. 14 (3 p.m.) 985 sec.-ft.
*Discharge interpolated.

201244 O—40——3

Puyallup River near Orting, Wash.

Location.- Water-stage recorder, lat. 47°02'30", long. 122°12'20", in SW¼ sec. 17, T. 18 N., R. 5 E., 4 miles south of Orting and 7½ miles upstream from Carbon River.

Drainage area.- 170 square miles.

Records available.- September 1931 to September 1938.

Extremes.- Maximum discharge during year, 9,050 second-feet Apr. 18 (gage height, 9.14 feet); minimum, 98 second-feet (regulated), Oct. 6 (gage height, 3.68 feet); minimum daily discharge, 200 second-feet Oct. 5, 6, 7.

1931-38: Maximum discharge, not determined, occurred Dec. 9 or 10, 1933; minimum, 54 second-feet (regulated) Oct. 5, 1936 (gage height, 3.50 feet); minimum daily discharge, 77 second-feet Oct. 5, 1936.

Remarks.- Records good. Shifting-control method used throughout year. Water that is diverted for Electron plant of Puget Sound Power & Light Co. is returned to river above gage. Slight regulation due to pondage in connection with operation of Electron power plant.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	321	512	914	1,220	579	442	293	844	618	496	503	570
2	229	384	833	1,040	532	486	279	711	649	425	376	729
3	211	359	788	914	477	416	307	608	649	400	408	808
4	211	343	700	722	433	367	376	598	744	425	522	658
5	200	343	659	639	408	579	335	579	833	433	588	425
6	200	286	598	598	512	570	307	532	914	522	608	400
7	200	351	560	550	451	442	286	494	1,040	639	512	335
8	211	2,630	503	512	425	392	384	522	810	733	442	300
9	229	1,150	486	486	376	376	579	512	503	608	451	293
10	253	433	943	639	359	328	477	503	376	522	477	408
11	272	272	1,020	659	328	314	442	822	416	512	425	460
12	279	211	949	856	328	300	400	997	550	466	343	494
13	272	535	755	1,070	321	351	468	961	629	722	400	484
14	272	1,660	914	2,870	359	416	400	822	522	1,010	973	465
15	265	1,460	833	2,590	307	468	384	822	512	1,140	560	477
16	472	1,130	1,030	1,510	293	659	532	799	522	1,070	522	486
17	447	868	1,540	1,200	265	522	2,160	700	451	890	541	494
18	343	669	1,420	1,100	272	709	4,970	570	328	766	486	598
19	286	815	1,110	961	286	733	2,520	532	328	799	451	560
20	845	1,420	925	844	286	618	1,800	579	433	844	468	468
21	744	1,260	810	890	307	532	1,360	744	744	1,020	494	486
22	588	1,290	700	985	272	486	1,220	914	1,020	1,020	425	461
23	494	1,380	608	890	293	598	1,040	1,100	1,140	902	408	451
24	367	1,200	579	799	300	579	914	1,170	985	766	468	451
25	343	1,650	522	711	272	579	810	1,240	700	844	550	359
26	427	1,590	733	669	279	468	733	1,160	570	868	680	400
27	680	2,280	1,170	639	343	541	669	1,220	522	833	706	416
28	1,190	2,230	3,760	649	392	477	659	1,100	598	722	532	460
29	950	1,340	2,600	680	-	408	733	890	722	669	494	433
30	618	1,040	1,960	618	-	314	844	766	629	608	466	384
31	560	-	1,480	588	-	321	-	618	-	588	541	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	12,979	1,190	200	419	2.46	2.84	25,740
November	31,091	2,630	211	1,036	6.09	6.80	61,670
December	32,422	3,760	486	1,046	6.15	7.09	64,310
Calendar year 1937	270,009	3,760	115	740	4.35	59.05	535,600
January	29,098	2,870	486	939	5.52	6.36	57,720
February	10,055	579	265	359	2.11	2.20	19,940
March	14,791	733	300	477	2.81	3.24	29,340
April	26,681	4,970	279	889	5.23	5.84	52,920
May	24,429	1,240	494	788	4.64	5.35	48,450
June	19,457	1,140	328	649	3.82	4.26	38,590
July	22,272	1,140	400	718	4.22	4.86	44,180
August	15,820	973	343	510	3.00	3.46	31,380
September	14,233	808	293	474	2.79	3.11	28,230
Water year 1937-38	253,328	4,970	200	694	4.08	55.41	502,500

Peak discharge.- Dec. 28 (4:50 p.m.) 4,540 sec.-ft.; Apr. 18 (3:55 a.m.) 9,050 sec.-ft.

Puyallup River at Puyallup, Wash.

Location.- Water-stage recorder, lat. 47°12'20", long. 122°19'30", in NE¼ sec. 20, T. 20 N., R. 4 E., 1 mile northwest of Puyallup and 7 miles upstream from mouth. Zero of gage is at mean sea level (general adjustment of 1929).
Drainage area.- 948 square miles.
Records available.- May 1914 to September 1938.
Average discharge.- 24 years, 3,291 second-feet.
Extremes.- Maximum discharge during year, 33,900 second-feet Apr. 18 (gage height, 23.64 feet); minimum discharge recorded, 725 second-feet (regulated) Oct. 10 (gage height, 8.36 feet).
1914-38: Maximum discharge, about 57,000 second-feet Dec. 10, 1933 (gage height, 31.0 feet, present datum); minimum, probably less than 350 second-feet (regulated) Nov. 24, 28, Dec. 1, 3-5, 1929.
Remarks.- Records good. All diverted water returned to river above station. Large part of flow of White River diverted into Lake Tapps above station. Records of storage regulation in Lake Tapps furnished by Puget Sound Power & Light Co. Some pondage on upper Puyallup River and other tributaries.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 28 to Nov. 8 and Dec. 28 to Apr. 17)

Oct. 1 to Apr. 17				Apr. 18 to Sept. 30			
8.3	700	12.0	3,850	9.0	1,300	16.0	12,700
9.0	1,100	13.0	5,700	10.0	2,060	18.0	17,700
10.0	1,800	15.0	10,000	11.0	3,000	20.0	23,200
11.0	2,600	17.0	14,800	12.0	4,250	22.0	29,100
				14.0	8,150	24.0	35,100

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	†1,070	1,900	5,260	6,110	3,010	2,200	2,340	*4,120	4,060	3,050	2,450	1,950
2	†1,040	1,830	4,130	*4,520	2,970	2,490	2,160	4,230	4,030	2,620	2,060	2,110
3	*†1,020	1,820	3,620	3,780	2,820	2,460	*2,010	3,950	3,650	*2,050	2,100	2,030
4	†1,000	1,770	3,180	3,080	2,710	2,370	2,560	3,930	4,310	1,940	2,080	*1,930
5	975	1,870	*2,940	2,760	2,640	2,230	2,580	3,860	*5,080	2,360	2,140	1,660
6	1,040	1,790	2,710	2,650	*2,610	*2,160	2,420	3,520	5,800	2,750	2,060	1,740
7	959	*1,860	2,510	2,710	2,760	2,560	2,300	3,060	6,360	3,180	*1,560	1,650
8	916	8,310	2,550	2,560	2,660	2,520	2,310	*3,010	6,300	3,220	2,010	1,580
9	860	12,700	2,990	*2,570	2,580	2,560	2,520	3,390	5,220	3,020	2,020	1,540
10	*784	6,920	3,530	2,590	2,450	2,250	*3,010	3,500	4,340	*2,900	1,920	1,410
11	923	4,200	4,380	2,860	2,370	2,160	2,920	4,040	3,180	2,910	1,890	*1,410
12	974	3,520	*3,420	3,120	2,070	1,930	2,780	5,340	*2,540	3,060	1,760	1,770
13	972	5,350	3,430	3,900	*1,960	*1,810	2,580	6,000	3,400	3,210	1,640	1,940
14	1,050	*10,800	3,970	10,700	2,430	2,450	2,480	5,630	3,420	3,460	*1,820	1,860
15	990	7,890	4,750	14,200	2,270	2,470	2,640	*5,100	3,280	3,600	2,130	1,880
16	990	5,930	5,320	*8,540	2,330	2,710	2,990	5,370	3,170	3,210	2,110	1,910
17	*1,230	4,480	7,420	5,780	2,250	2,640	*8,620	5,060	3,140	*2,970	1,860	1,820
18	1,290	3,450	8,040	4,960	2,240	3,050	27,900	3,540	2,470	3,400	1,950	*1,700
19	1,460	3,460	*5,530	4,150	1,890	3,040	16,600	3,290	*2,060	3,160	1,760	2,170
20	1,730	5,910	4,500	3,710	*1,870	*2,620	10,200	3,320	2,900	3,160	1,590	2,140
21	2,170	*6,670	3,960	3,390	2,150	2,670	7,510	3,310	3,880	3,220	*1,530	2,100
22	1,700	7,600	3,640	3,770	1,910	2,700	5,640	*3,670	4,800	3,020	1,720	1,940
23	1,530	10,500	3,210	*3,780	2,220	3,030	4,960	4,620	5,150	2,920	1,640	1,920
24	*1,260	7,710	2,820	3,440	2,140	2,920	*4,080	5,670	5,180	*2,290	1,830	1,710
25	1,440	7,210	2,530	3,130	2,100	3,070	4,240	6,080	4,530	2,640	1,930	*1,390
26	1,450	9,690	*3,990	2,950	1,850	2,860	4,090	5,920	*4,190	2,920	2,150	1,680
27	1,870	9,680	4,740	2,860	*1,720	*2,740	3,900	5,810	3,980	2,730	1,960	1,740
28	2,950	*16,700	14,400	2,950	2,090	3,050	3,680	5,660	4,300	2,630	*1,850	1,900
29	4,490	9,910	15,400	2,960	-	2,920	3,710	*4,820	5,130	2,580	1,940	1,790
30	2,320	6,970	13,900	*2,760	-	2,660	4,040	4,320	4,800	2,300	1,980	1,780
31	*1,790	-	9,100	3,040	-	2,430	-	4,200	-	*2,030	2,030	-

Month	Observed				Gain or loss in storage in Lake Tapps (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	4,490	784	1,427	87,750	+7,140	94,890	1,543	1.63	1.88
November	16,700	1,770	6,280	373,700	+8,940	382,600	6,430	6.78	7.56
December	15,400	2,510	5,222	321,100	-240	320,900	5,219	5.51	6.35
Calendar year 1937	16,700	784	3,446	2,495,000	+13,900	2,509,000	3,465	3.66	49.63
January	14,200	2,560	4,203	258,400	+1,380	259,800	4,225	4.46	5.14
February	3,010	1,720	2,324	129,100	-5,850	123,200	2,218	2.34	2.44
March	3,070	1,810	2,572	158,100	+5,060	163,200	2,654	2.80	3.23
April	27,900	2,010	4,992	297,100	-3,650	293,400	4,931	5.20	5.80
May	6,080	3,010	4,430	272,400	+4,310	276,700	4,500	4.75	5.48
June	6,360	2,060	4,155	247,200	-3,890	243,300	4,089	4.31	4.81
July	3,600	1,940	2,855	175,600	+4,860	180,500	2,936	3.10	3.57
August	2,450	1,530	1,918	118,000	-2,620	115,400	1,877	1.98	2.28
September	2,170	1,390	1,805	107,400	-10,990	96,410	1,620	1.71	1.91
Water year 1937-38	27,900	784	3,516	2,546,000	+4,450	2,550,000	3,523	3.72	50.45

Peak discharge.- Nov. 8 (9:30 p.m.) 19,500 sec.-ft.; Nov. 28 (9:10-9:40 a.m.) 19,200 sec.-ft.; Dec. 29 (12:05 a.m.) 19,000 sec.-ft.; Jan. 15 (3:30 a.m.) 16,700 sec.-ft.; Apr. 18 (11:05 a.m.) 33,900 sec.-ft.
*Sunday. †Gage height missing; discharge interpolated

Carbon River near Fairfax, Wash.

Location.- Water-stage recorder, lat. 47°01'30", long. 122°02'00", in SW¼ sec. 22, T. 18 N., R. 6 E., 1¼ miles northwest of Fairfax and 12 miles upstream from Voights Creek.

Drainage area.- 81 square miles.

Records available.- March 1929 to September 1938. November 1910 to July 1912 at site 1¼ miles upstream.

Extremes.- Maximum discharge during year, 5,560 second-feet Apr. 18 (gage height, 6.98 feet), from rating curve extended above 700 second-feet; minimum, 79 second-feet Oct. 10, 11.

1910-12, 1929-38: Maximum discharge, about 8,030 second-feet Dec. 9, 1933 (gage height, 10.2 feet), from rating curve extended above 500 second-feet; minimum, 40 second-feet (estimated) Jan. 20, 1930 (stage-discharge relation affected by ice).

Remarks.- Records good except those above 1,000 second-feet, which are poor. Some water diverted for use in lumber industry but returned to river above gage.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	133	262	596	610	256	273	172	538	447	332	257	238
2	116	239	485	479	248	269	169	445	480	330	205	289
3	114	205	438	400	225	240	196	402	480	330	217	286
4	118	182	358	344	210	229	225	382	532	316	248	242
5	96	189	320	302	206	327	214	352	578	306	276	185
6	87	176	280	276	210	290	206	313	655	330	276	171
7	83	256	260	247	186	252	196	289	697	357	245	150
8	81	2,380	235	235	176	229	236	323	620	402	211	133
9	81	1,660	219	227	166	221	346	341	411	332	202	133
10	79	1,170	337	339	160	206	327	323	341	337	208	145
11	81	1,000	549	410	153	200	299	567	375	345	202	150
12	87	895	498	498	156	200	290	795	446	323	182	171
13	92	1,240	394	679	150	236	269	732	470	348	197	171
14	98	1,410	686	2,120	147	260	248	578	480	424	334	174
15	105	1,130	625	1,620	138	260	256	538	490	435	260	171
16	190	984	722	1,000	126	295	336	520	502	437	232	190
17	242	843	1,200	769	120	248	2,010	456	437	398	270	199
18	202	714	984	644	132	362	3,660	398	348	357	248	208
19	133	913	683	525	135	318	1,460	371	341	335	220	223
20	538	1,710	529	446	138	269	958	446	415	332	208	190
21	553	1,560	433	557	141	244	739	578	557	336	214	176
22	310	1,460	373	680	135	233	676	704	725	338	176	190
23	274	1,460	320	570	147	260	606	774	788	339	171	182
24	220	1,190	298	464	156	248	526	838	725	333	185	193
25	182	1,710	268	408	160	252	470	846	599	334	217	145
26	173	1,460	330	356	169	225	437	816	475	333	248	138
27	298	2,040	423	332	203	229	411	823	420	352	283	138
28	911	1,980	1,150	322	252	225	394	753	428	337	223	147
29	892	1,060	1,250	322	-	217	428	613	466	309	202	150
30	442	745	1,150	290	-	200	538	532	437	286	196	160
31	330	-	794	273	-	182	-	437	-	233	229	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	7,341	911	79	237	2.93	3.38	14,560
November	32,223	2,380	176	1,074	13.3	14.84	63,910
December	17,187	1,250	219	554	6.84	7.89	34,090
Calendar year 1937	172,301	2,380	76	472	5.83	79.15	341,800
January	16,744	2,120	227	540	6.67	7.69	33,210
February	4,801	256	120	171	2.11	2.20	9,520
March	7,699	362	182	248	3.06	3.53	15,270
April	17,298	3,660	169	577	7.12	7.94	34,310
May	16,823	846	289	543	6.70	7.72	33,370
June	15,165	788	341	506	6.25	6.97	30,080
July	11,006	485	263	355	4.38	5.05	21,830
August	7,042	334	171	227	2.80	3.23	13,970
September	5,438	289	133	181	2.23	2.49	10,790
Water year 1937-38	158,767	3,660	79	435	5.37	72.93	315,000

Peak discharge.- Nov. 8 (1 p.m.) 3,900 sec.-ft.; Nov. 27 (11:55 p.m.) 3,300 sec.-ft.; Jan. 14 (7 p.m.) 2,430 sec.-ft.; Apr. 18 (4 a.m.) 5,560 sec.-ft.

White River at Greenwater, Wash.

Location.- Water-stage recorder, lat. 47°08'50", long. 121°38'50", in SE¼ sec. 10, T. 19 N., R. 9 E., three-quarters of a mile southeast of Greenwater, three-quarters of a mile upstream from Greenwater River, and 25 miles upstream from Buckley.

Drainage area.- 216 square miles.

Records available.- March 1929 to September 1938. September 1911 to May 1912 (fragmentary) at site 2 miles upstream, published as White River near Enumclaw, Wash.

Extremes.- Maximum discharge during year, 5,440 second-feet Apr. 18 (gage height, 5.66 feet); minimum, 247 second-feet Oct. 6, 7 (gage height, 2.02 feet).
1911-12, 1929-38: Maximum discharge, 12,100 second-feet Dec. 21, 1933 (gage height, 9.38 feet); minimum, 120 second-feet Nov. 2, 1935 (gage height, 1.69 feet).

Remarks.- Records good. No diversion or regulation.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	379	483	1,200	1,050	536	568	395	1,570	1,580	1,360	734	642
2	299	436	1,020	900	510	582	395	1,350	1,640	1,210	650	710
3	289	416	916	788	492	549	422	1,170	1,670	1,140	680	710
4	279	390	804	724	474	510	450	1,080	1,820	1,110	702	586
5	261	384	752	682	462	523	468	972	2,090	1,080	718	494
6	256	374	703	640	450	510	456	887	2,310	1,130	695	448
7	252	410	675	608	439	492	456	854	2,520	1,250	650	423
8	266	1,600	627	575	417	474	536	896	2,380	1,280	593	417
9	270	1,230	588	556	406	468	710	896	1,810	1,190	579	405
10	275	908	751	608	395	450	675	887	1,500	1,100	593	461
11	275	828	1,070	668	390	444	640	1,010	1,470	1,080	572	468
12	279	752	976	738	380	456	627	1,180	1,650	1,050	532	513
13	284	879	900	834	375	498	601	1,320	1,820	1,140	552	520
14	284	1,160	1,060	1,840	365	523	575	1,330	1,630	1,300	642	520
15	289	976	1,020	1,820	345	530	601	1,400	1,570	1,370	586	520
16	435	892	1,170	1,290	336	582	788	1,460	1,610	1,280	600	539
17	410	812	1,540	1,060	327	523	2,210	1,460	1,470	1,200	607	565
18	320	724	1,460	924	336	556	4,640	1,260	1,270	1,120	579	558
19	289	717	1,150	828	327	523	2,900	1,160	1,260	1,090	565	579
20	506	1,070	985	766	327	474	1,920	1,240	1,490	1,110	572	506
21	490	1,230	876	852	322	444	1,530	1,450	2,010	1,190	572	506
22	429	1,620	796	949	318	444	1,420	1,740	2,520	1,190	532	520
23	390	2,160	745	860	332	439	1,310	2,100	2,610	1,070	520	494
24	346	1,650	717	766	345	434	1,260	2,400	2,380	980	552	513
25	315	2,410	661	710	355	444	1,180	2,610	2,070	1,010	621	405
26	354	2,280	661	661	370	456	1,140	2,520	1,730	1,050	680	393
27	567	2,220	691	634	434	474	1,080	2,700	1,570	1,030	695	405
28	975	3,200	1,390	627	516	480	1,080	2,700	1,630	964	593	417
29	954	2,110	1,730	601	-	450	1,240	2,320	1,710	878	552	417
30	658	1,520	1,820	568	-	422	1,470	1,910	1,580	806	546	393
31	546	-	1,300	549	-	406	-	1,640	-	774	572	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	12,221	975	252	394	1.82	2.10	24,240
November	35,841	3,200	374	1,195	5.53	6.17	71,090
December	30,754	1,820	588	992	4.59	5.29	61,000
Calendar year 1937	312,731	3,800	140	857	3.97	53.82	620,300
January	25,676	1,840	549	828	3.83	4.42	50,930
February	11,081	536	318	396	1.83	1.91	21,980
March	15,128	582	406	488	2.26	2.61	30,010
April	33,175	4,640	395	1,106	5.12	5.71	65,800
May	47,472	2,700	854	1,531	7.09	8.17	94,160
June	54,370	2,610	1,260	1,812	8.39	9.36	107,800
July	34,582	1,370	774	1,116	5.17	5.96	68,590
August	18,836	734	520	608	2.81	3.24	37,360
September	15,047	710	393	502	2.32	2.59	29,850
Water year 1937-38	334,183	4,640	252	916	4.24	57.53	662,800

Peak discharge.- Nov. 25 (6:45 a.m.) 3,100 sec.-ft.; Nov. 28 (1:40 a.m.) 3,700 sec.-ft.; Apr. 18 (5:45 a.m.) 5,440 sec.-ft.

Greenwater River at Greenwater, Wash.

Location.- Water-stage recorder, lat. 47°09'15", long. 121°38'00", in NW¼NW¼ sec. 11, T. 19 N., R. 9 E., 1 mile upstream from mouth, 1 mile east of Greenwater, and 17 miles east of Buckley.
Drainage area.- 74 square miles.
Records available.- September 1911 to August 1912 (fragmentary), May 1929 to September 1938.
Extremes.- Maximum discharge during year, 1,410 second-feet Apr. 18 (gage height, 5.33 feet), from rating curve extended above 500 second-feet; minimum, 31 second-feet Sept. 28, 29 (gage height, 2.10 feet).
1911-12, 1929-38: Maximum discharge, 4,140 second-feet Dec. 9, 1933 (gage height, 9.24 feet, fromer site and datum), from rating curve extended above 1,000 second-feet; minimum, 23 second-feet Oct. 7, 1934 (gage height, 2.06 feet).
Remarks.- Records excellent except those above 500 second-feet, which are fair, and those for periods of missing gage heights, Oct. 4-6, Oct. 8 to Nov. 9, Nov. 13 to Dec. 13, which were computed on basis of records for Clear Fork of Cowlitz River near Packwood and White River at Greenwater and are poor. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 13		Dec. 14 to Sept. 30			
2.0	25	2.0	25	4.0	625
2.2	38	2.2	38	4.5	900
2.5	72	2.5	72	5.0	1,200
3.0	168	3.0	177	5.5	1,500
3.5	317	3.5	370		
4.0	555				
4.5	830				

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	100	360	400	174	145	125	560	475	150	56	37
2	43	90	310	335	166	155	125	525	445	145	56	37
3	46	85	280	295	158	153	134	470	425	138	55	37
4	45	80	250	264	150	143	145	430	425	134	54	37
5	45	75	230	241	145	143	150	400	440	127	52	37
6	40	70	200	221	145	143	150	370	455	119	51	37
7	41	80	190	207	136	138	153	350	470	113	50	38
8	40	500	170	195	129	136	183	355	465	107	49	39
9	40	370	150	189	125	134	271	350	420	103	48	37
10	40	306	200	249	121	132	256	345	365	100	48	36
11	40	264	400	283	117	132	227	390	330	98	47	35
12	40	232	350	283	111	134	214	450	304	94	47	35
13	40	260	320	325	107	143	198	500	295	91	49	34
14	40	300	325	625	103	158	186	495	287	87	74	34
15	40	350	350	620	100	166	189	490	271	86	56	34
16	80	300	430	500	98	169	227	500	268	84	50	34
17	75	270	565	405	94	155	579	495	264	80	48	33
18	65	250	620	345	93	164	1,260	455	260	79	47	33
19	60	220	500	300	91	158	930	415	238	75	46	33
20	120	270	415	268	89	143	658	415	227	72	45	33
21	95	390	355	279	89	134	530	450	224	71	44	32
22	80	430	316	312	87	127	470	520	224	69	43	32
23	70	500	283	295	91	127	450	598	221	68	42	32
24	65	450	268	268	94	129	450	658	214	66	42	35
25	60	600	241	245	96	136	440	713	207	65	41	34
26	60	580	238	227	100	150	430	730	198	64	40	33
27	70	630	241	214	111	153	410	735	189	62	40	32
28	200	700	361	207	132	161	410	735	177	61	39	32
29	180	500	480	201	-	153	450	669	169	59	38	32
30	140	420	565	186	-	141	530	598	161	58	38	32
31	120	-	475	177	-	132	-	525	-	57	37	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	2,167	200	40	69.9	.945	1.09	4,300
November	9,672	700	70	322	4.35	4.85	19,180
December	10,438	620	150	337	4.55	5.25	20,700
Calendar year 1937	77,106	720	35	211	2.85	38.75	152,900
January	9,161	625	177	296	4.00	4.61	18,170
February	3,252	174	87	116	1.57	1.64	6,450
March	4,487	169	127	145	1.96	2.26	8,900
April	10,930	1,260	125	364	4.92	5.49	21,680
May	15,691	735	345	506	6.84	7.89	31,120
June	9,113	475	161	304	4.11	4.59	18,080
July	2,782	150	57	89.7	1.21	1.40	5,520
August	1,472	74	37	47.5	.642	.74	2,920
September	1,036	39	32	34.5	.466	.52	2,050
Water year 1937-38	80,201	1,260	32	220	2.97	40.33	159,100

Green River near Palmer, Wash.

Location.- Water-stage recorder, lat. 47°17'40", long. 121°49'20", in SW¼NW¼ sec. 20, T. 21 N., R. 8 E., 1½ miles upstream from intake of Tacoma water-supply system, 2½ miles downstream from North Fork, and 4 miles southeast of Palmer.

Drainage area.- 231 square miles.

Records available.- October 1931 to September 1938.

Extremes.- Maximum discharge during year, 14,800 second-feet Apr. 18 (gage height, 15.74 feet); minimum, 85 second-feet Sept. 27, 28 (gage height, 4.20 feet).
1931-38: Maximum discharge, 33,600 second-feet Dec. 9, 1933 (gage height, 19.4 feet); minimum, 81 second-feet Sept. 4, 5, 1934; minimum gage height, 4.00 feet Sept. 4, 1933.

Remarks.- Records excellent. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 17				Apr. 18 to Sept. 30	
4.5	95	8.0	2,040	4.2	85
4.7	162	9.0	2,760	4.4	147
4.9	260	10.0	3,860	4.7	277
5.5	570	12.0	6,450	5.0	412
6.0	845	14.0	10,000	5.5	643
7.0	1,420	16.0	15,870	6.0	880

Note.- Same as preceding table above 6.6 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	162	435	2,320	2,180	818	762	845	1,970	832	282	144	102
2	154	395	1,900	1,780	790	818	845	1,780	808	277	147	102
3	158	375	1,720	1,540	735	790	928	1,600	784	277	144	99
4	151	345	1,480	1,360	696	762	1,040	1,660	760	272	144	105
5	143	345	1,300	1,210	674	845	1,060	1,900	760	259	137	107
6	139	335	1,180	1,060	669	900	1,040	1,780	760	250	137	123
7	132	556	1,060	982	630	845	1,040	1,600	760	246	137	123
8	124	4,940	982	928	603	818	1,210	1,540	714	241	133	116
9	121	4,410	928	872	576	818	1,660	1,540	643	232	130	110
10	121	2,390	1,010	1,120	564	790	1,660	1,510	578	228	130	105
11	118	1,780	1,150	1,450	554	762	1,480	2,040	532	232	127	102
12	115	1,600	1,390	1,420	548	762	1,420	2,320	509	218	127	102
13	115	2,610	1,390	1,660	532	928	1,300	2,250	504	210	140	96
14	115	3,980	1,600	3,750	532	1,240	1,180	1,970	504	200	218	93
15	121	2,760	1,780	3,380	510	1,390	1,210	1,780	481	192	175	93
16	172	2,320	2,180	2,460	493	1,300	1,780	1,720	504	187	151	88
17	220	1,970	2,930	2,040	476	1,120	5,760	1,540	490	183	147	91
18	200	1,660	2,950	1,780	471	1,420	11,600	1,360	456	179	140	91
19	172	1,540	2,320	1,510	455	1,300	5,230	1,210	430	175	137	93
20	536	1,780	1,840	1,330	466	1,060	3,070	1,210	412	175	133	91
21	537	2,180	1,540	1,900	471	955	2,390	1,360	403	171	130	91
22	385	2,180	1,360	2,390	476	872	2,110	1,540	390	167	130	91
23	330	2,530	1,180	2,040	504	872	1,970	1,720	380	163	127	93
24	295	2,580	1,120	1,720	537	955	1,900	1,720	367	167	123	96
25	265	5,690	1,010	1,480	564	1,120	1,840	1,660	349	163	120	99
26	260	5,030	1,090	1,300	576	1,180	1,780	1,540	336	159	116	99
27	305	5,830	1,220	1,150	614	1,210	1,660	1,450	318	155	110	91
28	717	9,820	3,150	1,090	680	1,270	1,600	1,300	308	151	110	88
29	872	5,060	3,500	1,010	-	1,120	1,720	1,130	295	151	105	93
30	614	3,150	3,980	928	-	982	1,900	1,000	286	144	105	102
31	510	-	2,620	845	-	900	-	905	-	144	99	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	8,379	872	115	270	1.17	1.35	16,620
November	80,578	9,820	335	2,686	11.6	12.94	159,800
December	55,380	3,980	928	1,786	7.73	8.91	109,800
Calendar year 1937	409,406	9,820	115	1,122	4.86	65.86	812,000
January	49,665	3,750	845	1,602	6.94	8.00	98,510
February	16,214	818	455	579	2.51	2.61	32,160
March	30,866	1,420	762	996	4.31	4.97	61,220
April	64,228	11,600	845	2,141	9.27	10.34	127,400
May	49,605	2,320	905	1,600	6.93	7.99	98,390
June	15,655	832	286	522	2.26	2.52	31,050
July	6,250	282	144	202	.874	1.01	12,400
August	4,153	218	99	134	.580	.67	8,237
September	2,975	123	88	99.2	.429	.48	5,901
Water year 1937-38	383,948	11,600	88	1,052	4.55	61.79	761,500

Peak discharge.- Nov. 8 (4:40 p.m.) 7,900 sec.-ft.; Nov. 25 (6:45 p.m.) 7,400 sec.-ft.; Nov. 28 (3:25 a.m.) 12,800 sec.-ft.; Apr. 18 (6 a.m.) 14,800 sec.-ft.

Green River near Auburn, Wash.

Location.- Water-stage recorder, lat. 47°18'15", long. 122°02'10", in lot 3, sec. 17, T. 21 N., R. 5 E., 1½ miles east of Auburn and 2 miles downstream from Big Soos Creek. Zero of gage is mean sea level (general adjustment of 1929).

Drainage area.- 386 square miles.

Records available.- August 1936 to September 1938.

Extremes.- Maximum discharge during year, 14,400 second-feet Apr. 18 (elevation, 65.88 feet); minimum, 120 second-feet Sept. 29 (elevation, 54.69 feet).
1936-38: Maximum discharge, that of Apr. 18, 1938; minimum, that of Sept. 29, 1938.

Remarks.- Records excellent except those for period of missing gage heights, Dec. 7-15, 24-30, which were computed on basis of records for station near Palmer and are fair. City of Tacoma diverts about 85 second-feet for municipal supply. No regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 27				Nov. 28 to Sept. 30			
55.0	170	57.0	1,690	54.7	125	58.0	2,980
55.2	245	58.0	2,750	55.0	292	60.0	5,180
55.5	440	59.0	3,900	55.5	609	62.0	7,680
56.0	820	61.0	6,300	56.0	964	64.0	10,780
56.5	1,230			56.5	1,390	66.2	15,000
				57.0	1,880		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	214	552	3,420	3,640	1,480	1,080	1,340	2,380	1,120	446	212	146
2	204	489	2,870	3,090	1,440	1,160	1,300	2,430	1,040	440	212	157
3	200	468	2,540	2,600	1,340	1,160	1,340	2,100	1,040	440	212	157
4	204	440	2,210	2,320	1,260	1,120	1,530	2,100	1,000	427	206	162
5	197	408	1,940	2,100	1,260	1,120	1,530	2,320	1,000	414	195	178
6	188	414	1,780	1,880	1,300	1,300	1,530	2,260	964	402	189	173
7	185	408	1,650	1,730	1,260	1,260	1,480	2,040	964	383	184	178
8	182	2,960	1,550	1,630	1,160	1,160	1,530	1,940	949	377	184	167
9	179	5,940	1,450	1,530	1,120	1,160	1,580	1,940	904	364	184	162
10	173	3,080	1,450	1,580	1,080	1,120	2,100	1,880	838	358	178	162
11	179	2,090	1,600	2,040	1,080	1,080	1,880	2,260	773	371	178	157
12	173	1,740	1,950	2,040	1,040	1,080	1,830	2,760	738	364	178	152
13	170	2,730	2,000	2,160	1,000	1,160	1,680	2,760	717	340	184	141
14	170	5,340	2,150	4,410	1,080	1,480	1,580	2,480	710	358	223	141
15	170	4,020	2,300	5,070	1,040	1,730	1,580	2,210	690	328	280	141
16	179	3,190	2,600	3,970	964	1,730	2,040	2,040	697	304	228	141
17	218	2,640	3,310	3,310	942	1,630	4,780	1,940	697	292	206	141
18	252	2,140	3,860	3,090	926	1,940	12,200	1,780	656	286	200	136
19	278	1,940	3,090	2,650	912	2,040	7,340	1,630	629	280	195	130
20	362	2,260	2,480	2,320	919	1,680	4,520	1,530	596	269	184	125
21	676	2,640	2,100	2,700	949	1,480	3,420	1,630	576	269	173	125
22	489	2,700	1,830	3,310	919	1,390	2,980	1,780	556	257	167	125
23	401	3,300	1,680	3,200	949	1,580	2,760	1,940	543	246	162	125
24	362	3,190	1,550	2,650	956	1,530	2,600	1,990	536	246	157	125
25	323	5,460	1,500	2,320	964	1,830	2,480	1,940	517	23	157	130
26	304	6,300	1,500	2,040	964	1,830	2,380	1,830	504	234	157	130
27	330	5,340	1,900	1,880	1,000	1,780	2,260	1,730	498	223	157	130
28	498	10,800	3,800	1,780	1,040	1,880	2,100	1,630	478	223	157	125
29	1,050	6,770	5,100	1,660	-	1,780	2,160	1,480	465	223	152	125
30	796	4,520	5,600	1,580	-	1,630	2,320	1,340	452	217	152	125
31	644	-	4,630	1,480	-	1,440	-	1,210	-	212	146	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	9,950	1,050	170	321	.832	.96	19,740
November	94,269	10,800	408	3,142	8.14	9.08	187,000
December	77,390	5,600	1,450	2,496	6.47	7.46	153,500
Calendar year 1937	518,766	10,600	170	1,421	3.68	50.01	1,029,000
January	77,780	5,070	1,480	2,509	6.50	7.49	154,300
February	30,344	1,480	912	1,084	2.81	2.93	60,190
March	45,340	2,040	1,060	1,463	3.79	4.37	89,930
April	80,450	12,200	1,300	2,682	6.95	7.75	159,600
May	61,280	2,760	1,210	1,977	5.12	5.90	121,500
June	21,847	1,120	452	728	1.89	2.11	43,330
July	9,832	446	212	317	.821	.95	19,500
August	5,749	280	146	185	.479	.55	11,400
September	4,312	178	125	144	.373	.42	8,550
Water year 1937-38	518,543	12,200	125	1,421	3.68	49.97	1,029,000

Peak discharge.- Nov. 26 (12-1:15 a.m.) 7,800 sec.-ft.; Nov. 28 (12 m.) 12,400 sec.-ft.; Apr. 18 (2:30 p.m.) 14,400 sec.-ft.

Cedar River at Cedar Falls, Wash.

Location.- Water-stage recorder, lat. 47°25'10", long. 121°47'20", in sec. 4, T. 22 N., R. 8 E., three-quarters of a mile downstream from Seattle municipal power plant at Cedar Falls and 3 miles downstream from Cedar Lake.
Drainage area.- 86 square miles.
Records available.- April 1914 to September 1938.
Average discharge.- 24 years, 301 second-feet.
Extremes.- Maximum discharge during year, 2,020 second-feet (regulated) Nov. 29 (gage height, 8.07 feet); minimum, 28 second-feet (regulated) Sept. 14, 15 (gage height, 4.88 feet).
1914-38: Maximum discharge, 6,290 second-feet Dec. 19, 1917; maximum gage height, 11.5 feet Dec. 22, 1933; no flow Nov. 25, 1917, Aug. 18, 1923, due to regulation.
Remarks.- Records excellent except those for periods of faulty gage-height record, Mar. 6-9, Apr. 20-25, 29, 30, May 2-9, which were computed on basis of records for station near Landsberg and are good. All diverted water returned to river above station. Flow partly regulated in Cedar Lake Reservoir for operation of power plant. Gage-height record collected in cooperation with city of Seattle.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 28				Nov. 29 to Sept. 30			
4.8	20	6.5	560	4.8	20	7.0	950
5.0	42	7.0	950	5.0	42	7.5	1,450
5.5	125	7.5	1,450	5.5	135	8.0	1,970
6.0	300			6.0	315	8.5	2,520
				6.5	580		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	78	90	835	700	349	181	88	418	325	99	120	61
2	72	86	708	630	352	144	86	444	292	118	80	64
3	68	88	630	582	354	130	88	524	294	115	78	63
4	71	101	541	506	346	124	137	558	140	106	75	64
5	70	96	417	460	330	174	98	408	252	102	84	64
6	72	86	416	418	324	91	96	424	128	100	72	81
7	68	73	374	462	320	112	92	300	149	99	62	69
8	92	172	308	452	224	122	101	367	131	96	71	66
9	61	194	302	419	261	118	104	276	134	90	68	66
10	68	214	257	418	280	116	104	303	128	92	69	78
11	70	206	233	370	271	98	100	374	124	92	68	57
12	70	224	149	362	250	154	135	432	121	96	70	66
13	70	182	258	387	224	193	102	524	124	96	83	77
14	72	172	382	366	262	136	98	486	118	100	69	56
15	79	226	516	418	220	134	102	554	120	106	64	63
16	69	241	507	452	248	131	152	500	126	95	64	101
17	68	234	540	484	220	130	202	530	116	210	66	60
18	82	218	620	432	212	122	488	503	118	88	84	52
19	72	221	644	429	208	116	898	421	234	88	94	54
20	86	140	616	404	122	98	822	339	114	88	72	62
21	83	90	545	409	140	112	720	326	108	85	186	56
22	91	239	522	428	100	120	708	412	106	80	65	53
23	71	243	494	485	124	119	706	399	106	94	71	54
24	80	252	504	469	148	110	573	418	107	91	67	54
25	79	154	455	438	170	105	667	450	119	84	60	55
26	88	235	434	459	144	100	570	498	160	89	68	52
27	80	338	424	388	93	346	508	532	102	89	61	52
28	102	981	470	345	130	150	431	412	100	81	66	57
29	110	1,340	624	442	-	95	448	373	98	80	86	53
30	86	1,140	830	318	-	94	381	285	101	82	68	55
31	79	-	779	352	-	92	-	368	-	76	61	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	2,407	110	61	77.6			4,770
November	8,276	1,340	73	276			16,420
December	15,334	835	149	495			30,410
Calendar year 1937	96,335	1,340	60	264	3.07	41.67	191,100
January	13,684	700	318	441			27,140
February	6,426	354	93	230			12,750
March	4,067	346	91	131			8,070
April	9,805	898	86	327			19,450
May	13,158	558	276	424			26,100
June	4,395	325	98	146			8,720
July	3,007	210	76	97.0			5,960
August	2,372	186	60	76.5			4,700
September	1,885	101	52	62.8			3,740
Water year 1937-38	84,816	1,340	52	232	2.70	36.65	168,200

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

Cedar River near Landsberg, Wash.

Location.- Water-stage recorder, lat. 47°23'35", long. 121°56'50", in sec. 17, T. 22 N., R. 7 E., 1¾ miles upstream from Landsberg and intake of Seattle water-supply system, 7 miles upstream from Maple Valley, and 12 miles downstream from Cedar Lake.
Drainage area.- 138 square miles.
Records available.- April 1914 to September 1938, July 1895 to September 1898 (at site 2 miles downstream), and March 1901 to April 1912 (at site of Seattle water-supply intake) in reports of Geological Survey. August 1895 to April 1912 and May 1914 to September 1933 (monthly discharge) in State Water-Supply Bulletin 5; records equivalent.
Average discharge.- 40 years (1895-1911, 1914-38), 703 second-feet.
Extremes.- Maximum discharge during year, 2,360 second-feet (regulated) Nov. 29 (gage height, 3.91 feet); minimum, 257 second-feet (regulated) Sept. 15 (gage height, 1.04 feet).
1895-98, 1901-12, 1914-38: Maximum discharge observed, 13,600 second-feet Nov. 19, 1911 (gage height, 9.7 feet, former site and datum); minimum, 83 second-feet Sept. 19, 1898.
Remarks.- Records excellent. Flow of Rock Creek, entering naturally just above station, has been diverted to a point below Seattle municipal water supply intake to lessen danger of pollution. No diversion Nov. 14 to Apr. 14. Figures of monthly discharge, adjusted for diversion, were computed on basis of three discharge measurements, 69 observations of stage, and difference in flow of river between stations near Landsberg and at Cedar Falls. All other diverted water returned to river above station. Flow partly regulated by storage and release of water at Cedar Lake Reservoir. Gage-height record collected in cooperation with city of Seattle.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	342	330	1,430	1,410	844	581	530	848	694	385	358	305
2	318	324	1,280	1,290	822	549	523	867	648	384	374	307
3	316	323	1,180	1,200	821	526	526	942	643	408	347	303
4	310	324	1,060	1,100	808	511	586	968	504	398	343	308
5	306	327	912	1,030	792	600	536	850	593	380	349	306
6	308	312	892	966	796	513	570	845	464	383	340	319
7	300	328	836	978	786	504	545	752	475	382	328	314
8	322	792	765	974	679	502	549	809	474	376	336	300
9	296	784	746	938	699	505	595	688	456	372	332	297
10	294	643	732	927	716	498	586	712	454	374	336	300
11	294	582	712	894	704	476	568	844	442	371	340	296
12	296	592	647	910	680	521	595	900	434	366	329	303
13	292	802	709	952	654	575	547	968	442	375	350	309
14	294	1,160	821	1,220	710	549	528	924	433	368	342	296
15	302	972	981	1,220	648	575	532	992	432	388	325	270
16	297	878	1,020	1,160	678	585	632	908	446	371	322	318
17	296	782	1,090	1,140	634	564	1,020	942	430	483	325	300
18	306	713	1,140	1,120	626	692	1,710	904	426	355	340	278
19	295	698	1,160	1,040	613	652	1,600	838	543	361	350	278
20	340	666	1,110	1,000	556	595	1,470	740	415	364	322	276
21	341	578	1,030	1,070	551	568	1,340	733	408	356	443	283
22	325	782	998	1,080	518	576	1,280	802	405	348	320	271
23	306	910	957	1,090	536	614	1,230	766	401	355	328	271
24	306	896	954	1,050	552	610	1,040	798	399	364	322	269
25	304	984	912	992	586	642	1,100	811	411	348	311	267
26	310	956	936	1,000	560	610	1,040	866	448	356	318	264
27	309	1,100	972	922	506	834	976	880	394	358	308	262
28	434	1,830	1,630	873	518	646	896	790	390	346	310	268
29	420	1,930	1,630	930	-	578	900	742	386	346	326	266
30	360	1,780	1,800	828	-	556	820	662	386	346	317	270
31	327	-	1,570	833	-	540	-	705	-	344	307	-

Month	Observed				Diverted by Rock Creek (acre-feet)	Adjusted for diversion			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	434	292	318	19,570	1,020	20,590	335		
November	1,930	312	803	47,760	1,880	49,640	834		
December	1,800	647	1,052	64,680	0	64,680	1,052		
Calendar year 1937	1,930	292	653	472,600	18,210	490,800	678	4.91	66.65
January	1,410	828	1,037	63,740	0	63,740	1,037		
February	844	506	664	36,880	0	36,880	664		
March	834	476	576	35,400	0	35,400	576		
April	1,710	523	846	50,320	1,170	51,490	865		
May	992	662	832	51,170	1,410	52,580	855		
June	694	386	463	27,520	298	27,820	468		
July	483	344	371	22,830	280	23,110	376		
August	443	307	335	20,630	448	21,080	343		
September	319	262	289	17,200	365	17,560	295		
Water year 1937-38	1,930	262	632	457,700	6,870	464,600	642	4.65	63.12

Note.- Monthly discharge in second-feet per square mile and run-off in inches not computed because of regulation. Yearly figures closely represent natural flow.

South Fork of Skykomish River near Index, Wash.

Location.- Water-stage recorder, lat. 47°48'20", long. 121°32'40", in NE¼ sec. 29, T. 27 N., R. 10 E., 600 feet upstream from Sunset Falls, 2 miles upstream from confluence with North Fork, and 2 miles southeast of Index.
Drainage area.- 355 square miles.
Records available.- October 1902 to September 1905, April 1911 to September 1938.
Average discharge.- 30 years, 2,360 second-feet.
Extremes.- Maximum discharge during year, 27,700 second-feet Apr. 18 (gage height, 17.32 feet); minimum, 258 second-feet Sept. 29.
1902-5, 1911-38: Maximum discharge observed, about 57,000 second-feet Dec. 18, 1917 (gage height, 22.6 feet, at former site); minimum observed, 214 second-feet Oct. 15-21, 25, 1925.
Remarks.- Records excellent except those for period of missing gage heights, June 4-12, which were computed on basis of records for Skykomish River near Gold Bar and North Fork at Index and are fair. No diversion or regualtion.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 18				Apr. 19 to Sept. 30	
1.7	288	6.0	3,420	2.0	244
2.0	400	7.0	4,540	2.5	502
2.5	650	9.0	7,400	3.0	827
3.0	950	11.0	10,700	3.5	1,200
3.5	1,300	13.0	14,700	4.0	1,600
4.0	1,650	15.0	20,000	5.0	2,450
5.0	2,460	17.3	27,600		

Note.- Same as preceding table above 5.4 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	440	1,270	3,270	3,650	1,110	1,380	1,050	4,840	3,630	1,990	587	355
2	404	1,090	2,730	2,880	1,050	1,650	1,030	3,750	3,900	1,730	562	381
3	372	1,160	2,490	2,400	985	1,500	1,100	3,090	3,860	1,570	526	391
4	353	1,010	2,150	2,110	950	1,370	1,180	2,750	4,200	1,480	520	391
5	338	932	1,930	1,870	914	1,380	1,200	2,440	4,700	1,410	508	366
6	323	1,030	1,780	1,690	908	1,400	1,150	2,190	4,900	1,430	502	396
7	316	1,630	1,650	1,560	860	1,300	1,140	2,110	5,200	1,470	485	445
8	309	15,000	1,500	1,450	818	1,230	1,370	2,500	4,700	1,490	468	391
9	306	8,260	1,370	1,360	770	1,270	2,020	2,700	3,300	1,400	445	376
10	302	4,670	1,490	1,920	758	1,220	1,910	2,660	2,700	1,260	429	360
11	295	3,600	2,530	2,150	716	1,200	1,750	3,380	2,800	1,270	423	350
12	295	3,210	2,490	2,050	710	1,370	1,730	4,540	3,400	1,180	407	350
13	295	4,470	2,350	2,570	692	1,640	1,650	4,400	3,320	1,120	413	345
14	292	6,100	3,380	4,950	710	2,520	1,590	3,830	2,890	1,180	468	350
15	292	4,360	3,880	4,350	680	2,600	1,700	3,980	2,840	1,180	429	340
16	634	3,320	3,930	3,120	656	2,520	2,670	4,150	2,910	1,100	418	335
17	1,500	2,900	5,690	2,500	639	2,070	14,300	3,800	2,680	1,060	434	335
18	938	2,460	5,120	2,270	628	1,990	20,500	3,120	2,390	1,000	456	345
19	728	2,190	3,610	2,020	612	1,850	8,940	3,090	2,380	963	451	330
20	2,060	3,010	2,850	1,800	628	1,590	5,540	3,980	2,370	941	429	316
21	1,710	3,550	2,420	2,050	662	1,400	4,320	4,930	3,760	934	413	301
22	1,170	3,930	2,120	2,460	680	1,270	3,960	5,970	4,220	912	396	306
23	902	5,680	1,870	2,190	692	1,290	3,890	6,580	3,950	884	381	291
24	788	4,950	1,720	1,870	764	1,340	3,700	6,840	3,650	834	366	335
25	704	14,000	1,590	1,640	836	1,460	3,460	6,890	3,110	806	371	330
26	656	8,490	1,640	1,500	878	1,420	3,410	6,560	2,710	785	371	291
27	1,700	13,500	1,880	1,430	985	1,430	3,140	6,220	2,450	764	386	282
28	5,310	11,200	8,110	1,380	1,160	1,650	3,330	5,730	2,440	723	366	277
29	3,520	6,080	9,530	1,350	-	1,410	4,150	4,840	2,430	676	355	272
30	2,070	4,240	8,810	1,220	-	1,250	4,870	3,960	2,280	644	345	301
31	1,580	-	5,120	1,150	-	1,110	-	3,430	-	605	345	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	30,902	5,310	292	997	2.81	3.24	61,290
November	147,292	15,000	932	4,910	13.8	15.40	292,100
December	101,000	9,530	1,370	3,258	9.18	10.58	200,300
Calendar year 1937	877,819	15,000	292	2,405	6.77	92.03	1,741,000
January	66,910	4,950	1,150	2,158	6.08	7.01	132,700
February	22,451	1,160	612	802	2.26	2.35	44,530
March	48,080	2,600	1,110	1,551	4.37	5.04	95,370
April	111,750	20,500	1,030	3,725	10.5	11.71	221,700
May	129,250	6,890	2,110	4,169	11.7	13.49	256,400
June	100,570	5,200	2,280	3,352	9.44	10.53	199,500
July	34,791	1,990	605	1,122	3.16	3.64	69,010
August	15,455	587	345	434	1.22	1.41	26,690
September	10,234	445	272	341	.961	1.07	20,300
Water year 1937-38	816,685	20,500	272	2,237	6.30	85.47	1,620,000

Peak discharge.- Nov. 8 (1:15 p.m.) 21,900 sec.-ft.; Nov. 25 (2:10 p.m.) 20,200 sec.-ft.; Nov. 27 (9:30 p.m.) 19,400 sec.-ft.; Apr. 18 (4 a.m.) 27,700 sec.-ft.

Skykomish River near Gold Bar, Wash.

Location.- Water-stage recorder, lat. 47°50'15", long. 121°40'00", in SW¼ sec. 9, T. 27 N., R. 9 E., 2 miles southeast of Gold Bar, 5 miles upstream from mouth of Wallace River and Startup. Zero of gage is 210.01 feet above mean sea level (subject to correction for general adjustment of 1929).
Drainage area.- 535 square miles.
Records available.- September 1928 to September 1938.
Average discharge.- 10 years, 3,784 second-feet.
Extremes.- Maximum discharge during year, 47,200 second-feet Apr. 18 (gage height, 16.37 feet); minimum, 430 second-feet Sept. 29.
1928-38: Maximum discharge, 79,000 second-feet Dec. 21, 1933 (gage height, 21.3 feet); minimum, 392 second-feet Oct. 2, 3, 1929.
Remarks.- Records excellent except those for periods of missing gage heights, May 3-10, Aug. 11, 12, Aug. 27 to Sept. 1, which were computed on basis of records for North Fork at Index and South Fork near Index and are good. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 17

2.7	395	7.0	6,510
3.0	590	8.0	9,100
3.2	740	9.0	12,200
3.5	1,030	10.0	15,710
4.0	1,590	11.0	19,800
4.5	2,210	13.0	29,300
5.0	2,920	15.0	39,800
6.0	4,570	17.0	50,780

Apr. 18 to Sept. 30

3.0	540
3.5	990
4.0	1,570
4.5	2,200

Note.- Same as preceding table above 4.6 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	776	2,050	4,930	5,600	1,930	2,030	1,830	7,210	5,520	3,230	871	540
2	732	1,770	4,250	4,520	1,830	2,480	1,820	5,610	5,880	2,740	833	596
3	604	1,870	3,970	3,840	1,750	2,720	1,930	4,600	5,840	2,520	777	604
4	590	1,630	3,470	3,390	1,700	2,400	2,050	4,100	6,510	2,440	768	604
5	555	1,540	3,130	3,040	1,650	2,250	2,110	3,700	7,140	2,340	768	596
6	514	1,660	2,920	2,770	1,640	2,290	2,030	3,400	7,550	2,400	750	637
7	494	2,550	2,710	2,560	1,550	2,170	2,000	3,300	7,930	2,470	750	741
8	474	26,200	2,480	2,370	1,480	2,040	2,410	4,100	6,970	2,490	723	628
9	468	12,100	2,250	2,240	1,430	2,070	3,420	4,300	4,890	2,280	714	588
10	455	6,760	2,470	3,130	1,420	1,990	3,150	4,200	4,020	2,080	696	572
11	455	5,350	4,110	3,440	1,370	1,980	2,900	5,330	4,410	2,110	696	548
12	443	4,930	3,940	3,370	1,360	2,300	2,830	7,310	5,180	1,970	688	532
13	443	6,760	3,710	4,180	1,330	2,660	2,720	7,020	5,220	1,890	705	518
14	455	8,980	5,190	8,120	1,360	4,040	2,640	5,960	4,550	2,000	777	518
15	468	6,420	6,040	6,830	1,300	4,140	2,830	6,040	4,440	2,000	723	518
16	1,540	5,060	6,020	4,970	1,250	4,040	4,370	6,230	4,530	1,910	705	510
17	2,680	4,460	8,340	4,070	1,210	3,340	23,500	5,730	4,190	1,810	723	502
18	1,690	3,770	7,480	3,790	1,180	3,210	35,700	4,790	3,770	1,700	786	510
19	1,290	3,330	5,390	3,360	1,140	2,980	13,700	4,820	3,810	1,640	777	502
20	3,700	5,020	4,350	3,010	1,180	2,590	8,200	6,140	4,550	1,610	723	502
21	2,980	5,350	3,740	3,290	1,250	2,310	6,420	7,520	5,960	1,590	680	465
22	1,950	5,900	3,290	3,920	1,270	2,120	5,900	9,040	6,580	1,530	662	458
23	1,570	8,310	2,920	3,550	1,270	2,180	5,770	9,910	6,120	1,450	620	451
24	1,360	7,140	2,710	3,060	1,390	2,260	5,600	10,200	5,650	1,340	580	518
25	1,220	21,700	2,520	2,720	1,510	2,450	5,270	10,300	4,820	1,270	580	556
26	1,140	12,100	2,620	2,490	1,590	2,370	5,230	9,820	4,260	1,210	580	488
27	3,460	20,700	3,070	2,400	1,760	2,400	4,860	9,250	3,900	1,180	590	465
28	9,830	16,800	13,400	2,340	1,790	2,780	5,220	8,450	3,900	1,120	550	451
29	6,080	8,740	15,100	2,280	-	2,380	6,330	7,230	3,900	1,060	540	444
30	3,490	6,180	13,700	2,090	-	2,120	7,310	5,940	3,660	990	530	495
31	2,560	-	7,700	1,980	-	1,910	-	5,160	-	920	530	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	54,466	9,830	443	1,757	3.28	3.78	108,000
November	225,130	26,200	1,540	7,504	14.0	15.62	446,500
December	157,920	15,100	2,250	5,094	9.52	10.98	313,200
Calendar year 1937	1,373,112	26,200	443	3,762	7.03	95.40	2,723,000
January	108,720	8,120	1,980	3,507	6.56	7.56	215,600
February	40,890	1,930	1,140	1,460	2.73	2.84	81,100
March	79,000	4,140	1,910	2,548	4.76	5.49	156,700
April	180,050	35,700	1,820	6,002	11.2	12.50	357,100
May	196,710	10,300	3,300	6,345	11.9	13.72	390,200
June	155,650	7,930	3,660	5,188	9.70	10.82	308,700
July	57,290	3,230	920	1,848	3.45	3.98	113,600
August	21,395	871	530	690	1.29	1.49	42,440
September	16,057	741	444	535	1.00	1.12	31,850
Water year 1937-38	1,293,278	35,700	443	3,543	6.62	89.90	2,565,000

Peak discharge.- Nov. 8 (11 a.m.) 36,900 sec.-ft.; Nov. 25 (2 p.m.) 31,900 sec.-ft.; Nov. 27 (7:30 p.m.) 30,400 sec.-ft.; Dec. 28 (6:30 p.m.) 17,700 sec.-ft.; Apr. 18 (5:30 a.m.) 47,200 sec.-ft.

North Fork of Skykomish River at Index, Wash.

Location.- Wire-weight gage, lat. 47°49'20", long. 121°32'50", in SE¼ sec. 17, T. 27 N., R. 10 E., on highway bridge at Index, 1¾ miles upstream from mouth.
Drainage area.- 149 square miles.
Records available.- August 1910 to September 1922. February 1929 to September 1938 (discontinued).
Average discharge.- 21 years, 1,204 second-feet.
Extremes.- Maximum discharge during year, 13,800 second-feet Nov. 8 (gage height, 8.46 feet, from graph based on gage readings), from rating curve extended above 2,000 second-feet; minimum discharge observed, 110 second-feet Oct. 13, 14, 15.
1910-22, 1929-38: Maximum discharge observed, about 21,000 second-feet Feb. 26, 1932 (gage height, 10.5 feet), but that of Dec. 21, 1933, may have reached 26,500 second-feet (from unofficial reports of comparative stages); minimum observed, 78 second-feet Sept. 25, 1930.
Remarks.- Records good except those above 2,000 second-feet, which are fair. Gage read once daily Feb. 1 to Mar. 13, July 1 to Sept. 30 and twice daily Oct. 1 to Jan. 31, Mar. 14 to June 30. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 19 to May 16)

Oct. 1 to Apr. 18				May 17 to Sept. 30	
2.3	110	4.5	2,930	2.2	102
2.5	245	5.0	3,980	2.4	215
3.0	710	6.0	6,470	2.7	500
3.5	1,340	7.0	9,320	3.0	880
4.0	2,060	8.5	13,970	3.5	1,620
				4.0	2,460
				4.5	3,470

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	325	655	1,350	1,610	530	710	482	2,020	1,810	1,130	271	136
2	215	560	1,180	1,250	482	914	482	1,580	1,910	936	255	150
3	185	644	1,120	1,050	455	758	560	1,340	1,940	854	223	150
4	170	520	976	950	437	666	600	1,200	2,230	815	215	156
5	152	510	902	830	419	655	622	1,120	2,410	815	182	156
6	140	520	830	770	419	644	580	1,050	2,570	867	215	182
7	134	825	770	710	393	600	580	1,070	2,670	880	208	223
8	128	7,710	688	655	368	570	854	1,440	2,180	922	189	163
9	122	3,000	622	600	350	570	1,180	1,350	1,520	841	196	145
10	128	1,790	655	1,180	350	550	976	1,370	1,250	711	182	140
11	116	1,350	1,380	1,030	334	550	902	1,720	1,520	750	182	136
12	122	1,400	1,220	989	342	770	854	2,530	1,760	659	162	131
13	110	1,850	1,110	1,130	325	866	830	2,170	1,730	633	176	131
14	110	2,110	1,970	2,780	325	1,290	806	1,860	1,520	698	196	131
15	110	1,480	1,840	2,000	309	1,250	938	1,920	1,520	711	176	126
16	734	1,260	1,850	1,450	285	1,180	1,650	1,980	1,520	659	170	126
17	818	1,130	2,760	1,140	285	950	7,680	1,890	1,420	620	176	126
18	520	989	2,000	1,050	277	938	8,380	1,520	1,300	560	215	126
19	376	902	1,470	926	269	782	3,150	1,650	1,340	536	215	131
20	1,630	1,540	1,210	806	269	688	2,020	2,140	1,750	536	182	126
21	963	1,370	1,050	878	301	600	1,590	2,590	2,110	512	176	121
22	633	1,650	914	1,120	301	560	1,560	3,030	2,320	489	163	116
23	473	2,160	782	926	301	570	1,470	3,200	2,180	467	150	116
24	419	1,780	734	806	342	580	1,510	3,240	1,910	412	145	140
25	376	5,540	688	710	376	666	1,480	3,320	1,620	390	145	150
26	325	3,130	710	655	410	644	1,490	3,130	1,430	371	150	131
27	1,220	5,670	893	644	419	699	1,350	2,910	1,370	362	150	121
28	4,330	4,360	4,020	644	644	854	1,520	2,730	1,400	342	150	116
29	2,120	2,440	4,650	611	-	666	1,860	2,350	1,370	324	145	112
30	1,180	1,700	3,780	560	-	560	2,060	1,910	1,250	287	140	140
31	830	-	2,170	540	-	500	-	1,720	-	271	136	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	19,214	4,330	110	620	4.16	4.80	38,110
November	60,545	7,710	510	2,018	13.5	15.06	120,100
December	46,294	4,650	622	1,493	10.0	11.53	91,820
Calendar year 1937	414,695	7,710	110	1,136	7.62	103.42	822,500
January	31,000	2,780	540	1,000	6.71	7.74	61,490
February	10,317	644	269	368	2.47	2.57	20,460
March	22,800	1,290	500	735	4.93	5.68	45,220
April	50,016	8,380	482	1,667	11.2	12.50	99,210
May	63,050	3,320	1,050	2,034	13.7	15.79	125,100
June	52,830	2,670	1,250	1,761	11.8	13.17	104,800
July	19,360	1,130	271	625	4.19	4.83	38,400
August	5,656	271	136	182	1.22	1.41	11,220
September	4,154	223	112	138	.926	1.03	8,240
Water year 1937-38	385,236	8,380	110	1,055	7.08	96.11	764,200

Troublesome Creek near Index, Wash.

Location.- Water-stage recorder, lat. 47°54'00", long. 121°23'50", in NE¼ sec. 21, T. 28 N., R. 11 E. (unsurveyed), a quarter of a mile upstream from mouth and 9 miles northeast of Index.

Drainage area.- 10.4 square miles at measuring section, 1½ miles above gage.

Records available.- July 1929 to September 1938.

Extremes.- Maximum discharge during year, 940 second-feet Apr. 18 (gage height, 3.95 feet); minimum, 13 second-feet Feb. 20, 21, 22, 23 (gage height, 0.32 foot).
1929-38: Maximum discharge, 2,300 second-feet Dec. 21, 1933 (gage height, 7.0 feet), from rating curve extended above 750 second-feet; maximum gage height, 7.54 feet Feb. 26, 1932; minimum discharge, 10 second-feet Nov. 17, 18, 19, 1936.

Remarks.- Records fair except those for period of missing gage heights, Feb. 27 to Mar. 11, which were computed on basis of records for North Fork of Skykomish River at Index and are poor. No diversion or regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 29 to Sept. 30)

0.1	9	1.5	113	3.0	560
.5	18	2.0	228	3.5	760
1.0	51	2.5	378	4.0	960

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	98	177	333	34	44	32	226	155	148	54	32
2	18	73	126	238	31	54	34	167	177	118	50	37
3	18	63	133	172	28	58	41	129	186	103	47	40
4	17	58	99	118	26	54	44	112	218	95	45	41
5	16	52	92	96	24	50	45	98	249	98	47	37
6	16	56	89	90	22	46	44	89	268	103	48	40
7	15	178	77	80	22	44	44	82	282	113	46	42
8	15	700	66	69	20	42	50	95	254	120	42	37
9	15	580	56	59	19	42	74	102	174	115	40	33
10	14	421	69	128	18	42	77	105	126	103	37	31
11	14	257	103	64	17	46	73	120	145	100	37	30
12	14	289	98	57	17	51	69	213	174	95	35	29
13	14	523	112	80	16	60	65	216	167	96	34	29
14	14	580	244	253	16	90	62	184	153	105	33	30
15	15	523	238	223	16	103	66	186	148	117	32	32
16	62	346	398	127	15	105	104	186	148	115	32	32
17	96	251	486	91	15	90	579	169	138	113	35	34
18	80	169	450	77	14	78	730	131	122	107	41	34
19	67	110	296	66	14	68	422	131	120	107	40	33
20	113	156	206	56	14	61	262	179	156	105	39	32
21	110	145	138	57	14	55	203	238	246	106	37	31
22	90	213	103	71	14	48	177	288	305	106	35	30
23	74	299	86	74	14	44	162	317	296	100	33	30
24	63	430	69	65	14	43	150	327	274	95	32	32
25	53	640	59	56	15	43	141	330	233	88	32	33
26	60	560	82	50	17	44	131	317	196	85	34	32
27	169	620	147	47	18	47	122	299	169	82	36	29
28	496	600	600	45	26	54	141	271	177	80	36	28
29	340	421	620	46	-	48	196	241	189	71	35	27
30	181	254	600	42	-	42	236	196	179	63	33	25
31	122	-	504	37	-	35	-	153	-	57	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	2,399	486	14	77.4	7.44	8.58	4,760
November	9,665	700	52	322	31.0	34.59	19,170
December	6,623	620	56	214	20.6	23.75	13,140
Calendar year 1937	57,906	700	11	159	15.3	277.03	114,900
January	3,067	333	37	98.9	9.51	10.96	6,080
February	530	34	14	18.9	1.82	1.90	1,050
March	1,731	105	35	55.8	5.37	6.19	3,430
April	4,576	730	32	153	14.7	16.40	9,080
May	5,897	330	82	190	18.3	21.10	11,700
June	5,824	305	120	194	18.7	20.86	11,550
July	3,126	148	57	101	9.71	11.20	6,200
August	1,188	54	32	38.3	3.68	4.24	2,360
September	982	42	25	32.7	3.14	3.50	1,950
Water year 1937-38	45,608	730	14	125	12.0	133.27	90,470

Peak discharge.- Oct. 28 (8-10 a.m.) 640 sec.-ft.; Nov. 8 (9 a.m.) 780 sec.-ft.; Dec. 17 (10-11 a.m.) 542 sec.-ft.; Apr. 18 (2:10 a.m.) 940 sec.-ft.

Sultan River near Startup, Wash.

Location.- Water-stage recorder, lat. 47°58'30", long. 121°46'30", in NE¼ sec. 28, T. 29 N., R. 8 E., 1⅛ miles upstream from intake of Everett water-supply system and 7⅛ miles north of Startup.

Drainage area.- 75 square miles.

Records available.- May 1934 to September 1938.

Extremes.- Maximum discharge during year, 12,800 second-feet Apr. 17 (gage height, 14.48 feet), from rating curve extended above 3,000 second-feet; minimum, 55 second-feet Sept. 22, 23, 24 (gage height, 3.32 feet).
1934-38: Maximum discharge, 15,600 second-feet Oct. 24, 1934 (gage height, 16.05 feet), from rating curve extended above 3,000 second-feet; minimum, that of Sept. 22, 23, 24, 1938.

Remarks.- Records excellent except those above 3,000 second-feet, which are fair. No diversion or regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

3.3	54	5.5	548	9.0	3,430
3.5	67	6.0	773	10.0	4,800
3.7	82	6.5	1,060	11.0	6,360
4.0	122	7.0	1,390	12.0	8,100
4.5	239	7.5	1,790	13.0	9,950
5.0	374	8.0	2,270	14.5	12,800

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	383	435	698	1,000	368	714	331	970	529	274	80	58
2	256	374	630	722	354	800	342	748	568	236	79	57
3	197	383	698	588	325	568	462	674	548	224	76	57
4	166	334	568	529	317	473	609	854	652	222	72	58
5	141	342	510	466	298	462	548	800	698	219	70	62
6	122	448	462	415	287	431	473	674	722	222	69	102
7	112	1,410	412	374	262	377	462	630	748	234	68	105
8	102	7,710	362	345	249	351	753	826	588	249	68	92
9	98	2,500	325	331	229	345	1,120	773	402	222	66	80
10	92	1,360	565	883	229	337	748	698	328	204	65	74
11	88	1,030	1,180	722	222	354	652	1,670	408	252	64	70
12	86	1,470	882	1,130	226	529	630	2,440	492	200	64	66
13	82	2,070	674	1,740	219	770	568	1,560	473	188	66	64
14	80	2,500	1,400	3,700	209	1,420	529	1,090	425	202	69	61
15	85	1,360	1,420	1,870	195	1,060	779	1,030	405	202	66	60
16	918	1,150	1,610	1,120	185	1,100	2,100	940	445	190	65	59
17	817	940	2,370	882	173	674	9,520	800	418	176	71	58
18	456	722	1,470	826	168	630	6,980	652	357	159	85	57
19	339	652	911	674	161	548	2,290	1,220	354	145	88	58
20	1,720	1,870	674	588	197	445	1,360	882	425	141	80	57
21	899	1,300	548	854	334	386	1,060	1,030	588	139	73	56
22	529	1,750	470	940	290	348	1,000	1,120	630	135	69	56
23	418	2,070	399	674	287	412	1,000	1,120	568	126	67	55
24	377	1,780	371	568	320	568	911	1,120	510	115	64	68
25	377	5,480	339	492	354	609	854	1,120	428	108	61	73
26	525	2,100	357	445	405	510	882	1,030	374	102	61	66
27	2,200	5,610	720	431	510	616	748	940	345	98	60	63
28	4,580	3,000	6,360	428	568	698	800	396	351	96	59	61
29	1,600	1,400	4,800	422	-	492	1,000	652	362	91	59	60
30	826	940	3,450	380	-	399	1,060	548	328	87	59	64
31	568	-	1,500	354	-	351	-	459	-	82	58	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	19,238	4,580	80	621	8.28	9.55	38,160
November	54,490	7,710	334	1,816	24.2	27.00	108,100
December	37,135	6,360	325	1,198	16.0	18.45	73,660
Calendar year 1937	288,431	7,710	80	790	10.5	142.98	572,100
January	24,893	3,700	331	803	10.7	12.34	49,370
February	7,941	568	161	284	3.79	3.95	15,750
March	17,777	1,420	337	573	7.64	8.81	35,260
April	40,571	9,520	331	1,352	18.0	20.08	80,470
May	29,466	2,440	396	951	12.7	14.64	58,440
June	14,469	748	328	482	6.43	7.17	28,700
July	5,340	274	82	172	2.29	2.64	10,590
August	2,121	88	58	68.4	.912	1.05	4,210
September	1,977	105	55	65.9	.879	.98	3,920
Water year 1937-38	255,418	9,520	55	700	9.33	126.66	506,600

Peak discharge.- Oct. 28 (9:40 a.m.) 9,000 sec.-ft.; Nov. 8 (4:10 a.m.) 11,700 sec.-ft.; Nov. 25 (11:35 a.m.) 8,640 sec.-ft.; Nov. 27 (3:30 p.m.) 9,190 sec.-ft.; Dec. 28 (2:30 p.m.) 7,920 sec.-ft.; Apr. 17 (9:30 p.m.) 12,800 sec.-ft.

Snoqualmie River near Tolt, Wash.

Location.- Water-stage recorder, lat. 47°39'55", long. 121°55'30", in sec. 9, T. 25 N., R. 7 E., 100 feet downstream from highway bridge, 1 mile northwest of Tolt, and 2 miles downstream from Tolt River. Zero of gage is 42.96 feet above mean sea level (general adjustment of 1929). Auxiliary water-stage recorder, lat. 47°39'00", long. 121°55'25", in SW¼ sec. 16, T. 25 N., R. 7 E., at Tolt, three-quarters of a mile below Tolt River and 1¼ miles above main gage. Zero of gage is 52.48 feet above mean sea level (general adjustment of 1929).

Drainage area.- 605 square miles.

Records available.- February 1929 to September 1938 in reports of Geological Survey. October 1928 to February 1929 (monthly discharge only) in State Water-Supply Bulletin 5.

Average discharge.- 10 years (1928-38), 3,681 second-feet.

Extremes.- Maximum discharge during year, 38,800 second-feet Apr. 18 (gage height, 14.57 feet); minimum, 342 second-feet Sept. 23 (gage height, 2.46 feet).
1929-38: Maximum discharge, about 51,000 second-feet Feb. 26, 1932; maximum gage height recorded, 16.97 feet Nov. 13, 1932; minimum discharge, that of Sept. 23, 1938; minimum gage height, 0.34 foot Sept. 11, 1930.

Remarks.- Records excellent except those for periods of shifting control, Oct. 20, Nov. 8, 9, 14, 15, 25-29, Dec. 28-31, Apr. 17-19, which are good. Low-water flow diverted for operation of power plant at Snoqualmie Falls but returned to river above gage. Some regulation caused by operation of power plants.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	910	2,470	5,880	7,020	2,650	2,560	2,240	5,400	3,120	1,780	640	465
2	762	2,110	4,950	5,520	2,560	3,030	2,150	4,620	3,320	1,590	670	458
3	700	2,090	4,620	4,730	2,380	2,560	2,220	3,800	3,220	1,360	650	458
4	680	1,970	4,200	4,200	2,270	2,290	2,560	3,600	3,410	1,400	610	480
5	613	1,780	3,700	3,800	2,200	2,290	2,650	3,500	3,700	1,340	563	495
6	577	1,840	3,500	3,410	2,380	2,470	2,560	3,220	3,800	1,320	580	630
7	550	2,420	3,320	3,220	2,290	2,240	2,380	3,030	4,000	1,360	572	779
8	528	15,600	3,030	2,940	2,160	2,060	2,650	3,120	3,900	1,410	620	660
9	535	20,700	2,740	2,740	2,060	2,040	4,000	3,600	3,120	1,350	580	640
10	498	9,030	3,030	3,630	2,010	2,010	4,000	3,410	2,470	1,240	504	495
11	498	6,250	4,840	5,180	1,960	1,910	3,410	5,790	2,290	1,240	538	546
12	498	5,520	4,730	4,730	1,920	1,990	3,410	7,800	2,650	1,250	554	512
13	475	7,960	4,520	5,520	1,880	2,290	3,220	6,760	2,840	1,120	504	480
14	490	15,700	4,840	11,500	2,020	4,000	2,940	5,400	2,560	1,140	898	495
15	490	11,100	6,120	11,300	2,010	4,410	2,940	4,950	2,470	1,080	724	458
16	713	7,800	6,500	7,540	1,880	4,410	4,620	4,950	2,470	1,140	640	465
17	2,420	6,760	8,270	5,880	1,810	3,800	15,900	4,520	2,650	1,080	610	472
18	1,880	5,290	9,960	5,640	1,730	4,100	32,800	4,000	2,380	1,010	660	402
19	1,320	4,520	6,500	4,950	1,680	4,300	21,500	3,600	2,180	939	640	495
20	4,050	5,880	5,180	4,300	1,700	3,410	9,420	4,100	2,290	886	650	480
21	5,960	6,760	4,410	4,840	1,940	2,940	6,500	4,730	2,740	923	610	450
22	3,120	6,380	3,900	5,520	1,880	2,650	5,760	5,290	3,220	923	529	450
23	2,290	9,960	3,500	4,950	1,840	3,030	5,760	5,640	3,030	874	529	402
24	2,060	8,610	3,320	4,100	1,920	3,220	5,290	5,640	2,840	874	520	396
25	1,810	14,700	3,030	3,700	2,010	3,600	4,840	5,640	2,470	790	512	488
26	1,670	18,800	3,600	3,410	2,040	3,320	4,620	5,400	2,240	748	512	488
27	2,830	14,900	4,000	3,220	2,180	3,030	4,300	5,060	2,040	768	512	458
28	5,910	26,200	14,700	3,120	2,470	3,320	4,200	4,730	2,010	724	488	435
29	7,220	14,900	18,700	3,120	-	3,030	4,730	4,100	2,010	735	495	435
30	4,100	7,540	17,100	2,840	-	2,650	5,290	3,600	1,960	691	480	435
31	3,030	-	9,900	2,650	-	2,380	-	3,120	-	702	472	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	59,187	7,220	475	1,909	3.16	3.64	117,400
November	265,540	26,200	1,780	8,851	14.6	16.29	526,700
December	186,590	18,700	2,740	6,019	9.95	11.47	370,100
Calendar year 1937	1,435,410	26,200	475	3,933	6.50	88.16	2,847,000
January	149,220	11,500	2,650	4,814	7.96	9.18	296,000
February	57,330	2,650	1,680	2,065	3.41	3.55	114,700
March	91,340	4,410	1,910	2,946	4.87	5.62	181,200
April	178,860	32,800	2,150	5,962	9.85	10.99	354,800
May	142,120	7,800	3,030	4,585	7.58	8.74	281,900
June	83,400	4,000	1,960	2,780	4.60	5.13	165,400
July	33,782	1,780	691	1,090	1.80	2.08	67,010
August	18,066	898	472	583	.964	1.11	35,830
September	14,802	779	396	493	.815	.91	29,360
Water year 1937-38	1,280,737	32,800	396	3,509	5.80	78.71	2,540,000

Peak discharge.- Nov. 9 (8 a.m.) 23,600 sec.-ft.; Nov. 26 (6 a.m.) 21,600 sec.-ft.; Nov. 28 (12 m.) 29,000 sec.-ft.; Apr. 18 (4 p.m.) 38,800 sec.-ft.

North Fork of Snoqualmie River near Snoqualmie Falls, Wash.

Location.- Water-stage recorder, lat. 47°37'10", long. 121°42'35", in SW¼ sec. 30, T. 25 N., R. 9 E., 1 mile upstream from Calligan Creek and 8 miles northeast of village of Snoqualmie Falls.

Drainage area.- 65 square miles.

Records available.- August 1929 to September 1938.

Extremes.- Maximum discharge during year, 6,860 second-feet Apr. 17 (gage height, 14.60 feet), from rating curve extended above 1,500 second-feet; minimum, 32 second-feet Sept. 23 (gage height, 1.86 feet).

1929-38: Maximum discharge, about 8,020 second-feet Feb. 26, 1932 (gage height, 17.5 feet), from rating curve extended above 1,500 second-feet; minimum, 30 second-feet Sept. 17-19, 1929.

Remarks.- Records excellent except those for period of missing gage heights, Nov. 8 to Dec. 1 (computed on basis of records for station near North Bend), and those above 2,000 second-feet, which are poor. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 7				Nov. 8 to Sept. 30					
2.3	49	4.5	477	1.8	30	3.5	238	7.0	1,670
2.5	67	5.0	650	2.0	39	4.0	373	8.0	2,200
2.7	86	6.0	1,080	2.2	52	4.5	533	10.0	3,490
3.0	125	7.0	1,600	2.5	79	5.0	715	12.0	4,890
3.5	211	8.0	2,200	3.0	137	6.0	1,170	15.0	7,180
4.0	329								

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	166	298	620	667	268	415	219	730	431	166	46	36
2	107	255	499	540	256	463	221	540	456	144	48	36
3	99	294	466	456	236	347	266	444	440	140	47	35
4	92	246	403	403	224	294	336	422	516	140	46	36
5	83	234	373	364	214	322	327	394	544	140	45	38
6	77	277	344	333	209	316	284	361	554	136	44	57
7	73	1,970	336	308	196	253	281	341	564	136	44	98
8	71	2,500	302	284	187	233	412	450	489	134	44	79
9	67	1,600	271	271	176	243	702	502	324	120	43	66
10	65	1,000	458	662	172	233	526	440	250	113	41	59
11	63	800	787	659	166	228	428	1,170	313	138	41	54
12	61	730	718	728	166	281	425	1,280	382	119	40	51
13	58	1,200	572	893	163	500	382	914	353	110	51	48
14	57	1,700	924	2,500	165	754	350	722	302	106	76	45
15	59	1,100	658	1,400	156	600	447	706	297	102	64	42
16	232	1,000	1,040	820	152	698	1,130	671	322	92	52	39
17	679	860	1,860	626	146	444	4,840	590	322	88	54	38
18	324	650	1,320	554	144	444	4,090	479	276	83	62	36
19	228	560	787	462	142	385	1,530	460	273	80	68	36
20	1,650	1,100	586	412	144	322	953	634	330	78	62	34
21	788	940	486	619	172	276	758	756	440	75	53	34
22	405	1,200	412	736	174	253	750	824	435	72	49	34
23	301	1,500	361	540	174	268	762	845	388	68	46	33
24	274	1,100	333	437	214	302	668	837	344	66	44	39
25	239	2,500	302	382	240	344	600	820	289	63	41	41
26	224	1,400	333	347	268	324	611	746	250	58	40	39
27	692	2,500	406	336	336	313	533	718	224	56	39	36
28	1,850	2,300	2,710	336	373	379	575	634	224	54	38	35
29	924	1,200	2,330	336	-	305	722	496	226	52	38	34
30	503	810	1,860	297	-	286	766	422	205	50	38	36
31	367	-	961	271	-	231	-	361	-	48	36	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	10,878	1,850	57	351	5.40	6.23	21,580
November	33,814	2,500	234	1,127	17.3	19.30	67,070
December	24,018	2,710	271	775	11.9	13.72	47,640
Calendar year 1937	189,964	2,710	56	520	8.00	108.61	376,800
January	18,041	2,500	271	582	8.95	10.32	35,780
February	5,633	373	142	201	3.09	3.22	11,170
March	11,056	754	228	357	5.49	6.33	21,930
April	24,894	4,840	219	830	12.8	14.28	49,360
May	19,711	1,280	341	636	9.78	11.28	39,100
June	10,763	564	205	359	5.52	6.16	21,350
July	3,027	166	48	97.6	1.50	1.73	6,000
August	1,480	76	36	47.7	.734	.85	2,940
September	1,326	98	33	44.2	.680	.76	2,630
Water year 1937-38	164,641	4,840	33	451	6.94	94.18	326,600

Peak discharge.- Nov. 8 (12:45 a.m.) 5,570 sec.-ft.; Dec. 28 (6:30 p.m.) 3,200 sec.-ft.; Jan. 14 (10 a.m.) 2,990 sec.-ft.; Apr. 17 (11:45 p.m.) 6,860 sec.-ft.

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North Fork of Snoqualmie River near North Bend, Wash.

Location.- Water-stage recorder, lat. 47°32'20", long. 121°44'20", in NE¼ sec. 28, T. 24 N., R. 8 E., 2 miles upstream from mouth and 3½ miles northeast of North Bend.

Drainage area.- 105 square miles.

Records available.- July 1907 to September 1926, February 1929 to September 1938 (discontinued).

Average discharge.- 28 years, 696 second-feet.

Extremes.- Maximum discharge during year, 8,630 second-feet Apr. 18 (gage height, 9.44 feet); minimum, 58 second-feet Sept. 23 (gage height, 1.54 feet).
1907-26, 1929-38: Maximum discharge recorded, about 11,500 second-feet Oct. 24 or 25, 1934 (gage height, 11.4 feet, from apparent range of stage), from rating curve extended above 2,500 second-feet, but may have been more Nov. 18, 19, 23, 24, 29, 30, 1909, when water was above gage; minimum discharge, 54 second-feet Aug. 31, Sept. 1, 1930, Sept. 1, 1934.

Remarks.- Records good except those for period of missing gage heights, Aug. 16 to Sept. 16, which were computed on basis of records for station near Snoqualmie Falls and are fair. No diversion or regulation.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	234	485	1,040	1,150	436	600	358	1,160	614	244	71	60
2	186	414	886	913	423	694	350	910	663	212	70	60
3	170	428	834	762	396	536	392	772	614	209	69	60
4	159	384	730	662	375	465	470	726	691	216	67	60
5	148	366	648	608	366	495	465	677	726	219	66	60
6	140	401	596	560	362	495	428	621	740	206	66	90
7	132	803	548	512	346	432	418	588	772	202	66	140
8	126	4,920	495	480	326	401	566	712	698	199	66	110
9	120	2,710	460	455	318	401	1,060	812	492	180	64	100
10	117	1,680	627	988	304	388	794	740	400	168	63	90
11	111	1,340	1,120	1,060	293	366	683	1,730	440	212	62	80
12	111	1,220	1,020	1,110	290	423	676	1,960	532	183	62	80
13	106	2,020	895	1,280	286	651	614	1,520	486	162	78	80
14	101	2,830	1,190	3,200	290	1,130	560	1,220	430	153	110	70
15	102	1,880	1,250	2,190	276	967	637	1,150	420	148	90	70
16	276	1,660	1,420	1,410	266	1,080	1,390	1,090	445	135	70	65
17	855	1,430	2,250	1,080	256	738	5,440	982	460	126	80	61
18	468	1,080	1,970	949	253	714	5,820	829	415	117	90	60
19	338	931	1,240	810	247	627	2,560	764	400	108	100	59
20	1,840	1,760	949	683	253	524	1,640	982	440	106	90	59
21	1,260	1,560	770	913	283	460	1,300	1,130	547	103	80	58
22	669	1,980	655	1,110	286	432	1,240	1,230	566	98	80	58
23	490	2,420	566	859	283	436	1,250	1,250	512	93	70	58
24	446	1,780	524	698	326	475	1,110	1,230	460	90	70	62
25	392	4,100	480	614	362	518	1,010	1,210	395	87	60	66
26	358	2,370	506	554	401	490	991	1,110	348	82	60	63
27	877	4,190	582	524	480	470	901	1,060	319	78	60	60
28	2,240	3,930	3,190	530	542	554	910	955	315	77	60	59
29	1,410	1,960	3,140	524	-	470	1,110	764	307	75	60	59
30	810	1,350	2,740	475	-	410	1,170	656	284	73	60	59
31	602	-	1,600	446	-	375	-	564	-	71	60	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	15,394	2,240	101	497	4.73	5.45	30,530
November	54,382	4,920	366	1,813	17.3	19.30	107,900
December	34,921	3,190	460	1,126	10.7	12.34	69,260
Calendar year 1937	289,874	4,920	101	794	7.56	102.74	575,000
January	28,109	3,200	446	907	8.64	9.96	55,750
February	9,325	542	247	333	3.17	3.30	18,500
March	17,217	1,130	366	555	5.29	6.10	34,150
April	36,313	5,820	350	1,210	11.5	12.83	72,030
May	31,104	1,960	564	1,003	9.55	11.01	61,690
June	14,931	772	284	498	4.74	5.29	29,620
July	4,432	244	71	143	1.36	1.57	8,790
August	2,220	110	60	71.6	.682	.79	4,400
September	2,116	140	58	70.5	.671	.75	4,200
Water year 1937-38	250,464	5,820	58	686	6.53	88.69	496,800

Peak discharge.- Nov. 8 (12.15 p.m.) 6,500 sec.-ft.; Nov. 25 (2:40 p.m.) 5,650 sec.-ft.; Nov. 27 (10:30 p.m.) 7,370 sec.-ft.; Dec. 28 (8:30 p.m.) 3,960 sec.-ft.; Jan. 14 (10:30-11:30 a.m.) 3,780 sec.-ft.; Apr. 18 (1:50 a.m.) 8,630 sec.-ft.

South Fork of Snoqualmie River at North Bend, Wash.

Location.- Water-stage recorder, lat. 47°29'20", long. 121°47'10", in SE¼ sec. 9, T. 23 N., R. 8 E., half a mile south of North Bend and 3⅜ miles upstream from mouth.

Drainage area.- 84 square miles.

Records available.- July 1907 to September 1926, February 1929 to September 1938 (discontinued).

Average discharge.- 28 years, 539 second-feet.

Extremes.- Maximum discharge during year, 5,410 second-feet Apr. 18 (gage height, 9.65 feet), from rating curve extended above 1,500 second-feet; minimum, not determined, occurred during period of faulty gage-height record.

1907-26, 1929-38: Maximum discharge recorded, 7,620 second-feet Oct. 25, 1934 (gage height, 11.2 feet), from rating curve extended above 2,000 second-feet, or may have been more Nov. 3, 4, 19, 23, 29, 1909, when water was over gage; minimum discharge, 63 second-feet Oct. 22, 1925 (gage height, 1.14 feet).

Remarks.- Records excellent except those for period of faulty gage-height record, July 22 to Sept. 30, which were computed on basis of records for South Fork of Skykomish River near Index and are poor. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 8

1.1	85	2.5	474	4.5	1,530
1.3	124	3.0	700	5.0	1,830
1.5	168	3.5	950		
2.0	302	4.0	1,230		

Note.- Same as following table above 5.0 feet.

Nov. 9 to July 21

1.3	72	3.0	615	6.0	2,530
1.5	105	3.5	876	7.0	3,230
1.7	143	4.0	1,160	8.0	4,000
2.0	215	4.5	1,480	10.0	5,900
2.5	384	5.0	1,830		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	139	296	958	1,100	474	338	384	1,040	692	312		
2	130	261	823	930	460	368	384	876	718	288		
3	122	250	770	850	438	353	400	770	718	281		
4	116	230	692	770	421	338	425	718	770	265		
5	112	220	640	692	417	376	447	692	796	258		
6	110	214	605	646	421	388	456	635	796	258		
7	108	284	580	605	396	368	451	605	823	252		
8	106	2,760	540	570	384	357	521	635	770	240		
9	104	2,020	516	545	372	368	718	692	600	232		
10	102	1,070	550	651	361	361	692	692	507	223		
11	100	850	651	770	349	349	615	985	516	221		
12	98	770	770	718	349	357	610	1,160	580	218		
13	96	1,280	744	770	341	413	565	1,100	585	210		
14	96	1,900	823	1,520	345	600	536	958	511	205		
15	100	1,220	985	1,380	330	666	560	930	502	205		
16	130	958	1,070	1,040	315	692	823	985	502	197		
17	194	823	1,440	903	308	580	2,810	930	488	187		
18	154	692	1,410	850	298	661	4,330	796	451	182		
19	137	610	1,010	770	288	615	2,040	770	443	177		
20	371	692	850	718	291	516	1,340	930	483	172		
21	525	823	770	796	291	456	1,100	1,040	536	167		
22	315	903	718	985	291	429	1,010	1,160	555	160		
23	247	1,340	651	876	288	451	985	1,190	507	150		
24	214	1,190	625	770	294	469	958	1,190	465	140		
25	192	2,970	590	692	301	521	903	1,160	421	140		
26	185	2,180	692	635	305	502	876	1,130	396	130		
27	252	2,690	718	600	308	492	823	1,070	368	120		
28	614	3,420	1,830	580	323	536	823	985	368	120		
29	740	1,720	2,040	555	-	483	958	850	353	120		
30	444	1,190	2,040	516	-	434	1,070	744	341	120		
31	347	-	1,380	488	-	396	-	666	-	110		

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	6,700	740	96	216	2.57	2.96	13,290
November	35,826	3,420	214	1,194	14.2	15.84	71,060
December	26,481	2,040	516	919	10.9	12.57	56,490
Calendar year 1937	215,355	3,420	96	590	7.02	95.34	427,100
January	24,291	1,520	488	784	9.33	10.76	48,180
February	9,759	474	288	349	4.15	4.32	19,360
March	14,233	692	338	459	5.46	6.30	28,230
April	28,613	4,330	384	954	11.4	12.72	56,750
May	28,084	1,190	605	906	10.8	12.45	55,700
June	16,561	823	341	552	6.57	7.33	32,850
July	6,060	312	110	195	2.32	2.68	12,020
August	3,100	-	-	100	1.19	1.37	6,150
September	2,700	-	-	90.0	1.07	1.19	5,360
Water year 1937-38	204,408	4,330	-	560	6.67	90.49	405,400

Peak discharge.- Nov. 8 (4:30 p.m.) 4,480 sec.-ft.; Nov. 25 (5:30 p.m.) 4,480 sec.-ft.; Nov. 28 (2 a.m.) 4,990 sec.-ft.; Dec. 28 (8:30 p.m.) 2,250 sec.-ft.; Dec. 30 (6:30 a.m.) 2,320 sec.-ft.; Apr. 18 (7-8:30 a.m.) 5,410 sec.-ft.

Tolt River near Tolt, Wash.

Location.- Water-stage recorder, lat. 47°41'45", long. 121°49'20", in S½NE¼ sec. 31, T. 26 N., R. 8 E., 500 feet downstream from confluence of North and South Forks and 6 miles northeast of Tolt. Zero of gage is approximately 348 feet above mean sea level (river surveys of Geological Survey).

Drainage area.- 80 square miles.

Records available.- August 1928 to January 1932, September 1937 to September 1938.

Extremes.- Maximum discharge during period September 1937 to September 1938, 9,750 second-feet Apr. 18 (gage height, 11.51 feet), from rating curve extended above 4,500 second-feet; minimum, 64 second-feet Sept. 23, 1938 (gage height, 4.07 feet). 1928-32, 1937-38: Maximum discharge, that of Apr. 18, 1938; minimum, that of Sept. 23, 1938.

Remarks.- Records excellent except those for periods of missing gage heights, Oct. 14-17, 22-30, 1937, Sept. 1-14, 1938 (computed on basis of records for North Fork of Snoqualmie River near Snoqualmie Falls), and those above 5,000 second-feet, which are poor. Staff gage read twice daily Sept. 1 to Oct. 6, 1937. No diversion or regulation.

Discharge, in second-feet, Sept. 1-30, 1937

Sept.1	170	Sept. 7	186	Sept.13	111	Sept.19	98	Sept.25	92
2	127	8	147	14	110	20	97	26	88
3	120	9	138	15	108	21	94	27	88
4	114	10	131	16	104	22	94	28	84
5	272	11	122	17	102	23	94	29	89
6	247	12	111	18	102	24	93	30	105

Note.- Mean discharge, Sept. 1-30, 1937, 121 second-feet (run-off, 1.68 inches, 7,220 acre-feet)

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	186	334	777	938	489	570	369	728	349	160	90	70
2	131	306	716	764	477	615	361	600	369	153	89	70
3	120	317	752	668	441	473	417	541	345	153	88	70
4	108	278	662	605	425	417	514	518	377	153	85	70
5	101	275	600	555	405	429	481	501	381	149	87	70
6	99	310	560	518	405	405	429	469	377	142	87	90
7	96	1,080	528	493	377	381	409	449	381	140	85	130
8	92	5,070	489	473	357	342	541	518	373	144	83	120
9	92	1,830	465	457	338	353	861	541	292	136	82	110
10	89	1,060	613	883	338	331	615	497	247	132	82	100
11	88	847	890	782	324	328	532	1,480	254	147	82	90
12	84	946	777	968	324	369	536	1,540	292	136	81	80
13	82	1,900	662	1,310	317	537	501	954	282	129	93	80
14	80	2,470	982	3,400	320	917	457	722	264	126	106	70
15	80	1,440	959	1,750	303	735	585	674	250	120	92	69
16	280	1,220	1,240	1,140	292	751	1,460	630	278	117	85	69
17	680	980	2,180	896	278	536	6,800	575	286	114	88	68
18	338	777	1,380	889	272	605	5,300	514	247	112	90	68
19	244	704	931	758	264	555	1,750	501	234	110	97	68
20	1,530	1,340	740	674	286	473	1,140	585	237	106	93	67
21	696	1,010	640	959	328	425	924	630	272	105	87	66
22	380	1,190	575	1,020	314	393	910	650	278	104	83	65
23	300	1,490	523	764	317	449	861	645	250	104	79	64
24	280	1,260	501	650	349	565	784	625	231	102	78	72
25	240	3,600	469	600	381	645	728	600	210	99	76	78
26	230	1,550	510	555	413	570	704	555	192	98	75	73
27	620	4,180	715	546	489	541	630	528	180	97	75	71
28	1,570	2,540	3,860	550	518	600	656	477	175	94	74	67
29	830	1,260	2,600	541	-	489	740	417	175	94	74	67
30	500	945	2,170	493	-	437	758	373	168	93	73	68
31	389	-	1,220	469	-	393	-	338	-	92	72	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	10,635	1,570	80	343	4.29	4.95	21,090
November	42,509	5,070	275	1,417	17.7	19.75	84,320
December	30,686	3,860	465	990	12.4	14.30	60,860
Calendar year							
January	26,068	3,400	457	841	10.5	12.11	51,710
February	10,141	518	264	362	4.52	4.71	20,110
March	15,609	917	328	504	6.30	7.26	30,960
April	31,753	6,800	361	1,058	13.2	14.73	62,980
May	19,375	1,540	338	625	7.81	9.00	38,430
June	8,246	381	168	275	3.44	3.84	16,360
July	3,761	160	92	121	1.51	1.74	7,460
August	2,611	106	72	84.2	1.05	1.21	5,180
September	2,320	130	64	77.3	.966	1.08	4,600
Water year 1937-38	203,714	6,800	64	558	6.98	94.68	404,100

Peak discharge.- Nov. 8 (8:15 a.m.) 7,760 sec.-ft.; Nov. 25 (11 a.m.) 5,310 sec.-ft.; Nov. 27 (7:45 p.m.) 8,000 sec.-ft.; Dec. 28 (4:05-5:15 p.m.) 4,310 sec.-ft.; Jan. 14 (8:30 a.m.) 4,400 sec.-ft.; Apr. 18 (12:10 a.m.) 9,750 sec.-ft.

South Fork of Stillaguamish River near Granite Falls, Wash.

Location.- Water-stage recorder, lat. 48°06'10", long. 121°56'40", in SW¼NW¼ sec. 8, T. 30 N., R. 7 E., 1½ miles upstream from Canyon Creek and 2 miles northeast of town of Granite Falls.

Drainage area.- 119 square miles.

Records available.- July 1928 to September 1938.

Average discharge.- 10 years, 1,030 second-feet.

Extremes.- Maximum discharge during year, 15,400 second-feet Apr. 18 (gage height, 14.13 feet), from rating curve extended above 6,000 second-feet; minimum, 55 second-feet Sept. 23, 24 (gage height, 3.04 feet).
1928-38: Maximum discharge, about 26,700 second-feet Feb. 26, 1932 (gage height, 19.7 feet, from graph based on gage readings), from rating curve extended above 8,000 second-feet; minimum, that of Sept. 23, 24, 1938.

Remarks.- Records excellent except those for poorly defined stage-discharge relation for August and September, which are fair, and those for period of missing gage heights, Nov. 15-20 (computed on basis of records for Sultan River near Startup), and those above 6,000 second-feet, which are poor. No diversion or regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 10 to Sept. 30)

3.0	55	4.5	580	7.0	2,950	10.0	7,800
3.2	88	5.0	915	8.0	4,450	12.0	11,400
3.5	160	6.0	1,760	9.0	6,080	14.1	15,400
4.0	340						

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	771	591	960	1,400	630	931	449	1,190	641	336	96	62
2	380	503	840	1,050	596	1,070	440	952	723	286	90	62
3	290	591	1,010	855	518	737	554	840	659	259	86	62
4	237	508	802	737	549	608	765	1,230	751	241	79	64
5	193	493	659	653	488	575	665	1,190	825	241	77	70
6	166	538	602	586	478	570	554	945	862	245	77	92
7	152	1,610	549	538	440	503	523	848	908	267	77	207
8	136	10,000	498	493	407	468	731	1,310	795	278	79	138
9	126	3,370	464	473	375	459	1,310	1,150	533	255	75	103
10	121	1,760	912	1,220	384	421	906	990	407	237	74	88
11	114	1,400	1,860	982	375	450	751	2,480	449	319	72	79
12	109	2,120	1,270	1,700	371	848	744	3,300	591	255	70	74
13	105	2,810	952	2,780	362	1,100	671	1,930	602	220	70	68
14	105	3,680	1,920	6,110	344	2,020	630	1,310	544	227	79	67
15	111	2,000	2,100	2,550	319	1,440	1,080	1,190	503	234	79	66
16	1,260	1,700	2,380	1,540	298	1,700	2,670	1,150	586	227	75	67
17	1,050	1,500	3,010	1,230	282	998	10,800	1,040	564	213	77	64
18	564	1,100	1,820	1,150	275	938	8,970	862	435	193	92	62
19	402	1,000	1,190	960	267	802	2,590	848	412	175	105	62
20	1,680	2,700	930	795	339	647	1,540	1,060	488	169	96	61
21	1,140	1,910	758	1,270	618	559	1,190	1,190	671	175	84	60
22	624	2,200	647	1,440	493	503	1,190	1,310	744	166	79	58
23	478	2,950	559	1,020	444	602	1,400	1,360	671	163	75	56
24	459	2,770	544	810	493	922	1,190	1,360	613	146	72	75
25	468	7,180	488	677	518	1,020	1,110	1,310	518	136	68	114
26	439	2,870	554	608	554	795	1,110	1,230	449	133	68	94
27	3,710	7,260	1,610	586	647	881	982	1,150	407	131	70	77
28	7,240	4,220	11,400	580	737	1,130	982	1,010	407	123	70	67
29	2,460	1,810	7,620	591	-	695	1,190	855	430	119	67	64
30	1,150	1,270	5,270	528	-	564	1,270	695	398	105	66	68
31	765	-	1,990	503	-	488	-	586	-	98	64	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	27,007	7,240	105	871	7.32	8.44	53,570
November	74,314	10,000	493	2,477	20.8	23.21	147,400
December	56,168	11,400	464	1,812	15.2	17.52	111,400
Calendar year 1937	394,430	11,400	92	1,081	9.08	123.19	782,300
January	36,415	6,110	473	1,175	9.87	11.38	72,230
February	12,601	737	267	450	3.78	3.94	24,990
March	25,444	2,020	421	821	6.90	7.96	50,470
April	48,959	10,800	440	1,632	13.7	15.29	97,110
May	37,871	3,300	586	1,222	10.3	11.87	75,120
June	17,586	908	398	586	4.92	5.49	34,880
July	6,370	336	98	205	1.72	1.98	12,630
August	2,406	105	64	77.7	.653	.75	4,780
September	2,351	207	56	78.4	.659	.74	4,660
Water year 1937-38	347,494	11,400	56	952	8.00	108.57	689,200

Peak discharge.- Oct. 28 (10:30 a.m.) 11,800 sec.-ft.; Nov. 8 (7:15 a.m.) 15,000 sec.-ft.; Nov. 25 (12:30 p.m.) 10,700 sec.-ft.; Nov. 27 (5.45 p.m.) 12,000 sec.-ft.; Dec. 28 (9 a.m.) 14,100 sec.-ft.; Apr. 18 (3:20 a.m.) 15,400 sec.-ft.

South Fork of Stillaguamish River above Jim Creek, near Arlington, Wash.

Location.- Water-stage recorder, lat. 48°09'55", long. 122°03'55", in SW¼ sec. 17, T. 31 N., R. 6 E., 1¼ miles upstream from Jim Creek and 3 miles southeast of Arlington. Zero of gage is 80 feet above mean sea level (general adjustment of 1929).

Drainage area.- 199 square miles.

Records available.- October 1936 to September 1938.

Extremes.- Maximum discharge during year, 25,200 second-feet Apr. 17 (gage height, 23.27 feet); minimum, 117 second-feet Sept. 23, 24; minimum gage height, 10.85 feet Oct. 15. 1936-38: Maximum discharge, that of Apr. 17, 1938; minimum, that of Sept. 23, 24, 1938; minimum gage height, 10.79 feet Nov. 16, 1936.

Remarks.- Records excellent except those above 15,000 second-feet, which are poor. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 17

10.7	115	13.0	1,590	19.0	13,200
11.0	220	13.5	2,150	21.0	18,500
11.5	445	14.0	2,840	23.3	25,200
12.0	725	15.0	4,600		
12.5	1,110	17.0	8,600		

Aug. 18 to Sept. 30

10.8	105	13.0	1,430	16.0	6,350
11.0	140	13.5	2,010	17.0	8,550
11.5	290	14.0	2,650	19.0	13,200
12.0	540	14.5	3,400		
12.5	920	15.0	4,300		

Note.- Same as preceding table above 18.0 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,310	972	1,690	2,410	1,120	1,440	777	1,770	857	442	165	129
2	611	797	1,490	1,860	1,160	1,690	758	1,540	990	390	162	127
3	506	900	1,910	1,540	972	1,170	912	1,240	884	380	154	127
4	420	777	1,490	1,390	964	980	1,340	1,830	1,000	357	148	129
5	340	777	1,290	1,200	884	924	1,200	1,950	1,090	348	144	136
6	292	797	1,140	1,090	860	916	956	1,600	1,140	348	142	148
7	260	1,970	1,030	972	797	811	876	1,400	1,200	362	142	270
8	236	14,500	940	900	738	744	1,190	2,060	1,060	370	140	215
9	220	5,500	853	868	701	713	2,090	1,950	712	357	138	172
10	208	2,840	1,370	1,980	701	677	1,490	1,540	553	330	135	156
11	192	2,280	2,840	1,740	701	695	1,200	3,720	598	442	133	144
12	184	3,450	2,030	2,620	683	1,230	1,200	5,090	774	380	133	138
13	176	4,510	1,540	4,110	677	1,450	1,070	3,160	782	326	136	133
14	166	5,550	2,780	9,850	659	3,080	972	2,130	705	326	152	131
15	176	3,260	3,260	4,200	605	2,240	1,590	1,890	675	334	150	127
16	1,320	3,260	3,880	2,550	572	2,440	4,200	1,770	766	322	142	126
17	1,440	2,550	4,630	2,090	544	1,540	16,100	1,650	822	306	142	124
18	777	1,970	2,990	1,910	534	1,440	14,500	1,390	598	282	160	124
19	544	1,860	1,970	1,690	517	1,290	4,140	1,290	553	262	180	124
20	2,500	5,130	1,540	1,390	586	1,060	2,520	1,600	626	258	170	122
21	1,790	3,120	1,290	1,970	1,240	916	2,010	1,770	848	258	156	120
22	924	3,240	1,140	2,280	956	818	1,890	1,890	970	246	150	119
23	689	4,240	988	1,690	839	932	2,320	1,890	857	240	144	117
24	677	4,150	964	1,390	908	1,440	1,890	1,830	798	226	140	124
25	695	9,420	868	1,200	972	1,690	1,710	1,770	682	212	136	185
26	611	4,060	980	1,080	1,010	1,390	1,770	1,710	586	203	135	165
27	5,300	11,500	1,460	1,020	1,180	1,290	1,540	1,600	522	203	136	142
28	9,940	6,900	17,100	1,020	1,290	1,910	1,540	1,400	522	197	138	133
29	3,820	3,080	10,800	1,050	-	1,240	1,770	1,170	546	185	135	127
30	1,860	2,150	8,180	932	-	980	1,830	990	516	180	131	136
31	1,240	-	3,430	876	-	846	-	814	-	170	129	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	39,424	9,940	166	1,272	6.39	7.37	78,200
November	115,510	14,500	777	3,850	19.3	21.53	229,100
December	87,863	17,100	853	2,834	14.2	16.37	174,300
Calendar year 1937	609,123	17,100	162	1,669	8.39	113.63	1,208,000
January	60,868	9,850	868	1,963	9.86	11.37	120,700
February	23,370	1,290	517	835	4.20	4.37	46,350
March	39,982	3,080	677	1,290	6.48	7.47	79,300
April	77,351	16,100	758	2,579	13.0	14.50	153,400
May	57,404	5,090	814	1,852	9.31	10.73	113,900
June	23,232	1,200	516	774	3.89	4.34	46,080
July	9,242	442	170	298	1.50	1.73	18,330
August	4,498	180	129	145	.729	.84	8,920
September	4,270	270	117	142	.714	.80	8,470
Water year 1937-38	543,014	17,100	117	1,488	7.48	101.42	1,077,000

Peak discharge.- Nov. 8 (9 a.m.) 23,700 sec.-ft.; Dec. 28 (2 p.m.) 22,300 sec.-ft.; Apr. 17 (9 p.m.) 25,200 sec.-ft.

Jim Creek near Arlington, Wash.

Location.- Water-stage recorder, lat. 48°10'30", long. 122°03'55", in SE¼NW¼ sec. 17, T. 31 N., R. 6 E., 1 mile upstream from mouth and 3 miles southeast of Arlington.

Drainage area.- 48.9 square miles.

Records available.- October 1937 to September 1938.

Extremes.- Maximum discharge during year, 5,320 second-feet Dec. 28 (gage height, 8.32 feet); minimum, 6.2 second-feet July 30, Sept. 3, 5 (gage height, 0.91 foot).

Remarks.- Records excellent below 1,000 second-feet and poor above. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 27				Nov. 28 to Sept. 30					
1.0	19	3.5	570	0.9	6	3.0	350	6.0	2,300
1.5	60	4.0	790	1.2	17	3.5	525	7.0	3,460
2.0	150	4.5	1,090	1.5	40	4.0	750	8.5	5,650
2.5	265	5.0	1,440	2.0	100	4.5	1,050		
3.0	395	6.0	2,300	2.5	203	5.0	1,400		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	222	190	320	468	154	180	148	150	62	23	6.8	7.0
2	91	168	266	362	190	187	136	134	63	23	7.0	7.2
3	73	165	320	296	175	127	146	138	59	25	6.8	6.6
4	58	143	260	251	182	110	203	254	59	24	6.6	6.4
5	45	177	216	214	175	106	198	278	58	23	6.8	6.4
6	38	181	182	182	200	105	163	236	58	20	7.0	8.0
7	34	265	163	163	193	96	144	200	58	20	7.4	9.5
8	31	1,640	146	148	175	89	170	272	51	18	7.6	10
9	29	883	134	138	159	87	290	242	35	17	7.6	8.6
10	28	570	242	274	166	83	195	195	40	17	7.6	8.3
11	27	452	332	203	159	82	156	507	42	23	7.6	8.0
12	25	490	263	307	150	100	142	585	43	23	9.2	7.6
13	24	610	208	516	142	121	130	401	41	20	10	7.2
14	23	630	340	2,140	144	233	118	290	44	16	16	7.2
15	22	570	418	890	132	170	228	239	44	16	18	7.2
16	130	815	501	525	121	237	489	200	53	15	12	7.2
17	139	590	539	142	114	193	1,580	200	56	14	12	7.4
18	89	455	380	362	108	216	2,200	180	43	13	15	7.0
19	61	440	296	308	102	251	670	159	40	12	15	7.4
20	221	872	236	266	120	233	415	152	37	11	12	7.2
21	214	498	203	302	266	208	323	142	37	10	9.5	7.0
22	124	455	172	317	208	187	306	132	36	9.5	10	7.2
23	93	568	150	257	177	208	442	125	32	9.5	8.6	7.4
24	87	740	144	211	172	290	299	118	30	9.2	7.8	7.4
25	83	1,020	134	190	170	332	254	108	30	8.9	7.4	8.6
26	78	590	185	168	161	284	225	99	28	8.3	8.0	9.8
27	417	2,190	336	159	172	254	198	93	27	8.3	7.4	11
28	1,030	1,290	3,970	159	170	335	180	85	25	8.3	8.0	8.9
29	489	585	2,000	154	-	248	180	74	23	7.4	7.4	8.6
30	300	412	1,620	136	-	203	161	68	23	7.0	6.8	9.5
31	227	-	650	132	-	170	-	63	-	6.8	7.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	4,552	1,030	22	147	3.01	3.47	9,030
November	18,654	2,190	143	622	12.7	14.17	37,000
December	15,326	3,970	134	494	10.1	11.64	30,400
Calendar year							
January	10,340	2,140	132	334	6.83	7.87	20,510
February	4,557	266	102	163	3.33	3.47	9,040
March	5,725	335	82	185	3.78	4.36	11,360
April	10,489	2,200	118	350	7.16	7.99	20,800
May	6,119	585	63	197	4.03	4.65	12,140
June	1,277	63	23	42.6	.871	.97	2,530
July	466.2	25	6.8	15.0	.307	.35	925
August	286.1	18	6.6	9.23	.189	.22	567
September	236.8	11	6.4	7.89	.161	.18	470
Water year 1937-38	78,028.1	3,970	6.4	214	4.38	59.34	154,800

Peak discharge.- Nov. 27 (5:30 to 6:30 p.m.) 3,590 sec.-ft.; Dec. 28 (12 m.) 5,320 sec.-ft.; Apr. 18 (3 p.m.) 3,720 sec.-ft.

North Fork of Stillaguamish River near Arlington, Wash.

Location.- Water-stage recorder, lat. 48°15'45", long. 122°02'45", in SE¼NW¼ sec. 16, T. 32 N., R. 6 E., 6 miles northeast of Arlington, 7 miles (revised) upstream from mouth and 8 miles downstream from Deer Creek.

Drainage area.- 269 square miles.

Records available.- July 1928 to September 1938.

Average discharge.- 10 years, 1,693 second-feet.

Extremes.- Maximum discharge during year, 22,300 second-feet Dec. 28 (gage height, 11.34 feet), from rating curve extended above 7,000 second-feet; minimum, 88 second-feet Sept. 23 (gage height, 1.14 feet).

1928-38: Maximum discharge, 27,700 second-feet Feb. 26, 1932 (gage height, 12.7 feet); minimum, that of Sept. 23, 1938.

Remarks.- Records excellent except those below 200 second-feet and those above 10,000 second-feet, which are fair. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 27)

Oct. 1 to Nov. 26

1.1	78	3.5	930	7.0	4,630
1.6	200	4.0	1,300	8.0	7,250
2.0	315	5.0	2,130	9.0	10,700
2.5	470	6.0	3,150	10.0	14,700
3.0	665				

Nov. 28 to Sept. 30

5.0	2,130	9.0	11,800
6.0	3,320	10.0	15,800
7.0	5,480	11.3	22,300
8.0	8,180		

Note.- Same as preceding table below 5.0 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,350	1,260	2,430	3,890	1,220	1,860	1,100	2,230	1,000	*500	192	114
2	600	1,040	2,080	2,890	1,300	2,230	1,040	1,860	1,070	*470	188	116
3	505	1,140	2,430	2,380	1,180	1,620	1,140	1,660	965	438	180	121
4	429	965	1,950	2,040	1,300	1,340	1,420	1,950	1,070	*440	172	124
5	381	1,040	1,740	1,820	1,140	1,300	1,340	2,000	1,140	*420	170	131
6	345	965	1,580	1,620	1,100	1,380	1,140	1,700	1,180	*400	168	148
7	315	1,880	1,420	1,460	1,040	1,180	1,040	1,460	1,260	387	162	186
8	297	12,500	1,220	1,340	965	1,040	1,350	1,860	1,100	384	156	148
9	282	6,460	1,100	1,260	900	1,000	2,130	1,820	785	357	152	131
10	264	3,420	2,080	2,770	900	930	1,700	1,560	642	348	150	128
11	258	2,760	4,320	2,280	870	930	1,420	3,430	665	426	148	121
12	249	3,230	3,020	3,290	840	1,620	1,340	4,430	760	376	155	114
13	246	4,830	2,280	4,930	810	1,740	1,260	3,020	760	342	158	109
14	246	3,570	4,080	12,200	810	2,890	1,140	2,230	688	345	175	102
15	243	2,810	4,210	5,690	735	2,430	2,270	1,950	665	348	160	107
16	886	3,570	4,430	3,500	688	2,710	5,240	1,900	710	336	148	102
17	1,040	3,280	5,560	2,890	665	2,080	12,900	1,950	735	327	155	104
18	600	2,650	3,670	2,710	642	2,180	14,900	1,700	600	309	175	104
19	505	2,650	2,600	2,430	620	2,280	5,590	1,580	580	297	168	107
20	2,430	6,950	2,080	2,040	883	1,820	3,410	1,860	620	294	148	104
21	1,730	4,150	1,780	2,430	1,700	1,500	2,710	2,040	760	300	140	100
22	875	4,090	1,540	2,540	1,260	1,300	2,480	2,180	900	294	138	97
23	688	5,050	1,340	2,180	1,040	1,420	3,090	2,280	810	279	131	95
24	710	5,160	1,260	1,820	1,100	1,950	2,480	2,230	760	261	124	107
25	642	7,840	1,140	1,620	1,180	2,280	2,280	2,180	665	252	121	152
26	600	4,460	1,300	1,460	1,260	1,900	2,230	2,000	600	243	124	128
27	4,260	12,000	1,580	1,380	1,500	1,740	1,950	1,860	540	240	131	107
28	9,880	9,200	16,900	1,420	1,740	2,600	1,950	1,700	540	228	128	97
29	4,410	4,440	14,200	1,420	-	1,820	2,280	1,460	560	212	116	95
30	810	3,020	11,900	1,260	-	1,460	2,380	1,180	*630	205	109	136
31	1,660	-	5,730	1,140	-	1,260	-	1,000	-	196	109	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	37,736	9,880	243	1,217	4.52	5.21	74,850
November	126,380	12,500	965	4,213	15.7	17.52	250,700
December	112,950	16,900	1,100	3,644	13.5	15.56	224,000
Calendar year 1937	668,541	16,900	234	1,831	6.81	92.39	1,326,000
January	82,100	12,200	1,140	2,648	9.84	11.34	162,800
February	29,388	1,740	620	1,050	3.90	4.06	58,290
March	53,790	2,890	930	1,735	6.45	7.44	106,700
April	86,700	14,900	1,040	2,890	10.7	11.94	172,000
May	62,280	4,430	1,000	2,009	7.47	8.61	123,500
June	23,660	1,260	630	789	2.93	3.27	46,930
July	10,252	500	196	331	1.23	1.42	20,330
August	4,653	192	109	150	.558	.64	9,230
September	3,537	188	95	118	.439	.49	7,020
Water year 1937-38	633,426	16,900	95	1,735	6.45	87.50	1,256,000

Peak discharge.- Oct. 28 (12:40 p.m.) 16,700 sec.-ft.; Nov. 8 (10 a.m.) 16,200 sec.-ft.; Nov. 27 (7 p.m.) 20,200 sec.-ft.; Dec. 28 (4:45 p.m.) 22,300 sec.-ft.; Dec. 30 (1 a.m.) 17,800 sec.-ft.; Apr. 18 (3 a.m.) 21,800 sec.-ft.

*Gage heights missing; discharge interpolated.

Skagit River near Hope, British Columbia

(International gaging station)

Location.- Water-stage recorder, lat. 49°03', long. 121°05', just downstream from Galena Creek, 4 miles upstream from international boundary, and 40 miles southeast of Hope.

Drainage area.- 370 square miles.

Records available.- October 1934 to September 1938 in water-supply papers of Geological Survey. March 1915 to September 1922 in bulletins of Dominion Water and Power Bureau, Department of Mines and Resources, Canada.

Extremes.- Maximum discharge during year, 6,370 second-feet May 26 (gage height, 8.71 feet); minimum, 140 second-feet Oct. 15, 16 (gage height, 2.35 feet).
1915-22, 1934-38: Maximum discharge, 7,560 second-feet June 17, 1918; minimum not determined but probably occurred sometime in February 1937.

Remarks.- Records good. Discharge for Feb. 5-10 interpolated. No diversion or regulation. This station is one of the international gaging stations maintained by Canada under agreement with the United States. The city of Seattle cooperates in the maintenance of the station.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 26

2.3	126	4.0	818	7.0	3,700
2.5	183	4.5	1,100	8.0	5,230
3.0	353	5.0	1,440	9.0	6,830
3.5	568	6.0	2,330		

May 26 to Sept. 30

2.3	150	3.5	570
2.5	200	4.0	815
3.0	360		

Note.- Same as preceding table above 4.0 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	207	650	797	887	342	401	448	2,820	3,500	1,550	446	225
2	195	568	755	792	338	435	448	2,440	3,500	1,580	426	231
3	186	546	715	720	338	452	452	2,100	3,500	1,460	406	237
4	180	500	675	675	338	460	460	1,840	3,730	1,320	398	246
5	171	456	635	635	331	460	469	1,630	4,120	1,240	390	240
6	168	422	592	601	323	460	474	1,530	4,420	1,200	379	234
7	162	406	559	568	316	465	482	1,540	4,420	1,190	368	228
8	159	673	492	541	309	469	532	1,640	4,390	1,160	360	217
9	159	844	469	514	302	474	640	1,740	3,240	1,080	342	208
10	156	735	496	536	294	478	705	1,870	2,520	1,010	331	206
11	153	665	568	564	287	478	725	1,880	2,420	963	321	200
12	148	630	625	546	284	500	745	2,120	2,620	923	310	200
13	145	610	615	536	280	536	755	2,600	2,880	893	317	195
14	145	550	640	606	270	601	765	2,460	2,620	883	328	195
15	142	528	740	630	256	650	797	2,490	2,380	871	310	195
16	153	505	755	615	239	680	860	2,600	2,300	860	300	192
17	192	469	750	592	242	680	1,070	2,590	2,170	844	304	192
18	177	448	740	568	252	665	2,460	2,290	2,020	803	304	190
19	171	435	705	546	245	645	2,070	2,280	2,200	773	300	192
20	273	444	675	518	245	601	1,680	2,730	2,440	767	284	190
21	334	478	650	500	245	568	1,520	3,550	2,930	750	274	184
22	284	559	620	487	239	541	1,430	4,500	3,300	730	264	179
23	256	730	564	474	235	523	1,370	5,330	3,260	695	252	177
24	242	755	532	452	235	506	1,400	5,840	3,070	651	249	179
25	229	892	514	435	245	487	1,440	6,190	2,600	622	246	179
26	219	1,100	514	422	252	482	1,600	6,110	2,200	589	246	172
27	306	1,030	510	406	280	487	1,640	5,820	1,950	570	246	167
28	1,590	1,040	610	401	327	514	1,760	5,500	1,850	542	243	164
29	1,540	942	998	365	-	492	2,260	5,200	1,780	515	234	167
30	986	914	1,130	331	-	474	2,640	4,460	1,660	493	228	187
31	770	-	1,030	346	-	461	-	3,670	-	472	222	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	10,198	1,590	142	329	0.89	1.03	20,200
November	19,544	1,100	406	651	1.76	1.96	38,800
December	20,670	1,130	469	667	1.80	2.08	41,000
Calendar year 1937	343,137	6,290	81	940	2.54	34.49	680,000
January	16,809	887	331	542	1.46	1.68	33,300
February	7,869	342	235	282	.76	.79	15,600
March	16,124	680	401	520	1.41	1.63	32,000
April	34,097	2,640	448	1,140	3.08	3.44	67,600
May	99,360	6,190	1,530	3,210	8.68	10.01	197,000
June	85,990	4,420	1,660	2,870	7.76	8.66	171,000
July	28,001	1,580	472	903	2.44	2.81	55,500
August	9,628	446	222	311	.84	.97	19,100
September	5,968	246	164	199	.54	.60	11,800
Water year 1937-38	354,278	6,190	142	971	2.62	35.66	703,000

Skagit River near Newhalem, Wash.

Location.- Water-stage recorder, lat. 48°45', long. 121°02', in sec. 30, T. 38 N., R. 14 E., 1¼ miles upstream from Ruby Creek, 11 miles northeast of Newhalem, and 24 miles northeast of Marblemount.

Drainage area.- 765 square miles, of which 390 square miles is in Canada.

Records available.- March 1930 to September 1938.

Extremes.- Maximum discharge during year, 13,600 second-feet May 26 (gage height, 11.74 feet); minimum, 571 second-feet Oct. 14, 15 (gage height, 3.96 feet).
1930-38: Maximum discharge, 25,700 second-feet Feb. 27, 1932 (gage height, 15.9 feet), from rating curve extended above 13,000 second-feet; minimum, 230 second-feet Feb. 21, 1937 (gage height, 3.27 feet).

Remarks.- Records excellent except those for period of missing gage heights, May 6-18, which were computed on basis of records for Skagit River at Newhalem and Diablo Reservoir and Ruby, Thunder and Stetattle Creeks near Newhalem and are good. No diversion or regulation. Gage-height record collected in cooperation with city of Seattle, which furnished results of many discharge measurements.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

3.5	325	5.5	1,850	9.0	7,270
4.0	595	6.0	2,420	10.0	9,470
4.5	940	7.0	3,800	12.0	14,300
5.0	1,380	8.0	5,350		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	764	2,050	2,540	3,300	1,060	1,240	1,330	6,810	7,550	4,920	1,700	1,070
2	703	1,790	2,340	2,820	1,040	1,340	1,320	6,070	7,700	4,650	1,600	1,190
3	673	1,710	2,150	2,460	1,010	1,370	1,340	5,220	7,790	4,320	1,500	1,230
4	649	1,570	1,980	2,230	1,000	1,380	1,360	4,610	8,160	4,120	1,520	1,270
5	619	1,440	1,850	2,040	980	1,390	1,390	4,140	9,000	3,890	1,520	1,150
6	607	1,350	1,750	1,880	964	1,410	1,390	3,800	9,720	4,000	1,490	1,060
7	601	1,280	1,660	1,770	940	1,420	1,410	3,700	10,100	4,100	1,440	988
8	613	2,340	1,560	1,660	916	1,440	1,520	3,200	9,980	4,070	1,360	892
9	613	2,880	1,480	1,590	884	1,470	1,800	4,200	7,740	3,670	1,920	852
10	607	2,410	1,520	1,600	868	1,480	2,030	4,400	6,110	3,320	1,290	852
11	595	2,220	1,680	1,640	852	1,520	2,120	5,100	5,700	3,410	1,270	860
12	589	2,030	1,800	1,630	838	1,570	2,170	4,500	6,370	3,200	1,200	884
13	589	1,990	1,790	1,620	815	1,660	2,190	4,100	7,130	3,130	1,190	884
14	577	1,840	2,050	1,920	800	1,880	2,280	6,000	6,770	3,300	1,230	924
15	583	1,680	2,410	1,950	778	2,070	2,400	5,600	6,230	3,350	1,210	940
16	709	1,600	2,430	1,870	743	2,160	2,740	6,100	6,050	3,390	1,230	972
17	792	1,550	2,420	1,790	729	2,070	3,770	6,100	5,610	3,380	1,270	996
18	679	1,490	2,350	1,720	736	2,040	7,130	5,500	5,250	3,160	1,320	988
19	649	1,450	2,200	1,630	729	1,920	6,390	5,240	5,720	3,040	1,300	1,020
20	860	1,550	2,070	1,570	729	1,770	5,140	5,990	6,630	3,110	1,220	972
21	1,120	1,760	1,960	1,520	715	1,660	4,490	7,440	8,230	3,170	1,170	916
22	988	2,000	1,840	1,510	709	1,590	4,130	9,420	9,420	3,100	1,070	892
23	932	2,850	1,710	1,430	697	1,540	3,950	11,100	9,680	2,860	1,000	860
24	892	2,930	1,660	1,380	697	1,480	3,940	12,200	9,420	2,550	988	932
25	830	3,830	1,580	1,340	729	1,430	3,940	13,100	7,990	2,410	1,020	876
26	830	4,140	1,530	1,290	792	1,420	4,180	13,200	6,750	2,320	1,090	800
27	2,240	3,830	1,520	1,250	876	1,440	4,300	12,600	5,940	2,280	1,150	778
28	8,720	3,670	2,320	1,230	1,040	1,520	4,570	12,000	5,840	2,170	1,110	750
29	5,580	3,240	4,310	1,160	-	1,470	5,420	11,500	5,880	2,050	1,030	757
30	3,410	2,850	4,850	1,100	-	1,420	6,530	10,000	5,450	1,920	996	860
31	2,510	-	3,980	1,070	-	1,360	-	8,290	-	1,770	1,010	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	41,123	8,720	577	1,327	1.73	1.99	81,570
November	67,320	4,140	1,280	2,244	2.93	3.27	133,500
December	67,290	4,850	1,480	2,171	2.84	3.27	133,500
Calendar year 1937	915,977	12,300	340	2,510	3.28	44.48	1,817,000
January	52,970	3,300	1,070	1,709	2.23	2.57	105,100
February	23,666	1,060	697	845	1.10	1.14	46,940
March	48,950	2,160	1,240	1,579	2.06	2.38	97,090
April	96,670	7,130	1,320	3,222	4.21	4.70	191,700
May	221,230	13,200	3,200	7,136	9.33	10.76	438,800
June	219,910	10,100	5,250	7,330	9.58	10.69	436,200
July	100,150	4,920	1,770	3,230	4.22	4.86	198,600
August	38,784	1,700	988	1,251	1.64	1.89	76,930
September	28,415	1,270	750	947	1.24	1.38	56,360
Water year 1937-38	1,006,458	13,200	577	2,757	3.60	48.90	1,996,000

Skagit River at Newhalem, Wash.

Location.- Water-stage recorder, lat. 48°40', long. 121°15', in SE¼ sec. 21, T. 37 N., R. 12 E., at power plant of city of Seattle at Newhalem, a quarter of a mile upstream from Newhalem Creek, 11 miles upstream from Bacon Creek, and 16 miles upstream from Marblemount. Zero of gage is 400.00 feet above mean sea level (subject to correction for general adjustment of 1929).
Drainage area.- 1,160 square miles, of which 390 square miles is in Canada.
Records available.- December 1908 to May 1914, October 1920 to September 1938 in reports of Geological Survey. October 1908 to September 1933 (monthly discharge only) in State Water-Supply Bulletin 5.
Average discharge.- 30 years, 4,406 second-feet.
Extremes.- Maximum discharge during year, 24,400 second-feet Oct. 28 (gage height, 89.69 feet); minimum, 255 second-feet Oct. 13 (gage height, 79.10 feet, regulated); minimum daily discharge, 644 second-feet Oct. 10.
1908-14, 1920-38: Maximum discharge, 60,000 second-feet Dec. 12, 1921 (gage height, 94.2 feet); minimum, 74 second-feet Nov. 10, 1936 (gage height, 78.39 feet, regulated); minimum daily discharge, 136 second-feet Aug. 24, 1930.
Remarks.- Records excellent. Water is diverted 3 miles upstream (may be entire low-water flow) and returned to river at Seattle power plant just above station. Flow also partly regulated by Diablo Reservoir (capacity, 91,300 acre-feet at elevation 1,205 feet). Gage-height record collected in cooperation with city of Seattle, which furnished results of several discharge measurements.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

79.0	225	81.5	1,790	85.0	7,150
79.2	290	82.0	2,330	86.0	9,820
79.5	400	82.5	2,930	87.0	12,890
80.0	640	83.0	3,620	88.0	16,700
80.5	945	83.5	4,400	89.0	21,000
81.0	1,330	84.0	5,200	90.0	26,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,320	3,260	3,790	4,980	1,430	1,380	1,820	*10,200	11,300	8,300	3,750	2,380
2	1,060	2,820	3,690	*4,110	1,530	1,400	1,530	8,970	11,900	7,520	2,960	2,870
3	*866	2,630	3,060	3,520	1,450	1,500	*1,260	7,520	11,800	*6,980	2,380	2,880
4	1,200	2,510	3,070	3,310	1,470	2,310	1,630	6,670	13,000	6,560	2,920	*2,840
5	1,320	2,410	*2,770	2,900	1,390	2,790	2,020	5,720	*14,000	6,630	2,820	2,430
6	1,150	2,240	2,530	3,100	*1,270	*2,320	2,060	5,660	15,400	6,770	2,930	1,990
7	1,050	*2,140	2,450	2,100	1,510	2,120	2,070	5,270	16,300	7,090	*2,570	1,530
8	1,030	5,040	2,220	2,530	1,430	1,990	2,160	*5,460	15,900	7,550	2,800	1,480
9	876	4,880	2,180	*2,300	1,350	2,160	2,480	6,130	11,100	6,880	2,000	1,400
10	*844	4,180	2,220	2,680	1,250	2,170	*2,930	6,480	9,140	*5,330	2,380	1,950
11	976	3,370	2,860	2,530	1,290	2,230	3,710	6,880	8,810	5,740	2,840	*1,450
12	954	3,470	*2,750	2,610	1,160	2,260	3,510	7,550	*10,200	5,610	1,770	1,750
13	950	3,250	3,150	2,770	*1,030	*2,250	3,210	7,810	11,700	5,440	2,370	1,970
14	954	*3,020	3,300	3,210	1,320	2,850	3,230	8,830	10,500	6,340	*2,290	2,180
15	946	2,730	4,500	3,250	1,300	3,080	2,610	*8,660	10,300	6,420	2,700	1,990
16	1,070	2,490	3,890	*3,360	1,280	3,460	4,500	9,100	10,000	6,510	2,410	2,210
17	*944	2,480	4,240	2,720	1,340	3,470	*7,390	9,240	8,990	*6,550	2,290	2,340
18	1,320	2,350	3,660	2,790	1,340	2,920	13,300	8,420	8,450	6,150	2,450	*1,970
19	1,170	2,320	*3,270	2,580	1,160	2,550	10,100	7,880	*9,220	5,460	2,260	2,350
20	1,810	2,600	3,140	2,120	*1,160	*2,340	7,570	9,100	11,600	6,320	2,490	2,190
21	1,910	*3,160	3,000	1,890	1,370	3,300	6,480	12,000	15,100	5,820	*2,680	2,020
22	1,930	3,500	2,720	2,530	1,220	2,900	6,140	*14,900	16,300	6,410	1,670	2,040
23	1,810	5,020	2,250	*2,100	1,420	2,140	6,100	17,100	16,700	5,630	1,630	1,820
24	*1,690	4,560	2,200	1,960	1,330	2,120	*6,130	19,200	16,300	*4,790	1,810	2,210
25	1,780	7,220	2,430	1,800	1,220	2,190	5,800	19,700	13,700	4,680	2,120	*1,680
26	1,970	6,510	*2,310	1,980	1,180	2,070	6,480	19,700	*11,200	4,160	2,340	1,890
27	3,870	6,160	2,320	1,630	*1,120	*1,800	5,790	18,800	9,650	4,490	2,370	1,460
28	16,400	*5,910	4,270	1,860	1,340	2,710	6,910	18,000	9,040	4,690	*2,430	1,490
29	8,790	4,930	7,420	1,540	-	2,430	8,580	*17,100	10,600	4,020	2,110	1,630
30	5,370	4,360	8,000	*1,510	-	2,120	10,300	14,500	9,640	3,630	1,950	1,850
31	*3,960	-	5,940	1,580	-	1,800	-	12,000	-	*3,030	2,180	-

Month	Observed: Discharge in second-feet: Maximum	Minimum	Mean	Observed: Run-off in acre-feet	Gain or loss in storage in Diablo Reservoir (acre-feet)	Adjusted for storage: Run-off in acre-feet	Discharge in second-feet: Mean	Per square mile	Run-off in inches
October	16,400	644	2,293	141,000	+13,110	154,100	2,506	2.16	2.49
November	7,220	2,140	3,717	221,200	-440	220,800	3,711	3.20	3.57
December	8,000	2,180	3,406	209,500	-320	209,200	3,402	2.93	3.38
Calendar year 1937	20,000	522	4,125	2,986,000	-640	2,986,000	4,124	3.56	48.26
January	4,980	1,510	2,576	158,400	+30	158,400	2,576	2.22	2.56
February	1,530	1,030	1,309	72,710	-4,820	67,890	1,222	1.05	1.09
March	3,480	1,380	2,360	145,100	-340	144,800	2,355	2.03	2.34
April	13,300	1,260	4,927	293,200	+2,460	295,700	4,939	4.28	4.78
May	19,700	5,270	10,790	663,600	+1,730	665,300	10,820	9.33	10.76
June	16,700	8,450	11,950	711,400	+470	711,900	11,930	10.3	11.49
July	8,300	3,030	5,855	360,000	+690	360,700	5,866	5.06	5.83
August	3,750	1,630	2,409	148,100	-880	147,200	2,374	2.06	2.38
September	2,880	1,400	2,008	119,500	+1,450	121,000	2,033	1.75	1.95
Water year 1937-38	19,700	644	4,480	3,244,000	+13,140	3,257,000	4,499	3.88	52.62

Peak discharge.- Oct. 28 (12 m) 24,400 sec.-ft.; Apr. 18 (1 a.m.) 15,900 sec.-ft.
*Sunday.

Skagit River near Concrete, Wash.

Location.- Water-stage recorder, lat. 48°32', long. 121°46', in sec. 16, T. 35 N., R. 8 E., at dalles, 2 miles downstream from Baker River and 2½ miles southwest of Concrete. Zero of gage is 130.0 feet above mean sea level (general adjustment of 1929). Gage lowered 12.69 feet Oct. 1, 1937.
Drainage area.- 2,700 square miles, of which 390 square miles is in Canada.
Records available.- September 1924 to September 1938.
Average discharge.- 14 years, 14,440 second-feet.
Extremes.- Maximum discharge during year, 89,600 second-feet Oct. 28 (gage height, 32.16 feet); minimum discharge recorded, 2,840 second-feet Oct. 11 (gage height, 12.94 feet).
1924-38: Maximum discharge, 147,000 second-feet Feb. 27, 1932 (gage height, 40.0 feet, present datum); minimum, probably less than 2,160 second-feet sometime during period Oct. 1-24, 1925, when recorder was not operating and when gates in Baker River dam were closed for first time.
Maximum stage known, 69.3 feet, present datum, from floodmarks (discharge, about 500,000 second-feet), occurred sometime in about the year 1815. Records of other floods prior to establishment of station are given in Water-Supply Paper 612.
Remarks.- Records excellent except those for period of partial gage-height record, Oct. 9-28, which was computed on basis of 29 gage readings and fragmentary recorder graph, and are good. Discharge for Sept. 16, 17 interpolated. All diverted water returned to river above gage. At low stages flow partly regulated by storage at power plants on Baker and upper Skagit Rivers. Capacity of Lake Shannon Reservoir, on Baker River, 156,200 acre-feet at elevation 435 feet. Capacity of Diablo Reservoir, on upper Skagit River, 91,300 acre-feet at elevation 1,205 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,660	11,200	16,500	21,200	7,440	8,320	7,610	*29,200	27,000	23,400	9,740	6,940
2	4,570	9,580	14,900	*17,000	7,500	8,980	7,080	24,800	29,200	19,900	9,200	7,840
3	*3,700	9,320	13,400	14,800	7,340	8,360	*6,500	20,400	28,600	*18,200	8,180	7,920
4	4,260	9,000	12,100	13,100	8,400	8,420	7,480	18,400	32,200	17,000	8,750	*8,530
5	4,420	8,690	*11,000	12,300	7,100	9,120	7,880	16,200	*35,200	16,900	8,630	7,100
6	3,950	8,490	11,100	11,200	*6,500	*8,380	7,800	14,800	37,900	18,600	8,620	6,390
7	3,620	*8,530	10,000	10,300	6,910	8,180	7,820	14,100	41,800	20,100	*8,100	6,080
8	3,700	29,700	9,700	9,950	6,720	7,940	8,110	*14,100	40,100	20,900	7,800	5,820
9	3,710	27,900	9,230	*9,180	6,640	7,940	8,920	16,400	28,800	18,600	7,630	5,570
10	*3,150	17,400	10,900	12,600	6,640	8,020	*8,890	16,400	22,700	*15,700	7,750	5,320
11	3,420	16,600	19,800	11,800	6,470	7,930	10,400	18,000	21,200	16,300	8,240	*5,280
12	3,560	14,900	*15,500	13,200	6,440	8,640	10,300	20,500	*26,700	15,700	6,860	5,670
13	3,490	16,600	13,600	14,900	*5,680	*8,670	9,660	22,300	29,800	14,800	6,910	6,130
14	3,490	*16,500	18,700	25,000	6,320	10,800	9,650	22,400	25,800	17,500	*6,480	6,700
15	3,420	14,400	20,900	21,600	6,330	11,300	9,770	*21,800	25,600	18,500	7,580	6,660
16	3,710	14,900	18,900	*16,900	6,130	11,900	11,300	23,700	26,400	18,500	7,480	6,440
17	*5,570	13,500	19,100	14,200	6,040	11,200	*25,000	24,400	24,300	*17,900	7,340	6,220
18	5,390	12,200	17,800	12,800	6,090	10,800	59,700	22,100	21,400	16,600	7,700	*6,000
19	5,210	11,600	*15,100	12,800	5,860	10,400	39,600	20,900	*22,400	15,300	7,820	5,840
20	8,240	19,900	12,800	11,000	*5,270	*8,810	28,800	23,600	27,900	16,000	7,060	5,940
21	9,320	*19,200	12,200	11,200	6,260	9,470	22,300	28,800	38,400	17,300	*7,000	5,740
22	7,260	22,400	11,300	11,800	6,090	9,890	20,200	*36,200	44,500	17,200	7,030	6,200
23	6,340	28,800	10,100	*11,300	6,120	8,680	19,200	42,800	44,000	15,100	5,980	6,140
24	*5,370	24,800	9,540	9,950	6,220	8,580	*18,000	46,200	43,400	*13,800	6,040	6,230
25	5,760	38,300	10,100	9,400	6,280	8,620	18,300	48,400	36,200	12,900	6,460	*5,820
26	5,760	33,000	*9,700	9,200	6,480	8,250	18,800	47,800	*30,800	12,300	6,740	6,120
27	12,700	35,900	10,700	8,860	*6,240	*8,000	17,300	46,200	26,400	12,100	7,170	5,680
28	63,500	*37,000	34,100	8,440	7,720	9,880	19,000	42,300	27,700	12,500	*7,610	5,580
29	40,900	23,400	48,900	8,380	-	9,310	22,300	*40,600	29,200	11,500	6,710	5,660
30	21,600	18,200	47,000	*7,490	-	8,620	26,600	34,800	27,300	10,000	6,160	6,180
31	*14,800	-	28,300	8,000	-	7,940	-	28,800	-	*8,980	6,560	-

Month	Observed				Gain or loss in storage in Diablo and Lake Shannon Reservoirs (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	63,500	3,150	9,018	554,500	+49,740	604,200	9,826	3.64	4.20
November	38,300	8,490	19,060	1,134,000	+9,950	1,144,000	19,230	7.12	7.94
December	48,900	9,230	16,870	1,037,000	-3,870	1,033,000	16,800	6.22	7.17
Calendar year 1937	63,500	2,860	14,530	10,520,000	+57,860	10,580,000	14,610	5.41	73.45
January	25,000	7,490	12,580	773,300	-660	772,600	12,570	4.66	5.37
February	8,400	5,270	6,544	363,400	-36,760	326,600	5,881	2.18	2.27
March	11,900	7,930	9,076	558,000	+900	558,900	9,090	3.37	3.88
April	59,700	6,500	16,480	980,400	+18,440	998,800	16,790	6.22	6.94
May	48,400	14,100	27,310	1,679,000	+16,520	1,696,000	27,580	10.2	11.76
June	44,500	21,200	30,770	1,831,000	+4,010	1,835,000	30,840	11.4	12.72
July	23,400	8,980	16,130	991,700	-1,040	990,700	16,110	5.97	6.88
August	9,740	5,980	7,462	458,800	-34,960	423,800	6,892	2.55	2.94
September	8,530	5,280	6,251	372,000	-18,450	353,600	5,942	2.20	2.46
Water year 1937-38	63,500	3,150	14,830	10,730,000	+3,820	10,740,000	14,830	5.49	74.53

Peak discharge.- Oct. 28 (3:15 p.m.) 89,600 sec.-ft.; Nov. 25 (6:30 p.m.) 51,100 sec.-ft.; Nov. 27 (9:40 p.m.) 48,400 sec.-ft.; Dec. 30 (7 a.m.) 54,600 sec.-ft.; Apr. 18 (9 a.m.) 71,100 sec.-ft.
*Sunday.

Ruby Creek near Newhalem, Wash.

Location.- Water-stage recorder, lat. 48°44', long. 121°02', in sec. 31, T. 38 N., R. 14 E., 1 mile upstream from mouth, 10½ miles northeast of Newhalem, and 24 miles northeast of Marblemount.

Drainage area.- 210 square miles.

Records available.- June 1919 to March 1920, April 1930 to September 1938.

Extremes.- Maximum discharge during year, 4,530 second-feet May 25 (gage height, 13.12 feet); minimum, 137 second-feet Oct. 12, 13, 14, 15.
1919-20, 1930-38: Maximum discharge, 6,730 second-feet Feb. 27, 1932 (gage height, 14.15 feet); minimum, 40 second-feet Feb. 22, 1937 (gage height, 5.87 feet).

Remarks.- Records excellent except those for periods of ice effect, Dec. 24-27, Jan. 31 to Feb. 3, which were computed on basis of gage heights and weather records and are poor, and those above 3,000 second-feet, which are good. No diversion or regulation. Gage-height record collected in cooperation with city of Seattle, which furnished results of many discharge measurements.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

6.5	135	7.5	265	9.5	820	11.5	2,060
6.7	145	8.0	366	10.0	1,030	12.0	2,600
6.9	164	8.5	491	10.5	1,300	12.5	3,350
7.2	212	9.0	637	11.0	1,640	13.2	4,700

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	155	373	382	515	170	315	217	1,900	2,260	1,350	331	202
2	147	334	364	438	170	313	222	1,560	2,370	1,280	301	233
3	144	309	340	389	170	295	236	1,290	2,410	1,120	280	240
4	143	280	317	359	172	290	236	1,120	2,600	1,070	288	243
5	141	261	305	331	168	290	238	1,000	2,900	1,050	292	192
6	138	243	299	315	167	288	238	932	3,080	1,140	262	174
7	138	236	286	299	163	280	258	948	3,160	1,160	265	160
8	139	597	260	288	157	278	313	1,040	2,930	1,210	242	151
9	139	491	261	278	158	284	387	1,080	2,020	1,020	236	149
10	138	408	286	334	157	282	394	1,160	1,670	856	240	151
11	138	384	327	323	155	292	399	1,180	1,720	796	238	152
12	137	359	315	309	153	305	396	1,390	2,070	776	219	155
13	137	351	307	311	152	331	413	1,580	2,280	804	222	160
14	137	315	362	362	151	359	438	1,600	2,100	908	212	161
15	137	307	396	336	148	357	464	1,710	1,980	912	210	164
16	147	290	382	313	147	342	532	1,840	1,960	892	217	167
17	153	282	378	294	150	315	995	1,800	1,730	852	231	170
18	143	273	357	278	149	313	2,020	1,540	1,660	761	240	168
19	141	265	336	263	145	292	1,390	1,600	1,970	720	224	167
20	187	288	317	251	145	274	1,120	1,960	2,420	738	209	160
21	207	297	305	247	144	261	1,010	2,520	3,040	746	200	153
22	181	368	290	242	143	252	980	3,260	3,210	702	182	151
23	174	859	251	229	143	245	956	3,360	3,210	611	174	150
24	166	446	230	222	147	238	964	3,730	3,050	540	176	174
25	153	613	210	217	157	234	964	4,050	2,370	504	185	147
26	151	587	220	212	179	238	1,050	3,820	2,000	488	200	144
27	383	575	240	210	220	249	1,080	3,530	1,780	488	212	143
28	1,960	538	430	209	282	249	1,230	3,190	1,780	456	202	141
29	1,040	464	860	185	-	234	1,580	3,120	1,780	418	184	143
30	596	413	892	185	-	224	1,920	2,680	1,600	380	176	144
31	454	-	621	170	-	219	-	2,330	-	353	179	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	8,344	1,960	137	269	1.28	1.48	16,550
November	11,806	859	236	394	1.88	2.10	23,420
December	11,126	892	210	359	1.71	1.97	22,070
Calendar year 1937	228,165	3,620	54	625	2.98	40.44	452,600
January	8,914	515	170	288	1.37	1.58	17,680
February	4,562	282	143	163	.776	.81	9,050
March	8,738	359	219	282	1.34	1.54	17,330
April	22,640	2,020	217	755	3.60	4.02	44,910
May	63,820	4,050	932	2,059	9.80	11.30	126,600
June	69,110	3,210	1,600	2,304	11.0	12.27	137,100
July	25,101	1,350	353	810	3.86	4.45	49,790
August	7,049	331	174	227	1.08	1.24	13,980
September	5,009	243	141	167	.795	.89	9,940
Water year 1937-38	246,219	4,050	137	675	3.21	43.65	488,400

Peak discharge.- May 25 (10 p.m.) 4,530 sec.-ft.; June 23 (9 p.m.) 3,660 sec.-ft.

Thunder Creek near Newhalem, Wash.

Location.- Water-stage recorder, lat. 48°40', long. 121°04', in SE¼ sec. 23, T. 37 N., R. 13 E. unsurveyed, half a mile upstream from backwater from Diablo Reservoir, 8 miles east of Newhalem, and 20 miles northeast of Marblemount.

Drainage area.- 98 square miles.

Records available.- October 1930 to September 1938.

Extremes.- Maximum discharge during year, 6,500 second-feet Oct. 28 (gage height, 11.0 feet), from rating curve extended above 2,500 second-feet; minimum, 90 second-feet Feb. 23, 24 (gage height, 1.73 feet).
1930-38: Maximum discharge, 8,780 second-feet Feb. 26, 1932 (gage height, 11.3 feet), from rating curve extended above 2,000 second-feet; minimum not determined, occurred during period of ice effect.

Remarks.- Records excellent except those above 3,500 second-feet, which are fair. No diversion or regulation. Gage-height record collected in cooperation with city of Seattle, which furnished results of many discharge measurements.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1-27				Oct. 28 to Sept. 30					
2.0	100	4.5	810	1.7	86	4.0	644	8.0	3,150
2.5	185	5.0	1,050	2.0	131	4.5	840	9.0	4,150
3.0	295	5.5	1,300	2.5	226	5.0	1,080	11.0	6,500
3.5	425	6.0	1,620	3.0	342	6.0	1,680		
4.0	600	7.0	2,350	3.5	477	7.0	2,370		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	237	406	412	468	140	176	150	912	1,040	1,400	884	1,020
2	196	354	375	396	134	189	148	746	1,170	1,160	742	1,220
3	196	340	342	347	131	187	152	630	1,210	1,040	731	1,240
4	175	292	313	313	128	185	157	546	1,370	1,060	862	1,030
5	161	269	294	285	128	189	161	480	1,580	1,110	871	708
6	158	246	276	266	125	189	162	442	1,730	1,350	819	655
7	189	237	262	248	121	185	170	437	1,930	1,490	708	477
8	232	839	241	235	118	181	193	492	1,680	1,630	622	442
9	235	567	230	222	115	183	230	513	1,070	1,300	677	472
10	241	468	255	257	115	181	237	542	840	1,130	774	551
11	263	415	330	244	112	185	244	566	921	1,220	689	631
12	281	377	311	237	109	201	246	731	1,240	1,150	612	718
13	272	364	292	237	109	216	248	798	1,360	1,370	622	784
14	277	325	438	296	108	239	255	762	1,200	1,670	608	831
15	290	301	465	285	103	244	276	790	1,180	1,710	711	680
16	539	287	406	266	99	244	337	732	1,190	1,760	758	930
17	271	280	401	250	97	224	755	806	990	1,750	802	950
18	200	271	372	235	97	220	1,590	689	970	1,600	836	921
19	208	264	340	218	96	197	975	689	1,260	1,630	750	921
20	922	330	313	207	94	193	750	853	1,710	1,840	735	930
21	688	362	292	201	94	193	651	1,140	2,400	2,010	674	798
22	560	435	271	201	93	181	612	1,540	2,750	1,940	587	802
23	548	553	244	189	92	172	584	1,730	2,840	1,550	581	754
24	375	507	228	181	92	166	563	1,820	2,800	1,400	651	916
25	334	821	223	172	94	164	546	1,860	2,260	1,350	796	692
26	528	696	213	166	100	164	563	1,800	1,670	1,440	916	612
27	2,000	677	239	162	117	170	566	1,740	1,620	1,440	975	648
28	4,180	670	474	159	150	177	630	1,650	1,790	1,320	811	598
29	1,220	546	802	148	-	166	790	1,620	1,940	1,180	723	660
30	689	468	794	143	-	159	945	1,300	1,720	1,000	726	670
31	504	-	587	145	-	153	-	1,040	-	930	819	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	17,171	4,180	158	554	5.65	6.51	34,060
November	12,987	839	237	433	4.42	4.93	25,760
December	11,036	802	213	356	3.63	4.18	21,890
Calendar year 1937	217,211	4,180	60	595	6.07	82.40	430,800
January	7,379	466	143	238	2.43	2.80	14,640
February	3,111	150	92	111	1.13	1.18	6,170
March	5,873	244	153	189	1.93	2.22	11,650
April	13,888	1,590	148	463	4.72	5.27	27,550
May	30,396	1,860	437	981	10.0	11.53	60,290
June	47,631	2,840	840	1,588	16.2	18.07	94,470
July	43,930	2,010	930	1,417	14.5	16.72	87,130
August	23,072	975	581	744	7.59	8.75	45,760
September	23,461	1,240	442	782	7.98	8.90	46,530
Water year 1937-38	239,935	4,180	92	657	6.70	91.06	475,900

Peak discharge.- Oct. 28 (9:40-11 a.m.) 6,500 sec.-ft.; June 23 (11:15 p.m.) and June 24 (12-12:45 a.m.) 3,270 sec.-ft.

Stetattle Creek near Newhalem, Wash.

Location.- Water-stage recorder, lat. 48°43'40", long. 121°09'30", in NE¼ sec. 6, T. 37 N., R. 13 E., three-quarters of a mile upstream from mouth, 5½ miles northeast of Newhalem, and 18⅛ miles northeast of Marblemount.

Drainage area.- 21.4 square miles.

Records available.- September 1933 to September 1938. December 1913 to March 1914 and December 1914 to April 1915 at site half a mile downstream; records equivalent.

Extremes.- Maximum discharge during year, 3,220 second-feet Oct. 28 (gage height, 7.34 feet), from rating curve extended above 800 second-feet; minimum, 26 second-feet Oct. 11, 13 (gage height, 2.05 feet).

1913-15, 1933-38: Maximum discharge, 4,520 second-feet Nov. 5, 1934 (gage height, 10.4 feet, former site and datum), from rating curve extended above 500 second-feet; minimum, 9 second-feet Nov. 9, 10, 11, 1936.

Remarks.- Records excellent except those for period of shifting control, Oct. 30 to Nov. 29, which are fair, and those above 1,000 second-feet, which are poor. No diversion or regulation. Gage-height record collected in cooperation with city of Seattle, which furnished results of several discharge measurements.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 30 to Nov. 29)

Oct. 1-29						Nov. 30 to Sept. 30			
2.0	23	3.5	343	7.0	2,920	2.0	23	3.5	292
2.2	37	4.0	546	7.3	3,220	2.2	33	4.0	490
2.5	74	4.5	801			2.5	65	4.5	747
2.8	136	5.0	1,100			2.8	111	5.0	1,050
3.1	220	6.0	1,950			3.1	177		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	93	139	167	49	119	61	365	325	289	94	64
2	35	89	122	128	46	119	61	244	357	255	82	68
3	35	124	111	106	44	102	66	188	355	241	76	68
4	32	84	96	91	45	92	72	160	435	249	86	73
5	30	76	90	82	44	94	73	139	500	237	65	61
6	28	68	84	75	43	92	75	128	534	286	82	80
7	28	83	78	69	42	88	80	145	590	305	85	65
8	29	704	69	64	41	84	111	218	401	276	75	52
9	28	399	65	63	38	86	157	226	221	212	72	49
10	28	271	82	110	38	84	148	246	165	205	75	48
11	27	208	182	97	37	94	141	249	301	241	71	49
12	27	184	154	99	35	126	134	539	414	201	64	51
13	27	211	137	117	33	154	132	385	357	229	69	52
14	27	157	394	196	33	190	132	312	289	258	68	54
15	30	119	325	157	32	177	167	329	322	264	68	54
16	155	108	267	137	32	172	285	339	318	267	69	55
17	76	106	246	134	31	139	777	294	255	252	78	55
18	65	95	199	139	31	126	933	224	296	221	99	54
19	52	91	154	99	31	113	414	315	382	215	82	57
20	283	302	128	82	32	96	273	427	511	241	78	51
21	132	271	111	79	33	82	226	549	672	249	71	45
22	81	326	96	85	32	73	204	642	694	232	58	45
23	71	406	80	78	32	72	199	652	673	185	52	45
24	57	305	78	71	36	71	201	668	621	162	53	58
25	51	774	75	64	46	66	210	668	453	152	59	49
26	145	427	79	61	60	65	235	585	357	152	65	43
27	991	362	78	59	79	76	238	544	357	150	68	42
28	1,880	344	317	58	108	88	299	519	401	139	63	40
29	410	235	575	53	-	76	410	444	414	126	58	45
30	211	170	445	51	-	66	449	302	329	108	58	63
31	136	-	238	50	-	63	-	255	-	99	59	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	5,248	1,880	27	169	7.90	9.11	10,410
November	7,192	774	68	240	11.2	12.50	14,270
December	5,294	575	65	171	7.99	9.21	10,500
Calendar year 1937	59,567	1,880	15	163	7.62	103.57	118,200
January	2,921	196	50	94.2	4.40	5.07	5,790
February	1,183	108	31	42.2	1.97	2.05	2,350
March	3,145	190	63	101	4.72	5.44	6,240
April	6,963	933	61	232	10.8	12.05	13,810
May	11,300	668	128	365	17.1	19.71	22,410
June	12,349	694	185	412	19.3	21.53	24,490
July	6,699	305	99	216	10.1	11.64	13,290
August	2,222	99	52	71.7	3.35	3.86	4,410
September	1,635	80	40	54.5	2.55	2.84	3,240
Water year 1937-38	66,151	1,880	27	181	8.46	115.01	131,200

Peak discharge.- Oct. 28 (5 a.m.) 3,220 sec.-ft.; Nov. 8 (12:50 p.m.) 970 sec.-ft.; Nov. 25 (11:15 a.m.) 1,330 sec.-ft.; Apr. 18 (12:45 a.m.) 1,460 sec.-ft.

Cascade River at Marblemount, Wash.

Location.- Water-stage recorder, lat. 48°31'45", long. 121°23'30", in SW¼ sec. 9, T. 35 N., R. 11 E., 2 miles east of Marblemount and 2½ miles upstream from mouth.

Drainage area.- 180 square miles.

Records available.- September 1928 to September 1938.

Average discharge.- 10 years, 980 second-feet.

Extremes.- Maximum discharge during year, 8,810 second-feet Oct. 28 (gage height, 8.62 feet), from rating curve extended above 3,000 second-feet; minimum, 235 second-feet Oct. 6, 7 (gage height, 1.52 feet).
1928-38: Maximum discharge, 12,900 second-feet Feb. 26, 1932 (gage height, 9.88 feet); minimum, 149 second-feet Nov. 15, 1929, or may have been less during January or February 1929, when stage-discharge relation was affected by ice; minimum gage height, 1.11 feet Feb. 8, 1937.

Remarks.- Records excellent except those for period of ice effect, Dec. 23-25, which were computed on basis of gage heights and weather records and are fair, and those above 3,000 second-feet, which are good. No diversion or regulation.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

1.5	230	4.0	1,360	7.0	5,210
2.0	370	4.5	1,770	8.0	7,410
2.5	560	5.0	2,250	8.7	9,050
3.0	775	5.5	2,760		
3.5	1,030	6.0	3,410		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	344	640	1,030	850	452	580	391	1,680	1,770	1,640	752	600
2	289	560	900	900	433	580	398	1,290	2,000	1,440	662	685
3	281	560	850	900	416	520	416	1,090	2,000	1,260	620	708
4	268	484	752	800	408	496	430	950	2,300	1,290	662	685
5	251	444	708	730	394	504	426	875	2,600	1,320	665	540
6	239	426	662	685	386	484	416	800	2,760	1,520	640	600
7	237	436	620	620	374	460	426	800	2,990	1,640	580	464
8	244	2,170	662	580	363	444	500	925	2,540	1,720	520	394
9	246	1,440	662	560	350	433	640	925	1,640	1,440	540	391
10	246	1,030	640	825	347	412	600	950	1,290	1,260	560	394
11	244	925	685	752	337	426	580	1,030	1,510	1,320	560	430
12	246	850	708	752	331	472	560	1,410	2,000	1,260	496	464
13	246	875	708	850	322	520	560	1,520	2,050	1,360	580	492
14	266	825	775	1,560	315	600	540	1,360	1,640	1,600	580	520
15	256	730	752	1,290	306	580	600	1,440	1,680	1,600	540	540
16	554	730	730	1,030	298	600	775	1,520	1,820	1,600	580	540
17	422	752	800	900	292	540	2,320	1,440	1,560	1,520	685	560
18	354	708	875	800	289	580	3,960	1,150	1,400	1,360	775	520
19	322	685	975	730	284	560	2,100	1,260	1,640	1,360	662	520
20	1,180	1,060	825	685	289	512	1,520	1,640	2,310	1,520	580	508
21	825	1,000	825	662	300	468	1,290	2,200	3,260	1,560	560	476
22	620	1,350	752	662	295	436	1,220	2,760	3,490	1,440	500	472
23	520	1,520	730	620	292	433	1,180	2,990	3,410	1,260	484	452
24	436	1,260	750	580	303	422	1,090	3,120	3,190	1,120	496	600
25	388	2,230	780	540	331	426	1,090	3,120	2,550	1,120	540	492
26	436	1,720	875	540	370	422	1,120	2,870	2,150	1,090	600	426
27	1,980	2,180	900	520	456	456	1,090	2,820	2,000	1,090	620	433
28	5,760	2,100	950	520	560	496	1,220	2,700	2,200	975	560	422
29	1,990	1,480	850	500	-	448	1,520	2,550	2,250	900	500	430
30	1,090	1,180	825	480	-	419	1,820	1,950	1,950	800	488	540
31	800	-	875	464	-	402	-	1,640	-	752	540	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	21,560	5,760	237	696	3.87	4.46	42,800
November	32,350	2,230	426	1,078	5.99	6.68	64,170
December	24,331	1,030	620	785	4.36	5.03	48,260
Calendar year 1937	343,682	5,760	158	942	5.23	70.95	681,700
January	22,887	1,560	464	738	4.10	4.73	45,400
February	9,895	560	284	353	1.96	2.04	19,630
March	15,131	600	402	488	2.71	3.12	30,010
April	30,798	3,960	391	1,027	5.71	6.37	61,090
May	52,775	3,120	800	1,702	9.46	10.91	104,700
June	65,950	3,490	1,290	2,198	12.2	13.61	130,800
July	41,137	1,720	752	1,327	7.37	8.50	81,590
August	18,147	775	484	585	3.25	3.75	35,990
September	15,318	708	391	511	2.84	3.17	30,380
Water year 1937-38	350,299	5,760	237	960	5.33	72.37	694,800

Peak discharge.- Oct. 28 (11:40 a.m.) 8,810 sec.-ft.; Apr. 18 (1:50 a.m.) 5,850 sec.-ft.

Sauk River above Whitechuck River, near Darrington, Wash.

Location.- Water-stage recorder, lat. 48°10'00", long. 121°27'45", in NW¼ sec. 24, T. 31 N., R. 10 E., half a mile upstream from Whitechuck River and 9½ miles southeast of Darrington.

Drainage area.- 152 square miles.

Records available.- August to November 1910 (fragmentary gage heights), October 1917 to September 1922, August 1928 to September 1938.

Average discharge.- 15 years (1917-22, 1928-38), 1,120 second-feet.

Extremes.- Maximum discharge during year, 8,240 second-feet Apr. 18 (gage height, 8.23 feet); minimum, 146 second-feet Oct. 14, 15.
1917-22, 1928-38: Maximum discharge, 23,000 second-feet Dec. 12, 1921 (gage height, 14.65 feet), from rating curve extended above 3,000 second-feet; minimum, 115 second-feet Nov. 15, 16, 30, Dec. 1, 1936.

Remarks.- Records good except those for periods of missing gage heights, May 29 to June 9, Aug. 19 to Sept. 11, which were computed on basis of records for station near Sauk and are poor. No diversion or regulation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1-28				Oct. 28 to Sept. 30			
2.3	125	4.5	1,760	2.2	155	4.5	1,980
2.5	195	5.0	2,400	2.5	251	5.0	2,590
3.0	465	6.0	3,970	3.0	525	6.0	4,030
3.5	815	7.0	5,780	3.5	946	7.0	5,780
4.0	1,230			4.0	1,430	8.3	8,460

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	328	678	1,330	1,650	448	569	400	2,040	1,900	1,540	389	275
2	265	562	1,180	1,330	430	670	394	1,700	1,950	1,260	356	290
3	187	576	1,110	1,130	412	569	412	1,480	2,050	1,140	330	310
4	213	492	974	993	406	518	436	1,380	2,200	1,160	335	285
5	187	460	882	872	389	518	442	1,230	2,350	1,150	340	255
6	175	448	809	791	384	506	424	1,110	2,500	1,260	330	230
7	163	544	747	721	367	473	430	1,050	2,650	1,320	310	235
8	163	4,110	678	662	350	448	506	1,170	2,450	1,380	286	215
9	163	2,510	622	614	335	436	695	1,200	1,950	1,160	277	185
10	159	1,700	784	773	335	424	687	1,200	1,480	1,030	273	180
11	159	1,430	1,330	764	325	454	646	1,270	1,600	1,070	273	200
12	155	1,380	1,140	918	315	614	622	1,650	1,920	974	260	209
13	152	1,700	1,000	1,100	305	678	598	1,760	2,040	993	264	212
14	149	2,160	1,480	1,980	305	1,030	585	1,600	1,820	1,150	273	212
15	149	1,650	1,650	1,600	291	1,010	662	1,700	1,760	1,160	260	209
16	503	1,380	1,600	1,210	282	1,060	1,050	1,760	1,820	1,110	264	212
17	668	1,230	1,760	1,010	273	809	3,790	1,650	1,650	1,020	300	216
18	405	1,060	1,600	955	269	782	6,030	1,430	1,480	918	300	206
19	323	946	1,290	836	255	695	2,980	1,430	1,540	891	285	206
20	719	1,370	1,140	755	264	598	2,040	1,760	1,980	909	275	196
21	607	1,480	1,000	791	291	525	1,650	2,220	2,590	900	275	184
22	453	1,680	900	909	282	486	1,540	2,720	2,920	845	260	184
23	393	2,100	800	800	277	506	1,540	2,990	2,780	773	240	181
24	357	1,920	764	687	291	525	1,430	3,060	2,590	670	235	220
25	306	4,000	695	622	300	532	1,430	3,130	2,160	646	245	212
26	308	2,830	695	576	325	512	1,430	3,060	1,920	622	260	190
27	1,560	3,360	875	554	378	540	1,380	2,990	1,820	606	275	184
28	4,520	3,090	3,910	547	460	591	1,480	2,760	1,920	540	265	176
29	2,180	2,100	4,190	532	-	499	1,760	2,600	1,920	492	250	178
30	1,260	1,650	3,620	499	-	448	2,040	2,450	1,820	436	235	212
31	900	-	2,220	466	-	418	-	1,850	-	406	255	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	18,229	4,520	149	588	3.87	4.46	36,160
November	50,596	4,110	448	1,687	11.1	12.38	100,400
December	42,775	4,190	622	1,380	9.08	10.47	84,840
Calendar year 1937	381,671	4,520	128	1,046	6.88	93.40	757,100
January	27,647	1,980	466	892	5.87	6.77	54,840
February	9,344	460	255	334	2.20	2.29	18,530
March	18,443	1,060	418	595	3.91	4.51	36,580
April	39,509	6,030	394	1,317	8.66	9.66	78,360
May	59,420	3,130	1,050	1,917	12.6	14.53	117,900
June	61,530	2,920	1,480	2,051	13.5	15.06	122,000
July	29,531	1,540	406	953	6.27	7.23	58,570
August	8,775	389	235	283	1.86	2.14	17,400
September	6,459	310	176	215	1.41	1.57	12,810
Water year 1937-38	372,258	6,030	149	1,020	6.71	91.07	738,400

Peak discharge.- Oct. 28 (11:30 a.m.) 7,380 sec.-ft.; Nov. 8 (12:15 p.m.) 5,590 sec.-ft.; Nov. 25 (1:30-2:30 p.m.) 5,590 sec.-ft.; Dec. 28 (3:30-4 p.m.) 4,850 sec.-ft.; Apr. 18 (4:20 a.m.) 8,240 sec.-ft.

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Sauk River near Sauk, Wash.

Location.- Water-stage recorder, lat. 48°25'15", long. 121°33'45", in NW¼ sec. 19, T. 34 N., R. 10 E., 5 miles upstream from mouth and 5 miles southeast of Sauk. Zero of gage is about 267 feet above mean sea level (river surveys of Geological Survey).

Drainage area.- 714 square miles.

Records available.- July 1928 to September 1938. August 1910 to August 1912, at various sites lying between a point 1 mile downstream and a point 5 miles upstream from present site. All early discharge measurements made at point 5 miles above present site.

Average discharge.- 10 years (1928-38), 4,186 second-feet.

Extremes.- Maximum discharge during year, 29,900 second-feet Apr. 18 (gage height, 10.78 feet); minimum, 760 second-feet Oct. 14, 15 (gage height, 2.78 feet).
1910-12, 1928-38: Maximum discharge, 68,500 second-feet Feb. 26, 1932 (gage height, 15.83 feet); minimum, 572 second-feet Dec. 5, 1929, or may have been less sometime during period Jan. 10-27, 1930, when stage-discharge relation was affected by ice.

Remarks.- Records excellent. Discharge for period of ice effect, Dec. 24-26, computed on basis of gage heights and weather records at Skagit power plant. No diversion or regulation.

Rating tables, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Dec. 27				Dec. 28 to Sept. 30					
2.7	680	5.0	4,690	3.0	1,120	5.5	6,200	10.0	25,180
3.0	1,000	5.5	6,090	3.5	1,810	6.0	7,670	11.0	31,230
3.5	1,650	6.0	7,660	4.0	2,650	7.0	11,050		
4.0	2,510	7.0	11,050	4.5	3,680	8.0	15,200		
4.5	3,530	8.0	15,200	5.0	4,880	9.0	19,980		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,400	2,610	5,080	7,060	2,380	2,650	2,000	7,210	6,770	6,340	2,300	1,660
2	1,110	2,180	4,440	5,650	2,300	3,040	1,970	5,920	7,360	5,260	2,050	1,970
3	1,020	2,210	4,200	4,880	2,220	2,650	2,020	5,130	7,360	4,760	1,860	2,020
4	967	1,950	3,750	4,260	2,220	2,380	2,130	4,880	8,140	4,630	2,030	2,000
5	890	1,830	3,420	3,910	2,130	2,380	2,110	4,500	8,960	4,630	2,110	1,510
6	846	1,780	3,220	3,570	2,110	2,380	2,030	4,140	9,990	5,000	2,070	1,480
7	802	2,000	3,010	3,250	2,030	2,220	1,990	3,910	10,700	5,520	1,910	1,510
8	813	13,600	2,710	3,040	1,950	2,130	2,220	4,260	9,990	5,650	1,700	1,240
9	824	9,210	2,510	2,940	1,890	2,080	2,840	4,380	7,060	5,000	1,690	1,180
10	824	5,640	3,460	3,800	1,860	2,020	2,740	4,380	5,520	4,380	1,750	1,200
11	813	4,560	6,090	3,800	1,830	2,070	2,560	4,630	5,650	4,380	1,800	1,280
12	813	4,200	4,560	4,260	1,810	2,740	2,560	5,780	6,920	4,140	1,600	1,360
13	791	5,360	3,860	5,130	1,750	2,840	2,470	6,340	7,670	4,140	1,660	1,400
14	802	6,710	5,160	9,990	1,740	3,800	2,380	5,650	6,620	4,880	1,750	1,450
15	802	5,220	5,790	7,670	1,690	3,680	2,650	5,780	6,480	5,000	1,660	1,450
16	1,400	4,820	5,640	5,920	1,620	3,910	3,910	6,060	6,770	4,880	1,780	1,450
17	2,520	4,440	6,090	4,880	1,580	3,250	11,800	6,060	6,200	4,760	1,950	1,480
18	1,440	3,860	5,640	4,500	1,560	3,140	23,000	5,130	5,390	4,260	1,950	1,470
19	1,190	3,530	4,440	4,020	1,510	3,140	11,000	5,000	5,650	4,140	1,810	1,440
20	2,700	6,160	3,860	3,680	1,560	2,740	7,520	6,200	7,060	4,260	1,690	1,380
21	2,810	5,790	3,530	3,800	1,780	2,470	6,060	7,670	9,990	4,380	1,720	1,320
22	1,990	6,100	3,220	4,140	1,720	2,300	5,650	9,640	11,800	4,260	1,560	1,320
23	1,750	7,980	2,910	3,680	1,660	2,380	5,780	10,700	11,800	3,910	1,440	1,250
24	1,530	7,020	2,610	3,250	1,720	2,470	5,260	11,400	11,000	3,460	1,450	1,510
25	1,310	13,200	2,510	3,040	1,810	2,470	5,130	11,800	9,300	3,250	1,570	1,360
26	1,240	9,990	2,510	2,840	1,920	2,380	5,260	11,400	8,140	3,250	1,700	1,190
27	6,200	12,700	2,740	2,840	2,130	2,470	5,000	11,400	7,210	3,250	1,810	1,180
28	16,600	12,200	16,400	2,740	2,470	2,840	5,260	10,300	7,520	3,040	1,660	1,140
29	8,280	7,980	18,000	2,740	-	2,470	6,060	9,990	7,820	2,740	1,510	1,190
30	4,440	6,090	16,700	2,560	-	2,220	7,060	8,140	7,360	2,470	1,450	1,380
31	3,220	-	9,300	2,470	-	2,080	-	6,770	-	2,300	1,520	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	72,137	16,600	791	2,327	3.26	3.76	143,100
November	180,920	13,600	1,780	6,031	8.45	9.43	358,800
December	167,360	18,000	2,510	5,399	7.56	8.72	332,000
Calendar year 1937	1,536,440	18,000	790	4,209	5.89	80.04	3,047,000
January	130,310	9,990	2,470	4,204	5.89	6.79	258,500
February	52,950	2,470	1,510	1,891	2.65	2.76	105,000
March	81,790	3,910	2,020	2,638	3.69	4.25	162,200
April	148,420	23,000	1,970	4,947	6.93	7.73	294,400
May	214,550	11,800	3,910	6,921	9.69	11.17	425,600
June	238,200	11,800	5,390	7,940	11.1	12.38	472,500
July	132,320	6,340	2,300	4,268	5.98	6.89	262,500
August	54,510	2,300	1,440	1,758	2.46	2.84	108,100
September	42,770	2,020	1,140	1,426	2.00	2.23	84,830
Water year 1937-38	1,516,237	23,000	791	4,154	5.82	78.95	3,008,000

Peak discharge.- Oct. 28 (2 p.m.) 25,700 sec.-ft.; Nov. 8 (3:30 p.m.) 21,000 sec.-ft.; Nov. 25 (4:15 p.m.) 18,000 sec.-ft.; Dec. 28 (4:30 p.m.) 22,000 sec.-ft.; Apr. 18 (6 a.m.) 29,900 sec.-ft.

Nooksack River above Cascade Creek, near Glacier, Wash.

Location.- Water-stage recorder, lat. 48°54'20", long. 121°50'50", in NW¼ sec. 1, T. 39 N., R. 7 E., a quarter of a mile upstream from Cascade Creek, 6 miles upstream from Glacier Creek and 4⅛ miles east of Glacier. Prior to Oct. 18, 1937, staff gage at same site, readings reduced to same datum.

Drainage area.- 105 square miles.

Records available.- October 1937 to September 1938.

Extremes.- Maximum discharge during year, 9,670 second-feet Oct. 28 (gage height, 10.28 feet), from rating curve extended above 1,300 second-feet; minimum discharge recorded, 85 second-feet (regulated) Mar. 30 (gage height, 2.54 feet).

Remarks.- Records good except those for period of poorly defined rating, Oct. 1-27, those for periods of missing gage heights, those above 2,000 second-feet, and those below 300 second-feet, all of which are poor. No diversion. Some regulation at low water by operation of power plant at Excelsior.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-28, Aug. 1 to Sept. 30)

2.3	73	4.0	885	e.0	5,850
2.5	135	4.5	1,300	9.0	7,450
2.7	208	5.0	1,800	10.3	9,670
3.0	333	6.0	2,980		
3.5	594	7.0	4,350		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*707	594	656	696	232	*361	224	988	1,250	1,200	748	667
2	*440	560	594	583	228	390	228	824	1,350	1,110	673	730
3	*380	650	522	505	†220	347	240	713	1,350	1,070	690	713
4	*342	505	472	451	†220	320	244	639	1,450	1,070	765	644
5	*298	478	435	415	†210	311	236	588	1,650	1,110	753	549
6	*232	430	415	385	†200	302	232	544	1,750	1,300	707	605
7	*273	435	390	366	†200	†290	232	544	1,960	1,350	696	472
8	*302	1,520	361	342	†200	†270	302	667	1,650	1,300	633	405
9	*264	885	352	33e	†190	†260	410	673	1,110	1,110	628	415
10	240	794	763	483	†178	†260	385	684	918	1,070	639	435
11	*216	713	1,500	435	†180	†280	361	713	1,110	1,300	611	478
12	*232	644	885	572	†163	†310	356	950	1,400	1,070	560	488
13	*232	639	696	644	†160	380	356	950	1,400	1,110	633	478
14	*216	560	1,160	950	†160	441	342	885	1,160	1,250	622	544
15	*236	522	950	719	†149	405	441	885	1,250	1,300	633	527
16	*1,040	684	794	594	†140	456	588	918	1,250	1,350	656	560
17	*516	696	794	505	†135	375	1,260	885	1,070	1,300	719	583
18	*320	639	696	446	†130	356	2,010	707	988	1,250	684	566
19	292	628	605	400	†132	320	1,110	854	1,160	1,250	628	560
20	1,070	†1,400	532	366	†140	289	854	1,070	1,600	1,400	633	532
21	753	†1,100	488	366	†170	264	742	1,300	2,130	1,450	583	467
22	555	†1,200	446	380	†160	252	713	†1,500	2,360	1,400	522	441
23	583	†1,200	410	333	†152	248	701	†1,800	2,180	1,160	522	430
24	467	†1,100	390	307	†160	240	678	†1,900	2,080	1,070	566	510
25	410	2,200	371	289	*181	248	724	†2,000	1,750	1,070	639	390
26	642	1,300	361	273	*197	244	794	†1,900	1,550	1,070	719	352
27	3,960	1,490	375	264	*256	239	742	†1,900	1,500	1,020	696	366
28	4,820	†1,300	1,080	260	*307	320	794	1,800	1,700	950	600	338
29	1,490	†950	1,500	244	-	268	950	1,650	1,650	885	544	395
30	895	736	1,360	232	-	244	1,070	1,350	1,450	794	516	478
31	713	-	854	236	-	232	-	1,200	-	759	600	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	23,116	4,820	216	746	7.10	8.19	45,850
November	26,552	2,200	430	885	8.43	9.40	52,670
December	21,207	1,500	352	684	6.51	7.50	42,060
Calendar year							
January	13,379	950	232	432	4.11	4.74	26,540
February	5,150	307	130	184	1.75	1.82	10,210
March	9,572	456	232	309	2.94	3.39	18,990
April	18,319	2,010	224	611	5.82	6.49	36,340
May	33,981	2,000	544	1,096	10.4	11.99	67,400
June	45,176	2,360	918	1,506	14.3	15.95	89,610
July	35,898	1,450	759	1,158	11.0	12.68	71,200
August	19,818	765	516	639	6.09	7.02	39,310
September	15,118	730	338	504	4.80	5.36	29,990
Water year 1937-38	267,286	4,820	130	732	6.97	94.53	530,200

Peak discharge.- Oct. 28 (7:45 a.m.) 9,670 sec.-ft.; Nov. 25 (1 p.m.) 3,300 sec.-ft.; Apr. 1e (12:50 a.m.) 2,980 sec.-ft.

*Discharge computed from once- or twice-daily readings of staff gage.

†Gage-height missing; discharge computed on basis of occasional staff-gage readings and records for station near Glacier.

Nooksack River near Glacier, Wash.

Location.- Water-stage recorder, lat. 48°54'30", long. 121°59'30", in NE¼ sec. 2, T. 39 N., R. 6 E., 600 feet downstream from Canyon Creek and 2½ miles northwest of Glacier.

Drainage area.- 195 square miles.

Records available.- February 1934 to September 1938 (discontinued); September 1910 to September 1911 (fragmentary), at practically same site.

Extremes.- 1936-37: Maximum discharge during year 6,150 second-feet June 21 (gage height, 6.0 feet); minimum, 186 second-feet (revised) Feb. 14, 15.
1937-38: Maximum discharge during year 9,400 second-feet Oct. 28 (gage height, 7.74 feet), from rating curve extended above 6,000 second-feet; minimum, 248 second-feet Feb. 20.
1910-11, 1934-38: Maximum discharge, that of Oct. 28, 1937; minimum, 130 second-feet Oct. 17, 1934.

Remarks.- Records fair except those for period of ice effect, Jan. 7 to Feb. 4, 1937, which were computed on basis of gage heights, weather records, and records for South Fork near Wickersham and are poor. Water diverted for Excelsior power plant of Puget Sound Power & Light Co. returned to river above gage. Regulation due to operation of plant produces only slight effect at gage. Records for water year 1936-37 supersede those published in Water-Supply Paper 832.

Discharge, in second-feet, 1936-38

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	467	240	240	471	200	375	683	773	2,690	2,840	618	722
2	455	234	240	463	210	569	629	1,180	3,410	2,360	637	688
3	458	240	222	455	210	603	578	2,040	3,070	2,210	780	706
4	674	240	216	455	220	647	603	2,450	2,450	2,440	885	652
5	447	240	216	415	216	980	620	1,730	2,520	2,140	936	730
6	447	234	1,790	319	210	1,150	594	1,500	2,750	1,780	918	630
7	519	228	1,560	270	204	890	560	1,430	3,070	1,780	794	614
8	511	222	910	270	198	764	560	1,550	3,240	1,990	709	648
9	503	222	701	260	198	773	586	1,790	2,990	1,920	675	650
10	560	222	544	260	192	800	665	1,670	3,240	1,850	1,020	578
11	535	272	535	260	216	773	656	1,500	3,070	1,920	1,480	646
12	463	260	574	250	216	800	656	1,380	2,600	1,920	1,190	698
13	815	240	1,310	250	192	930	1,180	1,610	2,520	1,850	1,430	685
14	1,390	240	1,000	250	186	940	1,810	2,240	2,680	1,650	918	904
15	871	246	810	240	204	880	1,700	1,910	2,680	1,650	577	904
16	728	288	692	230	228	791	1,250	1,790	2,750	1,850	548	746
17	674	651	764	220	246	737	1,020	1,670	2,830	1,990	666	866
18	612	375	1,340	220	228	692	1,000	1,670	3,240	1,850	732	857
19	511	535	1,310	220	216	638	840	1,670	3,240	1,650	684	739
20	451	471	1,140	220	216	594	990	1,500	3,760	1,420	664	632
21	375	423	1,540	220	381	560	1,020	1,550	5,410	1,330	640	489
22	361	391	2,880	220	447	535	880	1,790	4,430	1,210	1,360	388
23	368	361	1,810	210	439	519	840	1,550	3,660	1,320	981	340
24	354	333	1,310	210	423	495	800	1,790	2,840	1,450	657	300
25	319	305	1,030	210	407	487	980	2,170	2,280	1,530	746	383
26	298	279	880	210	391	495	980	1,980	2,360	1,430	646	581
27	286	272	791	200	368	495	960	1,910	2,760	1,330	501	514
28	292	260	701	200	354	487	880	1,910	3,400	1,290	432	399
29	279	246	620	200	-	479	810	1,670	3,660	1,110	388	360
30	272	240	569	200	-	503	755	1,610	3,000	918	513	816
31	266	-	511	200	-	638	-	1,910	-	695	574	-

Discharge, in second-feet, of Nooksack River near Glacier, Wash., 1936-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	862	867	1,300	1,480	427	644	404	1,570	1,880	1,980	956	876
2	552	837	1,150	1,250	413	664	395	1,300	1,980	1,880	884	998
3	484	913	1,020	1,100	409	576	409	1,120	2,040	1,770	876	932
4	438	816	916	980	409	530	427	980	2,200	1,770	1,010	804
5	376	795	836	876	374	502	413	884	2,450	1,820	1,010	544
6	349	785	780	788	357	486	395	804	2,630	2,100	924	698
7	371	794	719	733	357	466	395	788	2,960	2,150	908	576
8	409	2,350	651	684	357	441	486	1,060	2,510	2,040	795	496
9	394	1,440	619	657	345	427	698	1,040	1,620	1,770	780	502
10	385	1,300	1,360	1,180	338	413	644	1,030	1,300	1,660	788	546
11	376	1,160	2,150	956	338	451	594	1,120	1,600	2,040	733	588
12	409	1,080	1,520	1,280	326	496	570	1,600	2,150	1,620	677	588
13	433	1,060	1,200	1,470	315	636	546	1,620	2,100	1,770	788	576
14	399	1,050	2,020	2,200	312	796	535	1,380	1,820	1,980	780	657
15	448	978	1,720	1,670	301	705	689	1,380	1,880	2,040	804	632
16	1,440	1,160	1,520	1,340	290	772	1,020	1,480	1,880	2,040	844	684
17	878	1,200	1,620	1,120	287	638	2,400	1,380	1,520	1,980	932	764
18	543	1,130	1,380	980	284	619	3,600	1,160	1,340	1,880	884	733
19	588	1,180	1,160	852	280	564	2,040	1,340	1,710	1,880	796	698
20	2,080	2,490	1,030	780	316	513	1,520	1,720	2,400	2,100	780	677
21	1,510	2,020	940	748	353	476	1,250	2,200	3,160	2,200	719	588
22	1,080	2,240	852	756	326	451	1,200	2,570	3,520	2,150	625	558
23	1,100	2,220	748	657	319	456	1,160	2,890	3,440	1,770	612	540
24	882	1,970	733	612	326	446	1,100	3,020	3,300	1,670	670	638
25	740	2,820	670	570	357	451	1,150	3,090	2,820	1,670	812	513
26	1,030	2,270	657	540	391	451	1,250	2,960	2,510	1,620	900	461
27	4,100	3,030	731	524	450	541	1,130	2,890	2,390	1,560	884	476
28	6,010	2,620	2,590	513	564	600	1,250	2,700	2,700	1,400	733	456
29	1,860	1,920	3,300	476	--	496	1,570	2,450	2,700	1,200	657	486
30	1,180	1,500	2,910	446	--	456	1,720	2,040	2,390	1,050	657	625
31	958	--	1,880	441	--	432	--	1,770	--	988	748	--

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October 1936	15,561	1,390	266	502	2.57	2.96	30,860
November	9,010	651	222	300	1.54	1.72	17,870
December	28,756	2,880	216	928	4.76	5.49	57,040
Calendar year 1936	362,617	3,620	140	991	5.08	69.09	719,200
January 1937	8,278	471	200	267	1.37	1.58	16,420
February	7,416	447	186	265	1.36	1.42	14,710
March	21,019	1,150	375	678	3.48	4.01	41,690
April	25,085	1,810	560	870	4.46	4.98	51,740
May	52,893	2,450	773	1,706	8.75	10.09	104,900
June	92,600	5,410	2,280	3,087	15.8	17.63	183,700
July	52,673	2,840	695	1,699	8.71	10.04	104,500
August	24,299	1,480	388	784	4.02	4.64	48,200
September	18,865	904	300	629	3.23	3.60	37,420
Water year 1936-37	357,455	5,410	186	979	5.02	68.16	709,000
October 1937	32,664	6,010	349	1,054	5.41	6.24	64,790
November	46,095	3,030	785	1,536	7.88	8.79	91,430
December	40,682	3,300	619	1,312	6.73	7.76	80,690
Calendar year 1937	423,569	6,010	186	1,160	5.95	80.78	840,200
January 1938	28,659	2,200	441	924	4.74	5.46	56,840
February	9,921	564	280	354	1.82	1.90	19,680
March	16,595	796	413	535	2.74	3.16	32,920
April	30,960	3,600	395	1,032	5.29	5.90	61,410
May	53,336	3,090	788	1,721	8.83	10.18	105,800
June	68,900	3,520	1,300	2,297	11.8	13.17	136,700
July	55,549	2,200	989	1,792	9.19	10.60	110,200
August	24,967	1,010	612	805	4.13	4.76	49,520
September	19,010	998	456	634	3.25	3.63	37,710
Water year 1937-38	427,338	6,010	280	1,171	6.01	81.55	847,700

Nooksack River at Deming, Wash.

Location.- Water-stage recorder, lat. 48°48'35", long. 122°12'15", in lot 12, sec. 6, T. 38 N., R. 5 E., 800 feet downstream from the South Fork and 1 mile southeast of Deming. Zero of gage is 203.6 feet above mean sea level (general adjustment of 1929).

Drainage area.- 580 square miles.

Records available.- July 1935 to September 1938. September to December 1910 (gage heights only) at site 1-1/8 miles downstream. December 1910 to March 1911 (gage heights only) at Nugents' bridge, 4 miles downstream from Deming.

Extremes.- Maximum discharge during year, 33,200 second-feet Oct. 28 (gage height, 13.21 feet), from rating curve extended above 11,000 second-feet logarithmically and by velocity-area studies; minimum, 782 second-feet Oct. 11.

1935-38: Maximum discharge, that of Oct. 28, 1938; minimum, 560 second-feet Nov. 9, 10, 1936, or may have been less sometime during periods of ice effect in February 1936 and January 1937.

Remarks.- Records good except those above 10,000 second-feet, which are fair. No diversions. Slight regulation at power plant at Excelsior has little if any effect at this station.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 27						Nov. 27 to Sept. 30			
3.9	745	6.5	4,870	11.0	20,900	3.5	850	6.5	5,370
4.2	975	7.0	6,210	12.0	26,000	4.0	1,360	7.0	6,840
4.5	1,260	7.5	7,650	13.3	33,800	4.5	1,980	8.0	10,000
5.0	1,910	8.0	9,260			5.0	2,660	9.0	13,400
5.5	2,700	9.0	12,900			5.5	3,360	10.0	17,000
6.0	3,700	10.0	16,800			6.0	4,180		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,430	2,980	4,500	5,500	1,780	2,450	1,660	3,990	3,360	2,870	1,520	1,420
2	1,340	2,700	3,990	4,390	1,850	2,590	1,600	3,440	3,660	2,660	1,400	1,660
3	1,100	3,270	3,660	3,660	1,850	2,240	1,660	3,080	3,580	2,590	1,300	1,660
4	1,030	2,700	3,360	3,360	2,040	1,980	1,850	2,870	3,820	2,520	1,520	1,440
5	924	2,530	3,150	3,080	1,850	1,920	1,850	2,660	4,080	2,450	1,530	1,140
6	850	2,370	2,940	2,870	1,780	1,850	1,660	2,520	4,280	2,730	1,470	1,230
7	826	2,960	2,800	2,660	1,660	1,720	1,600	2,450	4,620	2,870	1,400	1,160
8	866	11,800	2,590	2,520	1,600	1,600	1,980	3,070	4,320	2,800	1,270	931
9	850	6,420	2,450	2,450	1,500	1,590	2,520	3,150	3,150	2,520	1,240	895
10	818	4,380	3,900	4,250	1,520	1,540	2,310	2,940	2,660	2,310	1,250	960
11	802	3,810	6,380	3,510	1,430	1,590	2,110	3,360	2,940	2,730	1,200	1,070
12	810	3,590	4,620	4,380	1,410	1,920	1,980	4,860	3,510	2,380	1,100	1,090
13	834	5,930	3,580	5,500	1,350	2,390	1,920	4,280	3,580	2,380	1,230	1,060
14	810	4,150	6,320	10,200	1,290	2,940	1,850	3,580	3,080	2,660	1,290	1,210
15	810	3,170	5,640	6,380	1,230	2,800	2,470	3,510	3,080	2,730	1,260	1,210
16	2,500	5,060	5,640	4,620	1,170	2,800	4,620	3,580	3,150	2,730	1,340	1,270
17	2,230	5,260	6,230	3,820	1,140	2,380	9,030	3,360	2,940	2,660	1,500	1,400
18	1,410	4,620	4,980	3,510	1,130	2,450	14,800	2,940	2,660	2,520	1,500	1,400
19	1,180	4,870	3,900	3,150	1,110	2,380	6,840	3,150	2,870	2,590	1,400	1,320
20	4,670	12,100	3,510	3,010	1,450	2,110	4,740	3,820	3,440	2,730	1,300	1,290
21	4,040	9,880	3,220	3,150	1,920	1,920	3,900	4,500	4,500	2,940	1,260	1,160
22	2,370	8,600	3,010	3,080	1,660	1,780	3,660	5,240	5,110	2,870	1,100	1,100
23	2,140	8,930	2,660	2,800	1,550	1,980	3,660	5,640	4,860	2,520	1,080	1,060
24	1,910	8,280	2,590	2,590	1,600	1,980	3,440	5,930	4,620	2,310	1,140	1,220
25	1,590	13,700	2,450	2,380	1,720	2,040	3,440	5,930	3,990	2,310	1,340	1,020
26	1,590	8,220	2,590	2,240	1,850	1,980	3,580	5,640	3,510	2,240	1,480	904
27	7,300	14,500	2,640	2,180	2,040	2,140	3,290	5,370	3,290	2,180	1,480	931
28	21,600	12,400	13,700	2,240	2,310	2,590	3,360	4,980	3,580	2,040	1,320	904
29	8,140	7,460	17,000	2,180	-	2,110	3,900	4,390	3,660	1,920	1,150	931
30	4,740	5,500	14,600	1,980	-	1,920	4,280	3,740	3,290	1,660	1,230	1,240
31	3,700	-	7,620	1,850	-	1,720	-	3,360	-	1,550	1,240	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	86,210	21,600	802	2,781	4.79	5.52	171,000
November	192,140	14,500	2,370	6,405	11.0	12.27	381,100
December	158,220	17,000	2,450	5,039	8.69	10.02	309,900
Calendar year 1937	1,279,310	21,600	674	3,505	6.04	82.00	2,538,000
January	109,490	10,200	1,850	3,532	6.09	7.02	217,200
February	44,790	2,310	1,110	1,600	2.76	2.87	88,840
March	65,400	2,940	1,540	2,110	3.64	4.20	129,700
April	105,560	14,800	1,600	3,519	6.07	6.77	209,400
May	121,330	5,930	2,450	3,914	6.75	7.78	240,700
June	109,190	5,110	2,660	3,640	6.28	7.01	216,600
July	76,970	2,940	1,550	2,483	4.28	4.93	152,700
August	40,840	1,530	1,080	1,317	2.27	2.62	81,000
September	35,286	1,660	895	1,176	2.03	2.26	69,990
Water year 1937-38	1,143,426	21,600	802	3,133	5.40	73.27	2,268,000

Peak discharge.- Oct. 28 (1 p.m.) 33,200 sec.-ft.; Nov. 25 (2:30 p.m.) 19,700 sec.-ft.; Nov. 27 (6:30 p.m.) 22,800 sec.-ft.; Dec. 28 (4:30 p.m.) 18,200 sec.-ft.; Dec. 30 (1 a.m.) 20,600 sec.ft.; Apr. 18 (4:40 a.m.) 20,600 sec.-ft.

South Fork of Nooksack River near Wickersham, Wash.

Location.- Water-stage recorder, lat. 48°39'50", long. 122°07'50", in lot 2, sec. 26, T. 37 N., R. 5 E., three-quarters of a mile upstream from Skookum Creek and 4 miles east of Wickersham.

Drainage area.- 103 square miles.

Records available.- May 1934 to September 1938.

Extremes.- Maximum discharge during year, 12,900 second-feet Oct. 28 (gage height, 10.70 feet); minimum, 72 second-feet Sept. 28, 29 (gage height, 2.15 feet).
1934-38: Maximum discharge, that of Oct. 28, 1937; minimum, that of Sept. 28, 29, 1938.

Remarks.- Records good. No diversion or regulation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 23 to Sept. 30)

2.0	51	4.0	915	7.0	4,910
2.2	74	4.5	1,350	8.0	6,760
2.5	146	5.0	1,870	9.0	8,810
3.0	330	5.5	2,480	10.0	11,100
3.5	570	6.0	3,200	11.0	13,700

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	541	505	851	1,260	429	672	375	987	671	310	112	82
2	254	475	739	955	452	775	375	760	681	286	115	84
3	213	570	678	790	447	576	434	666	671	270	107	84
4	192	438	606	697	495	505	505	636	722	253	103	84
5	156	485	554	624	442	495	490	612	780	246	103	84
6	140	456	515	564	452	475	429	588	813	250	100	104
7	129	867	485	515	380	434	416	559	828	266	103	132
8	117	3,460	447	490	352	406	554	851	646	254	105	103
9	112	1,690	429	470	326	416	704	768	442	220	103	95
10	107	1,130	1,020	1,320	330	393	594	704	398	217	98	91
11	103	939	1,550	872	318	420	520	1,090	521	290	98	89
12	100	1,100	1,020	1,160	302	582	495	1,650	618	217	95	87
13	98	2,030	760	1,590	294	822	485	1,120	561	206	107	85
14	95	1,150	1,730	3,260	286	1,000	456	875	442	217	129	84
15	98	939	1,350	1,520	270	851	880	883	465	235	110	82
16	684	1,610	1,550	1,050	254	867	2,040	891	500	230	103	82
17	436	1,350	1,780	843	246	648	3,570	798	429	217	112	80
18	306	1,130	1,220	805	246	770	4,270	648	393	199	129	82
19	254	1,330	883	718	243	672	1,550	806	416	188	140	82
20	1,510	3,770	718	642	380	542	1,170	1,020	503	182	115	82
21	967	1,840	624	798	475	470	963	1,150	653	182	107	82
22	452	1,880	554	739	406	434	899	1,260	665	172	103	78
23	388	2,220	480	624	370	505	899	1,260	600	159	95	76
24	384	2,160	475	526	398	532	859	1,260	526	146	89	80
25	310	4,520	438	475	434	520	891	1,260	456	140	87	89
26	290	2,110	460	452	465	495	939	1,120	416	137	87	82
27	2,760	4,480	627	434	520	550	805	1,070	380	137	87	78
28	6,350	2,660	4,550	456	618	660	915	992	398	132	85	74
29	1,630	1,450	6,060	480	-	500	1,120	851	402	126	84	72
30	878	1,060	3,880	429	-	434	1,110	654	352	120	84	102
31	630	-	1,760	406	-	398	-	564	-	117	82	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	20,685	6,350	95	667	6.48	7.47	41,030
November	49,804	4,520	438	1,660	16.1	17.96	98,780
December	38,793	6,060	429	1,251	12.1	13.95	76,940
Calendar year 1937	287,749	6,350	87	788	7.65	103.78	570,700
January	25,964	3,260	406	838	8.14	9.38	51,500
February	10,630	618	243	380	3.69	3.84	21,080
March	17,819	1,000	393	575	5.58	6.43	35,340
April	29,812	4,270	375	994	9.65	10.77	59,130
May	28,353	1,650	559	915	8.88	10.24	56,240
June	16,348	828	352	545	5.29	5.90	32,430
July	6,326	310	117	204	1.98	2.28	12,550
August	3,177	140	82	102	.990	1.14	6,300
September	2,591	132	72	86.4	.839	.94	5,140
Water year 1937-38	250,301	6,350	72	686	6.66	90.30	496,500

Peak discharge.- Oct. 28 (9:15 a.m.) 12,900 sec.-ft.; Nov. 8 (7:55 a.m.) 7,970 sec.-ft.; Nov. 25 (11:55 a.m.) 7,970 sec.-ft.; Nov. 27 (4 p.m.) 7,160 sec.-ft.; Dec. 29 (9:40 p.m.) 7,760 sec.-ft.; Apr. 18 (12:30-1:30 a.m.) 6,960 sec.-ft.

COLUMBIA RIVER MAIN STEM

Columbia River at Birchbank, British Columbia
(Formerly published as Columbia River at Trail, British Columbia)

(International gaging station)

Location.- Water-stage recorder, lat. 49°10', long. 117°43', at Birchbank, 7 miles upstream from Trail, 11 miles downstream from Kootenai River, and 17 miles upstream from international boundary. Zero of gage is 1,338.01 feet above sea level (from levels by Geodetic Survey of Canada in 1930). Prior to October 1937 cable gage at site at Trail, 7 miles downstream.
Drainage area.- 34,000 square miles.
Records available.- April 1913 to September 1937 (at site at Trail) and October 1937 to September 1938.
Average discharge.- 25 years, 70,960 second-feet.
Extremes.- Maximum discharge during year, 260,000 second-feet June 27 (gage height, 40.00 feet); minimum, 15,100 second-feet Mar. 9 (gage height, 5.18 feet).
1913-38: Maximum discharge observed, 312,000 second-feet June 14, 1948 (gage height, 41.6 feet, Trail gage); minimum observed, 8,940 second-feet Feb. 3, 1937 (gage height, 6.27 feet, Trail gage).
Remarks.- Records excellent. Discharge for period of missing gage heights, Oct. 2-26, Mar. 2, computed on basis of records at site at Trail. Small amount of water diverted above station for irrigation. Some fluctuation at low water caused by operation of power plant on Kootenai River. Natural storage in numerous lakes affects flow. This is one of the international gaging stations maintained by Canada under agreement with the United States.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

5.0	14,400	12.0	45,400	24.0	115,000
6.0	18,400	15.0	60,600	28.0	146,000
8.0	27,000	18.0	76,800	32.0	181,000
10.0	35,900	22.0	101,000	40.0	260,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43,600	39,800	33,700	21,100	19,700	16,200	20,600	72,600	227,000	246,000	118,000	59,100
2	41,700	42,600	35,500	20,800	19,400	16,100	19,800	76,900	229,000	241,000	114,000	59,600
3	40,200	47,200	33,000	20,800	19,400	16,400	19,900	80,300	230,000	235,000	110,000	60,600
4	38,500	47,900	32,500	20,600	18,800	16,200	19,700	83,600	229,000	228,000	106,000	61,500
5	37,400	49,200	31,800	20,400	17,500	15,700	21,300	86,100	230,000	221,000	102,000	63,200
6	36,200	50,600	30,900	20,900	16,600	16,000	21,600	88,300	230,000	214,000	98,400	63,800
7	34,800	50,000	30,100	20,500	16,100	15,700	21,100	89,700	230,000	208,000	95,400	65,000
8	33,900	50,300	30,000	20,800	16,100	16,000	22,600	90,500	232,000	204,000	92,000	66,400
9	33,100	49,200	29,600	23,300	17,400	15,900	22,800	90,900	229,000	202,000	89,200	66,900
10	32,100	49,600	29,200	23,500	17,800	16,000	23,300	91,000	227,000	198,000	86,300	66,500
11	31,100	50,400	28,000	23,300	17,700	16,200	24,400	91,500	226,000	194,000	83,600	65,600
12	30,200	50,400	26,500	23,700	17,300	16,600	24,900	91,900	221,000	190,000	81,000	63,800
13	29,600	49,400	26,300	23,100	17,100	16,600	25,900	93,100	219,000	184,000	78,600	62,100
14	29,200	49,600	27,000	23,400	17,400	17,000	27,100	94,000	218,000	178,000	76,600	60,500
15	28,600	49,800	30,500	23,800	17,600	16,700	28,000	95,900	217,000	172,000	74,100	58,700
16	27,900	48,800	30,400	23,600	17,400	17,400	29,600	97,600	218,000	167,000	72,900	57,500
17	27,700	48,100	30,300	24,100	17,200	17,800	31,900	99,400	220,000	163,000	70,500	57,100
18	27,600	46,200	30,100	23,400	16,900	17,800	36,000	100,000	220,000	159,000	70,300	55,000
19	27,000	45,300	27,600	22,900	17,000	18,000	39,400	101,000	220,000	157,000	68,700	56,400
20	27,000	43,500	26,400	21,500	16,700	18,000	43,800	103,000	222,000	154,000	68,100	55,600
21	27,000	41,400	26,700	21,700	16,900	18,000	47,800	105,000	226,000	151,000	67,500	55,500
22	27,100	39,400	25,500	21,700	17,000	18,400	51,000	109,000	232,000	149,000	67,100	52,900
23	27,000	38,000	24,100	21,200	16,700	18,800	54,100	115,000	238,000	146,000	66,900	53,200
24	26,800	34,600	23,200	20,300	16,400	19,000	55,400	126,000	245,000	144,000	65,900	53,700
25	26,700	32,800	22,400	19,900	16,300	19,100	57,400	139,000	252,000	142,000	64,800	53,800
26	26,800	33,100	21,400	20,200	16,500	18,900	59,300	154,000	257,000	138,000	63,600	54,100
27	27,600	32,600	21,300	20,100	16,400	18,600	61,200	171,000	259,000	135,000	62,300	54,400
28	27,800	33,900	21,200	19,800	16,300	19,900	63,200	188,000	259,000	131,000	62,400	54,400
29	29,200	33,900	21,100	20,000	-	21,500	65,900	203,000	256,000	127,000	59,000	53,400
30	31,700	32,000	21,900	19,800	-	19,900	69,400	215,000	252,000	124,000	59,100	52,700
31	34,900	-	21,400	19,600	-	20,200	-	223,000	-	121,000	59,600	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	970,000	43,600	26,700	31,300	0.92	1.06	1,920,000
November	1,309,600	50,600	32,000	43,700	1.29	1.44	2,600,000
December	849,600	35,500	21,100	27,400	.81	.93	1,680,000
Calendar year 1937	20,348,620	183,000	8,940	55,700	1.64	22.26	40,400,000
January	669,800	24,100	19,600	21,600	.64	.74	1,330,000
February	483,600	19,700	16,100	17,300	.51	.53	959,000
March	544,600	21,500	15,700	17,600	.52	.60	1,080,000
April	1,108,400	69,400	19,700	36,900	1.09	1.22	2,200,000
May	3,565,300	223,000	72,600	115,000	3.38	3.90	7,070,000
June	6,970,000	259,000	217,000	232,000	6.82	7.61	13,800,000
July	5,423,000	246,000	121,000	175,000	5.15	5.94	10,800,000
August	2,453,900	118,000	59,000	79,200	2.33	2.69	4,870,000
September	1,763,000	66,900	52,700	58,800	1.73	1.93	3,500,000
Water year 1937-38	26,110,800	259,000	15,700	71,500	2.10	28.59	51,800,000

Columbia River at Kettle Falls, Wash.

Location.- Water-stage recorder, lat. 48°37'20", long. 118°07'00", in northwest corner lot 1, sec. 14, T. 36 N., R. 37 E., 3½ miles upstream from Colville River, at village of Kettle Falls. Zero of gage is at mean sea level (subject to correction for general adjustment of 1929).

Drainage area.- 64,500 square miles.

Records available.- April 1913 to September 1938.

Average discharge.- 25 years, 99,650 second-feet.

Extremes.- Maximum discharge during year, 345,000 second-feet June 8 (elevation, 1,193.7 feet); minimum, 26,700 second-feet Feb. 16 (elevation, 1,167.84 feet).

1913-38: Maximum discharge, 468,000 second-feet June 14, 15, 1913 (gage height, 34.2 feet, from floodmarks, referred to U. S. Weather Bureau gage at Marcus); minimum, 13,000 second-feet (estimated because of ice effect) Jan. 18-21, 1930, Jan. 31, 1937.

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

Remarks.- Records excellent. Many diversions above station for irrigation, but quantity diverted is very small in proportion to flow past station. Slight fluctuation at extreme low water caused by operation of power plant on Kootenai River. Some regulation due to natural storage in numerous lakes above station.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1,167.0	22,900	1,171.0	45,300	1,175.0	75,100	1,182.0	148,000
1,168.0	27,500	1,172.0	52,000	1,176.0	83,600	1,185.0	189,000
1,169.0	32,300	1,173.0	59,200	1,178.0	103,000	1,186.0	235,000
1,170.0	38,800	1,174.0	66,900	1,180.0	125,000	1,194.0	352,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52,000	46,900	46,100	36,100	30,100	27,700	42,300	149,000	328,000	327,000	144,000	†70,500
2	51,000	50,700	48,900	35,900	29,400	28,000	41,900	155,000	333,000	320,000	140,000	†70,500
3	49,300	54,000	47,900	35,800	31,000	28,100	41,600	157,000	336,000	312,000	136,000	†71,000
4	47,900	56,600	45,300	*35,400	32,100	28,300	41,600	159,000	338,000	304,000	131,000	†72,000
5	46,700	57,200	44,800	*35,000	31,800	27,800	43,700	161,000	340,000	294,000	126,000	†73,000
6	45,600	58,900	43,900	*34,600	30,700	27,800	45,600	162,000	341,000	286,000	121,000	†74,000
7	44,300	58,800	42,400	*34,200	29,800	27,800	46,100	163,000	343,000	277,000	117,000	†75,500
8	43,400	58,800	41,600	33,800	29,200	28,100	47,300	165,000	344,000	269,000	113,000	†77,000
9	42,400	58,700	41,400	35,500	29,100	28,100	49,300	166,000	342,000	262,000	109,000	†78,000
10	41,400	58,300	41,100	36,600	30,200	28,700	50,900	166,000	339,000	256,000	105,000	†78,500
11	40,600	59,800	39,900	36,300	30,400	28,800	52,100	166,000	*333,000	250,000	101,000	†78,500
12	39,600	61,100	36,400	36,200	30,000	29,600	54,400	167,000	327,000	243,000	97,700	†76,500
13	38,200	60,400	34,800	36,200	29,400	30,300	56,200	169,000	326,000	236,000	94,300	†75,000
14	38,000	60,500	36,700	36,000	29,800	32,000	58,400	172,000	323,000	228,000	91,900	†73,500
15	37,100	61,800	41,400	37,400	28,000	33,600	60,800	174,000	320,000	220,000	89,500	†72,000
16	36,700	61,000	42,700	38,400	26,900	35,400	63,400	175,000	318,000	213,000	87,200	†70,500
17	36,700	60,400	42,600	39,400	27,400	36,600	69,800	177,000	318,000	207,000	†85,000	†70,000
18	36,400	59,000	43,500	39,500	28,000	38,900	79,500	178,000	317,000	202,000	†83,000	†68,500
19	35,600	57,800	41,400	39,300	28,600	39,300	88,400	178,000	316,000	198,000	†82,000	†68,500
20	35,400	56,600	39,100	38,300	28,600	38,900	91,400	180,000	314,000	193,000	†81,000	†68,500
21	35,500	54,000	38,700	37,600	28,600	39,100	96,400	185,000	317,000	189,000	†79,500	†68,000
22	35,300	51,900	38,500	37,800	28,600	39,500	103,000	191,000	320,000	186,000	†79,000	†67,000
23	35,400	50,500	37,000	37,300	28,400	40,400	108,000	200,000	325,000	182,000	†78,500	†66,000
24	35,500	48,600	35,800	36,100	28,200	40,700	113,000	214,000	330,000	178,000	†78,000	†66,000
25	35,300	45,800	34,700	35,200	27,800	40,800	117,000	230,000	336,000	175,000	†77,000	†66,000
26	35,000	46,600	33,300	35,000	27,700	40,900	121,000	248,000	342,000	170,000	†76,000	†66,000
27	35,300	45,900	32,700	35,100	27,700	40,600	126,000	265,000	343,000	166,000	†74,500	†66,000
28	35,500	46,800	32,700	35,100	27,600	40,700	129,000	282,000	342,000	161,000	†74,000	66,500
29	37,000	48,200	33,200	35,200	-	43,000	133,000	298,000	338,000	156,000	†71,000	65,500
30	38,800	46,000	35,000	34,500	-	42,900	141,000	316,000	333,000	152,000	†70,500	65,000
31	41,900	-	36,600	32,600	-	41,300	-	324,000	-	148,000	†71,000	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	1,238,800	52,000	35,000	39,960	0.620	0.71	2,457,000
November	1,641,600	61,800	45,800	54,720	.848	.95	3,256,000
December	1,230,100	48,900	32,700	39,680	.615	.71	2,440,000
Calendar year 1937	28,122,100	256,000	13,000	77,050	1.19	16.23	55,770,000
January	1,121,400	39,500	32,600	36,170	.561	.65	2,224,000
February	815,100	32,100	26,900	29,110	.451	.47	1,617,000
March	1,075,700	43,000	27,700	34,700	.538	.62	2,134,000
April	2,312,100	141,000	41,600	77,070	1.19	1.33	4,586,000
May	6,092,000	324,000	149,000	196,500	3.05	3.52	12,080,000
June	9,922,000	344,000	314,000	330,700	5.13	5.72	19,680,000
July	6,960,000	327,000	148,000	224,500	3.48	4.01	13,800,000
August	2,963,000	144,000	70,500	95,600	1.48	1.71	5,878,000
September	2,123,500	78,500	65,000	70,780	1.10	1.23	4,212,000
Water year 1937-38	37,495,900	344,000	26,900	102,700	1.59	21.63	74,360,000

*Discharge interpolated.
†Gage-height record faulty; discharge computed on basis of records for related stations.

Columbia River at Grand Coulee, Wash.

Location.- Water-stage recorder, lat. 47°58'00", long. 118°58'45", opposite lot 4, sec. 36, T. 29 N., R. 30 E., in pier 3 of highway bridge at Grand Coulee, 2,500 feet downstream from Grand Coulee Dam, 14 miles upstream from Nespelem River. Zero of gage is at mean sea level (subject to correction for general adjustment of 1929).
Drainage area.- 74,100 square miles.
Records available.- June to December 1923, June 1928 to September 1938 (complete). April 1913 to June 1923 and January 1924 to May 1928 (monthly discharge only).
Average discharge.- 25 years, 108,200 second-feet.
Extremes.- Maximum discharge during year, 364,000 second-feet June 8 (elevation, 972.80 feet); minimum, 34,000 second-feet Feb. 26 (elevation, 936.64 feet).
1913-38: Maximum discharge, 492,000 second-feet June 15, 1913 (computed on basis of records of peak discharge at other gaging stations); minimum may have been less than 15,500 second-feet (estimated) in January or February 1937, when stage-discharge relation was affected by ice.
Maximum discharge during flood of June 1894, 725,000 second-feet (estimated).
Remarks.- Records excellent. Diversions for irrigation above station are small in proportion to flow past gage. Some diurnal fluctuation caused by operation of power plants on Spokane River. Some regulation due to natural storage in many lakes above gage.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

936.0	31,150	941.0	56,700	950.0	120,000	961.0	218,000
937.0	35,700	942.0	62,200	952.0	136,000	964.0	250,000
938.0	40,700	944.0	74,500	954.0	153,000	967.0	287,000
939.0	45,700	946.0	88,200	956.0	171,000	970.0	326,000
940.0	51,200	948.0	104,000	958.0	189,000	973.0	367,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55,400	43,800	51,800	51,000	41,600	35,000	58,000	178,000	349,000	*338,000	152,000	73,200
2	53,800	49,700	50,500	49,500	39,700	36,700	58,600	186,000	351,000	*332,000	149,000	73,000
3	52,200	53,400	53,300	47,900	39,600	40,300	57,800	191,000	356,000	*325,000	144,000	72,900
4	49,800	56,700	52,600	47,400	40,400	45,900	57,400	192,000	359,000	*318,000	140,000	73,200
5	49,700	58,800	50,100	47,300	41,000	41,300	57,600	193,000	360,000	*310,000	135,000	72,800
6	48,400	59,600	49,300	44,800	40,500	41,600	59,100	193,000	362,000	300,000	130,000	72,700
7	47,100	60,600	48,800	43,900	39,000	40,800	60,800	194,000	361,000	291,000	125,000	77,100
8	45,900	59,200	46,900	44,200	38,000	40,800	61,800	194,000	362,000	282,000	120,000	78,600
9	45,000	60,400	45,600	41,400	35,800	40,400	63,500	195,000	362,000	274,000	116,000	79,500
10	44,000	60,400	45,500	43,100	35,100	40,600	65,800	193,000	358,000	268,000	112,000	80,800
11	42,200	60,600	45,400	44,000	35,800	41,500	68,100	194,000	354,000	260,000	108,000	80,200
12	42,500	61,600	44,000	42,400	37,400	42,300	70,300	191,000	348,000	255,000	104,000	78,500
13	41,600	63,400	41,400	41,800	38,400	43,700	73,300	193,000	341,000	248,000	101,000	79,200
14	40,000	63,000	43,200	42,600	37,500	45,600	75,900	195,000	336,000	240,000	97,000	76,300
15	40,000	62,000	44,800	45,500	37,600	50,400	79,100	197,000	334,000	232,000	93,100	75,900
16	39,600	64,400	50,100	47,700	36,100	53,100	82,500	199,000	331,000	225,000	91,400	74,600
17	39,000	63,700	50,500	53,300	34,800	57,400	85,300	201,000	329,000	218,000	89,400	73,200
18	37,800	62,600	50,100	55,900	35,100	62,800	94,000	203,000	329,000	212,000	88,100	71,100
19	38,400	60,800	52,200	53,300	35,600	62,300	116,000	202,000	329,000	208,000	87,100	68,900
20	38,600	59,600	50,900	51,500	35,900	62,600	126,000	202,000	325,000	204,000	85,300	71,900
21	38,500	58,500	48,800	50,200	35,600	60,900	133,000	204,000	327,000	198,000	83,900	71,000
22	39,000	55,700	47,900	50,600	36,200	60,800	138,000	208,000	329,000	194,000	82,200	69,600
23	38,800	55,200	46,000	50,800	35,200	60,700	144,000	216,000	332,000	190,000	82,200	68,400
24	38,100	54,100	45,900	50,600	35,600	60,200	148,000	226,000	336,000	187,000	81,800	68,100
25	37,400	52,000	42,600	49,700	36,100	61,100	152,000	239,000	342,000	182,000	80,500	67,900
26	38,600	49,100	42,000	47,900	34,800	59,800	162,000	257,000	348,000	180,000	79,800	67,100
27	38,900	50,300	41,000	46,800	35,500	58,600	158,000	276,000	352,000	175,000	78,100	68,000
28	38,600	50,400	41,400	45,800	35,100	58,700	162,000	293,000	352,000	171,000	76,300	68,400
29	38,600	51,400	41,700	45,700	-	59,100	165,000	309,000	350,000	166,000	75,000	68,300
30	40,100	57,200	43,600	45,300	-	60,600	171,000	327,000	344,000	161,000	74,000	67,300
31	42,100	-	48,100	44,600	-	59,500	-	341,000	-	157,000	71,500	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	1,319,700	55,400	37,400	42,570	0.574	0.66	2,618,000
November	1,718,200	64,400	43,800	57,270	.773	.86	3,408,000
December	1,456,000	63,300	41,000	46,970	.634	.73	2,888,000
Calendar year 1937	30,601,600	270,000	15,300	83,840	1.13	15.35	60,710,000
January	1,466,500	55,900	41,400	47,310	.638	.74	2,909,000
February	1,039,000	41,600	34,800	37,110	.501	.52	2,061,000
March	1,583,100	62,800	35,000	51,070	.689	.79	3,140,000
April	2,993,900	171,000	57,400	99,800	1.35	1.51	5,938,000
May	6,782,000	341,000	178,000	218,800	2.95	3.40	13,450,000
June	10,348,000	362,000	325,000	344,900	4.65	5.19	20,520,000
July	7,301,000	338,000	157,000	235,500	3.18	3.67	14,480,000
August	3,132,700	152,000	71,500	101,100	1.36	1.57	6,214,000
September	2,187,700	80,800	67,100	72,920	.984	1.10	4,339,000
Water year 1937-38	41,327,800	362,000	34,800	113,200	1.53	20.74	81,960,000

*Determined on basis of one gage reading and trend of stage.

Columbia River at Trinidad, Wash.

Location.- Water-stage recorder, lat. 47°13'30", long. 120°00'50", in SE¼ sec. 13, T. 20 N., R. 22 E., half a mile southwest of Trinidad, 8½ miles downstream from Colocham Creek, and 12 miles downstream from Rock Island Dam. Zero of gage is 500.00 feet above mean sea level (subject to correction for general adjustment of 1929).

Drainage area.- 89,700 square miles.

Records available.- October 1930 to September 1938. January to December 1910 (gage heights only) and May 1913 to December 1916 at Wenatchee. January 1917 at Beverly. January 1917 to September 1930 at Vernita.

Average discharge.- 25 years, 118,600 second-feet.

Extremes.- Maximum discharge during year, 393,000 second-feet June 8 (gage height, 48.24 feet); minimum, 37,100 second-feet Mar. 2 (gage height, 19.64 feet).

1913-38: Maximum discharge, 528,000 second-feet June 15, 16, 1913 (gage height, 45.7 feet, on original U. S. Weather Bureau gage at Wenatchee); minimum, 4,120 second-feet (regulated) Feb. 10, 1932 (gage height, 11.40 feet).

Maximum discharge known, about 740,000 second-feet June 7, 1894.

Remarks.- Records excellent. Considerable water diverted for irrigation above station, but quantity small in proportion to flow past station. Some diurnal fluctuation at low stages as result of operation of Rock Island power plant. Artificial regulation at Coeur d'Alene and Chelan Lakes. Flow affected by natural storage in many lakes above gage.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

19.0	33,600	23.0	58,100	30.0	116,000	40.0	242,000
20.0	39,200	24.0	65,000	32.0	137,000	44.0	312,000
21.0	45,300	26.0	79,800	34.0	159,000	48.0	388,000
22.0	51,600	28.0	97,000	37.0	197,000		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61,900	47,700	61,600	52,100	47,500	38,000	63,500	190,000	367,000	348,000	156,000	74,400
2	59,500	48,700	58,100	55,100	45,400	37,600	62,300	199,000	370,000	346,000	152,000	76,100
3	58,000	53,400	55,900	54,100	43,400	39,700	62,600	205,000	374,000	335,000	149,000	77,200
4	56,300	57,300	58,100	52,700	42,400	42,200	62,300	206,000	378,000	326,000	145,000	79,700
5	54,200	60,500	57,300	52,200	43,100	47,800	62,100	206,000	382,000	318,000	140,000	73,400
6	53,700	62,600	54,500	51,700	43,400	44,900	62,300	205,000	386,000	312,000	135,000	70,600
7	52,800	63,600	53,900	49,900	43,900	45,900	63,700	203,000	390,000	304,000	130,000	75,700
8	51,600	64,600	53,700	48,300	42,300	44,500	65,600	203,000	391,000	295,000	125,000	79,800
9	50,400	65,400	52,200	48,300	41,600	45,500	67,300	204,000	388,000	288,000	121,000	81,300
10	49,100	66,100	51,200	46,200	39,900	45,100	69,600	205,000	382,000	279,000	117,000	82,000
11	48,300	66,000	50,700	47,100	39,000	45,300	72,000	205,000	372,000	270,000	113,000	83,300
12	46,500	66,200	49,900	48,300	38,600	46,200	74,600	205,000	368,000	263,000	109,000	82,800
13	46,500	67,700	48,300	47,300	40,500	47,700	76,600	205,000	362,000	257,000	105,000	81,300
14	45,700	68,700	45,800	46,500	41,200	49,400	79,500	208,000	357,000	249,000	102,000	82,000
15	44,300	68,100	47,300	46,500	41,000	51,300	82,000	212,000	352,000	241,000	99,000	79,600
16	43,800	67,000	49,000	49,000	40,500	55,600	86,300	214,000	348,000	236,000	96,400	78,700
17	43,500	69,400	53,600	50,800	39,100	58,900	91,000	218,000	344,000	227,000	94,800	77,500
18	42,600	69,100	55,100	56,700	37,900	62,200	100,000	221,000	340,000	220,000	92,700	76,200
19	40,500	67,900	54,300	59,500	38,000	67,300	113,000	221,000	339,000	213,000	90,900	74,000
20	42,100	66,300	56,300	57,000	38,200	67,000	131,000	220,000	338,000	208,000	90,100	72,100
21	42,200	64,800	55,400	55,300	38,400	67,000	139,000	222,000	339,000	204,000	88,400	74,200
22	42,100	63,500	53,600	53,700	38,300	65,400	144,000	228,000	348,000	199,000	87,000	73,500
23	42,400	61,200	52,200	54,000	40,200	65,400	150,000	240,000	356,000	196,000	85,600	72,400
24	42,400	60,100	50,300	53,900	38,100	64,900	154,000	258,000	359,000	191,000	85,300	71,400
25	41,700	59,400	49,900	54,300	38,100	64,700	157,000	275,000	361,000	186,000	84,800	71,200
26	40,800	58,900	45,900	53,000	38,200	65,400	161,000	293,000	361,000	182,000	83,400	71,000
27	41,500	56,000	46,500	51,200	38,000	64,400	163,000	312,000	362,000	179,000	83,500	70,500
28	42,300	56,400	45,600	50,300	37,600	62,100	169,000	329,000	362,000	174,000	84,600	71,400
29	43,400	57,100	45,700	49,200	-	63,500	175,000	342,000	358,000	169,000	84,100	71,700
30	44,100	57,400	47,700	48,300	-	63,000	181,000	352,000	352,000	164,000	78,400	71,500
31	45,100	-	49,000	47,900	-	64,700	-	364,000	-	160,000	77,400	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	1,459,300	61,900	40,500	47,070	0.525	0.61	2,894,000
November	1,661,100	69,400	47,700	62,040	.692	.77	3,691,000
December	1,608,600	61,600	45,600	51,890	.578	.67	3,191,000
Calendar year 1937	32,871,600	289,000	20,000	90,060	1.00	13.64	65,200,000
January	1,590,400	59,500	46,200	51,300	.572	.66	3,155,000
February	1,133,800	47,500	37,600	40,490	.451	.47	2,249,000
March	1,692,600	67,300	37,600	54,600	.609	.70	3,357,000
April	3,140,300	181,000	62,100	104,700	1.17	1.30	6,229,000
May	7,370,000	364,000	190,000	237,700	2.65	3.06	14,620,000
June	10,886,000	391,000	338,000	362,900	4.05	4.52	21,590,000
July	7,539,000	348,000	160,000	243,200	2.71	3.12	14,950,000
August	3,275,400	156,000	74,100	105,700	1.18	1.36	6,497,000
September	2,277,000	83,300	70,500	75,900	.846	.94	4,516,000
Water year 1937-38	43,833,500	391,000	37,600	120,100	1.34	18.18	86,940,000

Kootenai River at Newgate, British Columbia

(International gaging station)

Location.- Two staff gages, one on main river and one on slough, lat. 49°01', long. 115°10', at highway bridges, 0.7 mile northwest of Newgate, British Columbia, and 0.9 mile north of the international boundary.

Drainage area.- 7,660 square miles.

Records available.- October 1930 to September 1938.

Extremes.- Maximum discharge observed during year, 68,800 second-feet May 27; minimum, 1,850 second-feet (estimated) Dec. 10.
1931-38: Maximum discharge observed, 83,500 second-feet June 18, 1933; minimum, 994 second-feet Feb. 7, 1936.

Remarks.- Records good except those for period of ice effect, Dec. 8-12, which were computed on basis of weather records and records for nearby stations and are fair. Gages read once daily. Records give total flow of main channel and slough.
This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,810	8,300	3,490	3,530	1,880	2,280	2,810	23,500	52,600	28,400	9,420	5,370
2	3,810	7,550	3,360	3,280	2,030	2,350	2,770	26,300	48,600	27,100	9,020	5,290
3	3,850	6,660	3,250	2,990	2,240	2,350	2,730	25,400	48,200	26,300	8,610	5,290
4	4,080	6,380	3,170	2,800	2,470	2,390	3,000	22,800	48,600	25,300	8,100	5,370
5	4,060	5,970	3,140	2,730	2,530	2,370	3,210	20,000	50,700	24,200	7,700	5,430
6	3,830	5,350	3,050	2,630	2,530	2,350	3,320	17,800	52,100	23,600	7,590	5,550
7	3,780	5,290	2,920	2,610	2,560	2,390	3,560	16,300	46,400	22,900	7,430	5,640
8	3,690	5,090	2,640	2,570	2,580	2,350	3,900	14,900	43,600	22,600	7,270	5,720
9	3,660	5,240	2,500	2,520	2,480	2,350	4,230	14,500	42,300	22,600	7,180	5,490
10	3,600	5,470	1,850	2,800	2,360	2,260	4,840	14,600	36,000	21,500	6,960	5,180
11	3,540	5,540	1,860	2,690	2,250	2,370	5,400	15,500	31,000	20,200	6,750	5,090
12	3,540	5,470	2,460	2,480	2,140	2,490	5,490	16,400	31,300	19,300	6,570	5,060
13	3,550	5,380	2,650	2,500	2,280	2,670	5,530	19,200	35,400	18,200	6,460	4,780
14	3,550	5,260	2,940	2,710	2,060	2,980	5,950	20,500	40,400	17,600	6,370	4,790
15	3,550	5,150	3,360	2,990	2,120	3,180	6,640	21,000	42,600	17,400	6,340	4,790
16	3,590	5,020	3,290	3,880	2,100	3,480	7,020	21,600	42,100	17,300	6,260	4,790
17	3,640	4,840	3,260	3,550	2,120	3,350	11,700	21,700	42,000	16,900	6,170	4,720
18	3,620	4,800	3,170	3,420	2,160	3,270	23,900	21,400	41,400	16,500	6,150	4,660
19	3,710	3,810	2,940	3,140	2,220	3,100	20,200	20,500	40,500	16,000	6,170	4,680
20	3,740	3,740	3,060	2,870	2,260	2,940	16,500	20,000	41,400	15,300	6,300	4,750
21	3,740	3,720	2,990	2,710	2,290	2,820	14,400	21,800	44,300	14,600	6,240	4,660
22	3,620	3,720	2,900	2,650	2,350	2,730	12,000	26,700	46,900	14,000	5,930	4,660
23	3,730	4,400	2,590	2,610	2,340	2,700	12,000	36,800	46,700	13,500	5,700	4,610
24	3,740	4,480	2,380	2,690	2,330	2,700	12,200	46,900	43,700	13,500	5,560	4,630
25	3,800	4,580	2,200	2,520	2,280	2,740	12,200	52,400	41,000	13,200	5,410	4,630
26	3,890	4,480	2,110	2,530	2,220	2,770	12,600	62,800	38,800	12,200	5,310	4,610
27	3,980	4,320	2,290	2,450	2,220	2,730	13,100	68,800	36,000	11,400	5,250	4,510
28	3,840	4,080	2,650	2,410	2,240	2,960	14,000	66,500	34,500	10,900	5,270	4,370
29	8,100	3,850	3,290	2,270	-	3,030	16,200	62,700	32,000	10,500	5,310	4,290
30	8,740	3,720	4,070	2,010	-	2,990	19,800	61,000	29,700	10,100	5,390	4,250
31	9,610	-	3,980	2,020	-	2,920	-	58,800	-	9,690	5,410	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	130,990	9,610	3,540	4,230	0.55	0.63	260,000
November	151,660	8,300	3,720	5,060	.66	.74	301,000
December	89,810	4,070	1,850	2,900	.38	.44	178,000
Calendar year 1937	2,751,430	37,800	1,160	7,540	.98	13.37	5,450,000
January	85,560	3,880	2,010	2,760	.36	.42	170,000
February	63,640	2,580	1,880	2,270	.30	.31	126,000
March	84,360	3,480	2,260	2,720	.36	.42	167,000
April	281,200	23,900	2,730	9,370	1.22	1.36	558,000
May	959,100	68,800	14,500	30,900	4.03	4.65	1,900,000
June	1,250,800	52,600	29,700	41,700	5.44	6.07	2,480,000
July	552,790	28,400	9,690	17,800	2.32	2.68	1,100,000
August	203,600	9,420	5,250	6,570	.86	.99	404,000
September	147,660	5,720	4,250	4,920	.64	.71	293,000
Water year 1937-38	4,001,170	68,800	1,850	11,000	1.44	19.42	7,940,000

Kootenai River near Rexford, Mont.

(International gaging station)

Location.- Canfield wire-weight gage, lat. 48°52', long. 115°14', in sec. 21, T. 36 N., R. 28 W., at highway bridge, 300 feet downstream from Sullivan Creek and 1.1 miles southwest of Rexford.
Drainage area.- 8,420 square miles.
Records available.- March 1929 to September 1938.
Extremes.- Maximum discharge observed during year, 69,900 second-feet May 27 (gage height, 14.85 feet); minimum observed, 2,080 second-feet Jan. 30 (gage height, 1.00 foot).
1929-38: Maximum discharge, 87,300 second-feet June 18, 1933 (gage height, 15.70 feet); minimum, 1,100 second-feet Feb. 7, 1936; minimum gage height, 0.12 foot Dec. 7, 1936.
Remarks.- Records good except those for periods of ice effect, Dec. 10, Jan. 31 to Feb. 8, Feb. 12-23, which were computed on basis of gage heights, observer's notes, weather records, and records for stations at Newgate, British Columbia, Libby, Mont., and Leonia, Idaho, and are fair. Gage read twice daily. No diversion or regulation. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.0	2,080	3.8	6,700	7.0	16,980	10.2	34,840	13.3	58,000
1.3	2,400	4.2	7,600	7.4	18,720	10.6	37,620	13.7	61,120
1.6	2,750	4.6	8,640	7.8	20,620	11.0	40,500	14.1	64,300
1.9	3,160	5.0	9,820	8.2	22,660	11.4	43,460	14.5	67,500
2.2	3,630	5.4	11,120	8.6	24,820	11.8	46,480	14.9	70,700
2.6	4,330	5.8	12,480	9.0	27.140	12.2	49,520		
3.0	5,080	6.2	13,910	9.4	29,580	12.5	51,800		
3.4	5,870	6.6	15,400	9.8	32,160	12.9	54,880		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,970	8,920	3,880	3,970	1,900	2,380	3,060	23,700	58,800	30,900	9,820	5,570
2	3,880	7,840	3,630	3,630	2,000	2,500	2,990	26,500	53,300	29,000	9,520	5,470
3	4,060	7,140	3,470	3,310	2,200	2,560	3,020	27,100	51,800	27,700	9,220	5,570
4	4,240	6,600	3,310	3,150	2,400	2,630	3,100	26,000	51,800	26,500	8,640	5,570
5	4,240	6,280	3,310	2,780	2,500	2,630	3,310	22,700	52,600	24,800	8,100	5,570
6	4,060	5,870	3,470	3,020	2,600	2,580	3,550	19,600	54,100	24,600	7,840	5,770
7	3,970	5,570	3,390	2,880	2,700	2,560	3,800	17,400	52,600	23,200	7,840	5,970
8	3,880	5,470	2,740	2,800	2,700	2,530	3,970	16,200	46,500	22,700	7,600	5,870
9	3,880	5,670	2,490	2,780	2,610	2,470	4,800	15,800	45,700	22,700	7,600	5,770
10	3,720	5,870	1,700	2,870	2,690	2,460	5,270	15,400	41,200	22,100	7,360	5,570
11	3,720	5,770	2,300	2,800	2,610	2,480	5,670	15,800	35,500	20,100	7,140	5,470
12	3,720	5,870	2,850	2,880	2,400	2,610	5,970	16,600	33,500	19,200	6,920	5,270
13	3,800	6,070	3,100	2,700	2,200	2,800	6,180	18,700	35,500	18,300	6,920	5,180
14	3,720	5,770	3,310	2,910	2,100	3,130	6,600	21,100	39,800	17,400	6,920	4,980
15	3,800	5,470	3,470	3,120	2,100	3,310	7,140	22,100	42,700	17,000	6,810	4,980
16	3,720	5,180	3,470	3,970	2,200	3,470	8,100	22,700	42,700	17,000	6,600	4,890
17	3,800	5,080	3,470	3,970	2,250	3,720	9,220	22,700	44,200	16,600	6,380	4,890
18	3,880	4,700	3,390	3,630	2,300	3,470	16,200	22,700	42,700	16,200	6,380	4,890
19	3,880	4,240	3,300	3,390	2,300	3,390	23,700	22,700	42,000	15,800	6,600	4,890
20	3,970	4,240	3,220	3,080	2,350	3,250	19,600	21,100	41,200	15,400	6,700	4,800
21	3,880	4,060	3,220	3,030	2,400	3,100	15,800	21,600	43,500	14,600	6,600	4,800
22	3,880	4,150	3,160	3,050	2,400	2,960	14,600	24,800	47,200	13,900	6,280	4,890
23	3,880	4,420	2,630	3,010	2,450	2,940	13,900	32,200	48,800	13,600	6,070	4,800
24	3,880	4,700	2,530	2,820	2,420	2,940	13,600	42,700	45,700	13,200	5,970	4,800
25	3,880	4,890	2,380	2,650	2,380	2,960	13,200	54,100	43,500	13,200	5,770	4,700
26	3,970	4,980	2,330	2,590	2,360	2,990	13,600	63,500	42,000	12,500	5,670	4,700
27	3,970	4,700	2,380	2,590	2,360	3,050	13,900	69,100	39,100	11,800	5,570	4,700
28	4,420	4,600	2,560	2,630	2,380	3,130	14,600	69,900	36,900	11,100	5,670	4,510
29	6,070	4,420	3,100	2,410	-	3,280	16,200	66,700	34,800	10,800	5,470	4,420
30	9,220	4,150	3,970	2,100	-	3,280	19,200	65,100	32,800	10,500	5,570	4,330
31	10,100	-	4,330	1,900	-	3,250	-	63,500	-	10,100	5,570	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	135,060	10,100	3,720	4,357	0.517	0.60	267,900
November	162,690	8,920	4,060	5,423	.644	.72	322,700
December	95,860	4,330	1,700	3,092	.367	.42	190,100
Calendar year 1937	2,804,370	37,200	1,200	7,683	.912	12.40	5,562,000
January	92,420	3,970	1,900	2,981	.354	.41	183,300
February	66,260	2,700	1,900	2,366	.281	.29	131,400
March	90,810	3,720	2,380	2,929	.348	.40	180,100
April	293,850	23,700	2,990	9,795	1.16	1.29	582,800
May	989,800	69,900	15,400	31,930	3.79	4.37	1,963,000
June	1,322,500	58,800	32,800	44,080	5.24	5.85	2,623,000
July	562,500	30,900	10,100	18,150	2.16	2.49	1,116,000
August	215,120	9,820	5,470	6,939	.824	.95	426,700
September	153,590	5,970	4,330	5,120	.608	.68	304,600
Water year 1937-38	4,180,460	69,900	1,700	11,450	1.36	18.47	8,292,000

Kootenai River at Libby, Mont.

Location.- Water-stage recorder, lat. 48°24', long. 115°33', in NW¼ sec. 3, T. 30 N., R. 31 W., 1,200 feet downstream from highway bridge at Libby.

Drainage area.- 10,240 square miles.

Records available.- October 1910 to September 1938.

Average discharge.- 12 years (1912-15, 1917-18, 1928-32, 1934-38), 10,640 second-feet.

Extremes.- Maximum discharge during year, 78,800 second-feet May 28 (gage height, 15.60 feet); minimum, 1,560 second-feet Dec. 10.
1910-38: Maximum discharge, 130,000 second-feet June 21, 1916 (gage height, 19.17 feet); minimum, 895 second-feet (discharge measurement) Jan. 11, 1930 (ice present).

Remarks.- Records excellent except those for Oct. 1 to Dec. 12, which are good, and those for Dec. 13 to Mar. 16, which are fair. Discharge for Dec. 13 to Feb. 21, Mar. 14-16 computed on basis of once-daily gage readings and rating for wire-weight gage at highway bridge, 1,200 feet above recorder. No diversions above station.

Rating table (recorder gage), Apr. 19 to Sept. 30, 1938 (gage height, in feet, and discharge, in second-feet)

2.0	4,740	4.0	10,300	8.0	24,500	14.0	64,900
2.5	6,020	5.0	13,300	10.0	35,600	16.0	82,400
3.0	7,390	6.0	16,400	12.0	49,000		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,260	9,980	4,380	*4,800	2,050	2,860	3,900	28,000	65,700	30,900	10,000	5,760
2	4,260	8,700	4,140	*4,730	*2,400	2,860	3,780	32,000	58,400	28,500	9,700	5,630
3	4,260	7,800	3,900	4,640	2,720	2,860	3,780	33,200	55,200	27,000	9,400	5,630
4	4,380	7,060	3,780	*4,420	2,900	2,970	3,900	30,900	55,200	26,500	9,110	5,760
5	4,500	6,640	3,660	†4,100	3,440	2,970	4,140	27,000	55,200	25,500	8,820	5,760
6	4,380	6,220	3,660	†3,800	*3,440	2,970	4,500	23,600	57,600	24,000	8,530	5,890
7	4,260	5,940	3,660	†3,400	*3,440	3,080	4,760	21,200	57,600	23,200	8,240	6,020
8	4,140	5,670	3,420	3,260	†3,400	3,080	5,150	19,600	50,500	22,800	7,950	6,160
9	4,140	5,800	2,570	*3,300	3,300	3,080	5,800	18,400	46,900	22,400	7,950	6,290
10	4,140	6,080	1,800	3,440	3,260	2,970	6,640	18,000	43,400	22,400	7,950	6,020
11	4,020	6,080	2,200	3,260	3,260	2,970	7,200	18,400	36,800	21,200	7,670	5,760
12	4,020	6,080	2,750	3,630	†3,100	2,970	7,800	19,600	32,600	19,600	7,390	5,630
13	4,020	6,220	3,630	3,630	*2,600	3,080	8,100	21,200	32,600	18,400	7,110	5,500
14	4,020	6,220	3,630	3,630	1,900	3,630	8,700	23,600	37,400	17,600	7,110	5,240
15	4,020	5,800	4,010	3,630	†2,000	4,210	9,340	25,500	42,700	16,800	7,110	5,240
16	4,020	5,540	*3,900		†2,100	4,420	10,600	26,000	44,800	16,400	6,970	5,120
17	4,020	5,410	3,820		†2,300	4,760	13,400	26,500	45,500	16,400	6,700	5,120
18	4,020	5,280	3,820	†3,700	†2,600	4,630	23,800	26,500	44,800	16,000	6,560	5,120
19	4,140	4,760	*3,720		†2,750	4,500	33,800	26,000	43,400	15,700	6,700	5,120
20	4,140	4,630	3,630		*2,800	4,140	28,000	24,500	42,700	15,100	6,830	5,120
21	4,140	4,380	3,440	*3,630	†2,850	3,900	22,400	24,000	44,100	14,500	6,830	5,120
22	4,140	4,260	3,440	3,630	2,860	3,780	19,200	26,500	46,900	13,900	6,700	4,990
23	4,020	4,380	2,900	*3,630	2,970	3,660	18,000	32,600	49,700	13,300	6,420	5,120
24	4,140	4,760	†2,500	3,630	2,970	3,660	17,600	43,400	49,000	13,000	6,290	5,120
25	4,140	5,150	†2,300	†3,600	2,970	3,660	17,200	56,800	45,500	12,700	6,160	4,990
26	4,140	5,280	*2,400	†3,300	2,860	3,660	17,200	68,300	43,400	12,700	5,890	4,990
27	4,260	5,410	2,550	†3,000	2,860	3,780	17,600	76,100	40,600	12,100	5,760	4,990
28	4,260	5,150	2,900	*2,500	2,860	3,900	18,400	78,800	37,400	11,500	5,760	4,860
29	5,410	4,890	3,440	†2,100	-	4,020	19,600	77,000	35,900	10,900	5,760	4,740
30	7,200	4,630	4,010	*1,850	-	4,140	22,800	71,700	33,200	10,600	5,630	4,740
31	10,300	-	4,880	1,900	-	4,020	-	70,000	-	10,300	5,760	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	139,310	10,300	4,020	4,494	0.439	0.51	276,300
November	174,200	9,980	4,260	5,807	.567	.63	345,500
December	104,940	4,880	1,800	3,382	.330	.38	207,900
Calendar year 1937	3,171,960	40,400	1,230	8,690	.849	11.52	6,291,000
January	108,940	4,800	1,850	3,514	.343	.40	216,100
February	78,960	3,440	1,900	2,820	.275	.29	156,600
March	111,190	4,760	2,860	3,587	.350	.40	220,500
April	387,090	33,800	3,780	12,900	1.26	1.41	767,800
May	1,114,900	78,800	18,000	35,960	3.51	4.05	2,211,000
June	1,374,400	65,700	32,600	45,810	4.47	4.99	2,726,000
July	561,900	30,900	10,300	18,130	1.77	2.04	1,115,000
August	224,760	10,000	5,630	7,250	.708	.82	445,800
September	161,550	6,290	4,740	5,385	.526	.59	320,400
Water year 1937-38	4,542,040	78,800	1,800	12,440	1.21	16.51	9,009,000

*Gage height missing; discharge estimated.
†Stage-discharge relation affected by ice; discharge estimated.

Kootenai River at Leonia, Idaho

Location.- Water-stage recorder, lat. 48°37', long. 116°03', in SW¼ sec. 17, T. 33 N., R. 34 W., at Leonia, 450 feet east of Montana-Idaho State line and half a mile upstream from Boulder Creek. Zero of gage is 1,700.00 feet above mean sea level (U. S. Coast and Geodetic Survey datum).
Drainage area.- 11,740 square miles.
Records available.- March 1928 to September 1938.
Average discharge.- 10 years, 12,670 second-feet.
Extremes.- Maximum discharge during year, 83,000 second-feet May 28 (water-surface elevation, 1,817.64 feet); minimum, 2,520 second-feet Feb. 1 (water-surface elevation, 1,799.15 feet).
1928-38: Maximum discharge, 95,500 second-feet June 18, 1933 (water-surface elevation, 1,818.11 feet); minimum, 996 second-feet Dec. 9, 1936; minimum water-surface elevation, 1,797.56 feet Dec. 10, 1929.
Floods of June 1894 and 1916 reached elevations of 1,824.6 and 1,821.6 feet, respectively (information furnished by Great Northern Railway Co.).
Remarks.- Records excellent except those for period of missing gage heights, Nov. 18-23 (computed on basis of records for station at Bonners Ferry), and period of ice effect, Dec. 8-11 (computed on basis of one discharge measurement, weather records and records for station at Libby, Mont.), and those below 3,000 second-feet, all of which are fair. No diversions or regulation above station.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 20				Apr. 21 to Sept. 30					
1,799.0	2,400	1,804.0	14,480	1,801.0	4,550	1,805.0	16,740	1,813.0	51,800
1,799.4	2,740	1,805.0	17,730	1,801.5	5,960	1,806.0	20,200	1,814.0	58,000
1,799.8	3,170	1,806.0	21,030	1,802.0	7,410	1,807.0	23,820	1,815.0	64,500
1,800.2	3,730	1,807.0	24,330	1,802.5	8,880	1,808.0	27,620	1,816.0	71,500
1,800.6	4,490	1,808.0	27,650	1,803.0	10,380	1,809.0	31,600	1,817.0	78,500
1,801.0	5,520	1,809.0	31,450	1,803.5	11,930	1,810.0	35,800	1,818.0	85,500
1,801.5	6,910	1,810.0	35,800	1,804.0	13,480	1,811.0	40,600		
1,802.0	8,360	1,811.0	40,600	1,804.5	15,080	1,812.0	46,100		
1,802.5	9,840	1,812.0	45,800						
1,803.0	11,350	1,813.0	51,500						

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,610	10,800	5,380	6,430	2,570	3,510	5,330	40,800	71,100	33,700	10,800	6,080
2	4,590	9,570	5,070	5,760	2,700	3,570	5,200	44,600	64,800	31,900	10,500	6,050
3	4,590	8,500	4,780	5,170	2,900	3,640	5,200	44,200	61,200	30,100	10,200	5,960
4	4,730	7,660	4,630	5,040	3,200	3,720	5,330	40,600	61,100	29,400	9,930	5,960
5	4,830	7,080	4,510	4,490	3,600	3,780	5,570	35,600	61,400	28,400	9,570	6,050
6	4,830	6,740	4,420	4,360	3,890	3,840	6,100	31,200	62,700	27,200	9,030	6,130
7	4,680	6,380	4,450	4,400	3,960	3,810	6,660	27,800	62,300	26,200	8,790	6,220
8	4,560	6,320	4,210	4,130	4,000	3,780	7,400	25,400	57,000	25,500	8,640	6,450
9	4,470	7,140	3,400	3,960	3,960	3,790	8,560	24,300	52,200	24,900	8,460	6,680
10	4,420	7,140	2,600	4,090	3,750	3,700	9,750	23,900	48,800	24,700	8,340	6,450
11	4,360	7,060	3,000	4,030	3,700	3,730	10,700	24,400	42,700	23,700	8,160	6,190
12	4,340	7,060	3,660	3,840	3,660	3,860	11,500	26,200	37,700	21,900	7,840	6,020
13	4,340	7,260	3,980	4,000	3,160	4,130	12,100	29,000	37,200	20,700	7,640	5,870
14	4,360	7,370	4,270	4,170	2,740	4,660	13,000	32,000	41,500	19,600	7,580	5,700
15	4,360	7,110	4,780	4,760	2,770	5,330	14,200	33,700	46,400	18,800	7,580	5,530
16	4,360	6,740	4,710	5,220	3,020	6,210	15,700	34,500	49,200	18,500	7,470	5,470
17	4,450	6,410	4,630	5,660	3,060	6,740	21,400	34,500	49,600	18,200	7,240	5,420
18	4,450	6,200	4,560	5,790	3,170	6,710	39,200	34,100	48,600	17,700	7,060	5,390
19	4,490	5,700	4,540	5,380	3,130	6,350	51,100	33,600	47,500	17,200	7,090	5,360
20	4,540	5,350	4,360	5,070	3,430	5,900	42,200	32,800	46,300	16,800	7,210	5,360
21	4,510	5,200	4,150	4,730	3,540	5,470	33,500	32,500	46,900	16,000	7,290	5,330
22	4,490	5,050	4,170	4,540	3,600	5,220	28,200	35,500	49,800	15,200	7,150	5,280
23	4,420	5,300	3,980	4,490	3,640	5,070	26,200	43,000	52,400	14,600	6,890	5,280
24	4,400	5,790	3,540	4,170	3,610	5,020	25,700	55,900	51,800	14,200	6,710	5,280
25	4,400	6,290	3,090	3,940	3,540	4,940	25,300	68,100	48,700	13,900	6,600	5,250
26	4,420	6,970	2,920	3,790	3,540	4,960	25,500	76,800	46,200	13,700	6,400	5,220
27	4,560	6,770	3,120	3,700	3,520	5,090	26,200	81,900	43,600	13,100	6,250	5,170
28	4,680	6,410	3,620	3,790	3,480	5,360	27,400	82,800	40,200	12,400	6,100	5,170
29	5,570	5,990	4,380	3,580	-	5,490	29,600	81,000	38,200	11,800	6,080	5,080
30	7,290	5,680	5,790	3,110	-	5,570	34,300	76,600	35,700	11,400	5,990	5,050
31	10,600	-	7,110	2,760	-	5,490	-	74,200	-	11,100	6,020	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	149,700	10,600	4,340	4,829	0.411	0.47	296,900
November	203,040	10,800	5,050	6,768	.576	.64	402,700
December	131,810	7,110	2,600	4,252	.362	.42	261,400
Calendar year 1937	3,644,410	46,900	1,290	9,985	.851	11.55	7,229,000
January	138,350	6,430	2,760	4,463	.380	.44	274,400
February	94,840	4,000	2,570	3,387	.289	.30	188,100
March	148,440	6,740	3,510	4,788	.408	.47	294,400
April	578,100	51,100	5,200	19,270	1.64	1.83	1,147,000
May	1,361,500	82,800	23,900	43,920	3.74	4.31	2,700,000
June	1,502,800	71,100	35,700	50,090	4.27	4.76	2,981,000
July	622,500	33,700	11,100	20,080	1.71	1.97	1,235,000
August	240,610	10,800	5,990	7,762	.661	.76	477,200
September	170,450	6,680	5,050	5,682	.484	.54	338,100
Water year 1937-38	5,342,140	82,800	2,570	14,636	1.25	16.91	10,600,000

Kootenai River at Boom Camp, near Bonners Ferry, Idaho

Location.- Water-stage recorder, lat. 48°42'05", long. 116°14'30", in NW¼ sec. 29, T. 62 N., R. 2 E., 600 feet east of Boom Camp, 3½ miles upstream from Bonners Ferry, and 4 miles downstream from Moyie River. Zero of gage is 1,700.00 feet above mean sea level (U. S. Coast and Geodetic Survey datum).

Records available.- October 1927 to September 1938 in reports of Geological Survey. April 1925 to September 1927 in reports of Dominion Water and Power Bureau (Canada).

Extremes.- Maximum water-surface elevation during year, 1,776.28 feet May 30; minimum, 1,756.44 feet Feb. 1.
1927-38: Maximum water-surface elevation recorded, 1,776.58 feet June 18, 1933; minimum elevation, 1,755.53 Dec. 9, 1936.

Remarks.- Records excellent. Elevations affected by backwater from Kootenay Lake from about April 19 to 22 and May 1 to July 11.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	57.51	59.78	58.08	58.55	56.55	57.02	58.12	66.67	75.52	66.27	59.75	58.15
2	57.53	59.44	57.93	58.30	56.71	57.06	58.06	67.46	74.65	65.72	59.66	58.13
3	57.53	59.13	57.81	57.96	56.88	57.12	58.10	67.51	73.74	65.17	59.57	58.10
4	57.60	58.87	57.70	58.22	57.05	57.15	58.17	66.98	73.33	64.83	59.50	58.10
5	57.65	58.66	57.65	57.83	57.28	57.19	58.32	66.06	73.22	64.51	59.37	58.13
6	57.65	58.54	57.59	57.64	57.45	57.22	58.56	65.11	73.34	64.19	59.19	58.18
7	57.59	58.40	57.59	57.62	57.47	57.21	58.83	64.35	73.37	63.86	59.11	58.22
8	57.54	58.37	57.38	57.47	57.45	57.18	59.11	63.90	72.81	63.59	59.05	58.30
9	57.48	58.71	57.44	57.36	57.58	57.21	59.52	63.53	71.81	63.42	59.00	58.39
10	57.45	58.75	56.98	57.40	57.32	57.16	59.81	63.44	70.91	63.31	58.95	58.30
11	57.43	58.73	56.94	57.41	57.27	57.19	60.11	63.53	69.72	63.10	58.90	58.20
12	57.40	58.74	57.32	57.23	57.26	57.30	60.33	63.85	68.47	62.65	58.79	58.13
13	57.41	58.81	57.42	57.35	56.98	57.52	60.51	64.44	67.84	62.33	58.71	58.06
14	57.42	58.86	57.57	57.43	56.62	57.92	60.79	65.03	68.14	62.08	58.71	58.00
15	57.42	58.80	57.81	57.83	56.80	58.23	61.10	65.47	68.80	61.88	58.71	57.93
16	57.42	58.65	57.76	58.08	56.96	58.61	61.42	65.69	69.34	61.79	58.66	57.90
17	57.48	58.47	57.74	58.19	56.83	58.81	62.60	65.72	69.64	61.70	58.57	57.88
18	57.49	58.36	57.69	58.26	57.01	58.75	65.89	65.66	69.55	61.59	58.52	57.86
19	57.47	58.18	57.67	58.09	56.91	58.60	68.06	65.55	69.33	61.49	58.54	57.85
20	57.53	58.03	57.57	57.95	57.02	58.40	67.13	65.44	69.08	61.37	58.58	57.85
21	57.53	57.98	57.45	57.81	57.09	58.22	65.46	65.39	69.03	61.20	58.60	57.83
22	57.51	57.88	57.49	57.70	57.13	58.10	64.39	65.96	69.39	61.00	58.56	57.83
23	57.49	58.01	57.51	57.67	57.14	58.03	63.90	67.26	69.86	60.84	58.46	57.83
24	57.48	58.24	57.12	57.54	57.20	57.99	63.80	69.56	69.98	60.71	58.39	57.83
25	57.47	58.43	56.92	57.48	57.15	57.95	63.73	72.17	69.64	60.63	58.34	57.82
26	57.46	58.79	56.77	57.53	57.08	57.96	63.79	74.30	69.20	60.58	58.27	57.81
27	57.56	58.67	56.88	57.49	57.04	58.03	63.95	75.08	68.74	60.43	58.20	57.77
28	57.63	58.54	57.23	57.33	57.01	58.15	64.17	75.85	68.08	60.22	58.15	57.79
29	57.99	58.36	57.75	57.27	-	58.21	64.60	76.10	67.49	60.07	58.14	57.74
30	58.61	58.21	58.44	57.14	-	58.23	65.52	76.15	66.87	59.95	58.10	57.71
31	59.56	-	58.87	56.87	-	58.18	-	75.85	-	59.85	58.11	-

Note.- Add 1,700.00 feet to obtain elevation above mean sea level.

Kootenai River at Bonners Ferry, Idaho

Location.- Wire gage, lat. 48°42'00", long. 116°18'45", in NE¼ sec. 27, T. 62 N., R. 1 E., on highway bridge at Bonners Ferry. Zero of gage is 1,743.005 feet above mean sea level (U. S. Coast and Geodetic Survey datum).

Drainage area.- 13,000 square miles.

Records available.- October 1927 to September 1938. May to October 1904 at site three-quarters of a mile downstream. Gage heights collected by U. S. Weather Bureau May 1904 to September 1927.

Average discharge.- 10 years, 13,700 second-feet.

Extremes.- Maximum daily discharge during year, 89,800 second-feet May 27; maximum water-surface elevation, 1,774.44 feet May 30; minimum discharge, 2,610 second-feet Feb. 1; minimum water-surface elevation, 1,742.90 feet Mar. 1.

1927-38: Maximum discharge, 99,800 second-feet June 18, 1933; maximum water-surface elevation, 1,774.98 feet June 19, 1933; minimum daily discharge, 1,300 second-feet, Feb. 8, 1936; minimum water-surface elevation, 1,741.14 feet Dec. 5, 1929.

Maximum water-surface elevation known, 1,777.2 feet sometime in Jure 1894.

Remarks.- Records excellent for October, November, and period March to September; those for remainder of year are good except those for days of ice effect, Dec. 9, 10, 23, Jan. 4, 26, 27, Feb. 9, which were computed on basis of weather records and records for station at Leonia and other stations on Kootenai River and are fair. Gage-height records good. Discharge for periods of backwater from Kootenay Lake, Apr. 19-22, May 1 to July 11, obtained by slope computations; that for remainder of year, from stage-discharge relation for station at Boom Camp. Discharge measurements are made at station near Bonners Ferry. No artificial regulation or diversion above station. Drainage District No. 2, adjacent to Kootenai River just above statior, was inundated on May 28.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44.74	48.10	45.89	46.26	44.66	42.92	44.59	61.87	73.84	63.90	50.04	45.58
2	44.78	47.86	45.64	45.64	45.10	42.92	44.50	63.35	72.99	63.23	49.84	45.52
3	44.79	47.52	45.50	45.33	45.28	42.98	44.55	63.65	72.12	62.51	49.56	45.46
4	44.87	47.21	45.32	45.04	45.38	43.02	44.62	62.96	71.64	61.84	49.30	45.44
5	44.92	46.98	45.24	45.08	45.41	43.02	44.86	61.96	71.50	61.37	49.05	45.41
6	44.95	46.77	45.14	44.96	45.42	43.04	45.34	60.52	71.60	60.83	48.72	45.41
7	44.89	46.63	45.05	44.80	45.36	43.03	45.68	59.20	71.60	60.33	48.46	45.46
8	44.84	46.54	44.90	44.74	45.44	43.00	46.08	58.17	71.22	59.81	48.38	45.50
9	44.76	46.88	44.84	44.54	45.18	43.00	46.70	57.58	70.22	59.34	48.20	45.59
10	44.72	47.00	45.32	44.36	45.04	42.96	47.28	57.32	69.22	58.97	47.96	45.52
11	44.70	46.94	45.61	44.24	44.64	42.99	47.76	57.29	68.09	58.52	47.79	45.36
12	44.63	46.88	45.16	44.25	44.42	43.10	48.22	57.62	66.78	57.81	47.56	45.22
13	44.68	46.92	45.16	44.40	44.26	43.42	48.64	58.66	65.94	57.13	47.33	45.09
14	44.62	47.08	45.20	44.48	44.16	43.85	49.14	59.70	65.96	56.58	47.24	45.02
15	44.59	47.08	45.23	44.75	43.56	44.40	49.70	60.62	66.54	56.06	47.16	44.94
16	44.58	46.90	44.98	45.12	43.64	44.88	50.27	61.06	67.10	55.66	47.03	44.90
17	44.69	46.66	44.83	45.12	43.76	45.38	52.33	61.26	67.46	55.34	46.83	44.80
18	44.70	46.38	44.74	45.15	43.61	45.33	58.33	61.29	67.40	54.94	46.70	44.78
19	44.66	46.16	44.60	44.94	43.70	45.20	63.13	61.18	67.22	54.61	46.63	44.72
20	44.78	45.88	44.46	44.73	43.74	44.87	62.70	61.10	66.95	54.26	46.60	44.66
21	44.80	45.72	44.28	44.53	43.70	44.64	60.12	61.25	66.74	53.90	46.54	44.66
22	44.77	45.56	44.19	44.36	43.62	44.42	58.15	61.78	67.16	53.40	46.50	44.70
23	44.78	45.55	44.16	44.22	44.22	44.39	56.94	63.56	67.61	53.06	46.36	44.70
24	44.74	45.86	44.16	44.00	43.43	44.33	56.70	66.52	67.94	52.71	46.20	44.74
25	44.75	46.16	45.42	43.98	43.32	44.28	56.58	69.50	67.59	52.40	46.08	44.76
26	44.77	46.68	45.50	44.13	43.26	44.22	56.70	71.98	67.20	52.12	45.94	44.73
27	44.84	46.56	45.54	44.61	43.16	44.34	57.10	72.50	66.72	51.76	45.80	44.70
28	45.02	46.45	45.72	44.85	43.04	44.50	57.52	73.77	66.06	51.38	45.68	44.70
29	45.50	46.24	46.40	45.34	-	44.69	58.18	74.03	65.34	50.94	45.60	44.67
30	46.36	46.02	46.56	45.28	-	44.73	59.82	74.39	64.74	50.57	45.54	44.64
31	47.45	-	47.12	44.79	-	44.66	-	74.06	-	50.30	45.57	-

Note.- Add 1,700.00 feet to obtain elevation above mean sea level.

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Discharge, in second-feet, of Kootenai River at Bonners Ferry, Idaho, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,680	11,200	6,030	7,300	2,800	3,660	6,130	46,200	78,100	36,900	11,100	6,210
2	4,730	10,000	5,660	6,610	3,080	3,740	5,980	50,500	72,200	34,800	10,800	6,160
3	4,730	9,030	5,360	5,730	3,390	3,860	6,080	50,000	67,200	32,700	10,500	6,080
4	4,880	8,230	5,110	5,600	3,720	3,920	6,260	46,600	66,200	31,900	10,200	6,080
5	5,000	7,610	5,000	5,410	4,190	4,000	6,660	41,300	66,200	30,800	9,800	6,160
6	5,000	7,270	4,860	4,970	4,550	4,060	7,330	36,200	67,200	29,600	9,220	6,290
7	4,860	6,880	4,860	4,930	4,590	4,040	8,110	32,100	67,000	28,300	8,960	6,390
8	4,750	6,800	4,400	4,590	4,550	3,980	8,960	29,300	62,600	27,400	8,780	6,610
9	4,620	7,760	4,100	4,360	4,400	4,040	10,300	27,800	57,000	26,900	8,620	6,850
10	4,550	7,880	3,100	4,440	4,270	3,940	11,300	27,300	53,000	26,500	8,470	6,610
11	4,510	7,220	3,510	4,460	4,170	4,000	12,400	27,700	47,400	25,800	8,320	6,340
12	4,440	7,850	4,270	4,080	4,150	4,230	13,200	29,400	42,500	23,500	7,990	6,160
13	4,460	8,050	4,480	4,340	3,580	4,700	13,900	32,600	41,500	21,900	7,760	5,980
14	4,480	8,200	4,810	4,510	2,920	5,630	15,000	36,000	45,100	20,700	7,760	5,830
15	4,480	8,020	5,360	5,410	3,240	6,420	16,300	38,700	49,200	19,700	7,760	5,660
16	4,480	7,580	5,250	6,030	3,540	7,470	17,700	39,800	51,900	19,300	7,610	5,580
17	4,620	7,080	5,200	6,310	3,300	8,050	23,200	39,800	52,900	18,900	7,360	5,530
18	4,640	6,770	5,090	6,500	3,640	7,880	42,700	39,300	52,000	18,400	7,220	5,480
19	4,590	6,290	5,040	6,060	3,450	7,440	56,000	38,700	50,700	18,000	7,270	5,460
20	4,730	5,900	4,810	5,700	3,660	6,880	48,800	38,100	49,400	17,500	7,380	5,460
21	4,730	5,780	4,550	5,360	3,800	6,390	38,700	37,800	49,500	16,700	7,440	5,410
22	4,680	5,530	4,640	5,110	3,880	6,080	32,200	40,900	52,000	15,900	7,330	5,410
23	4,640	5,860	4,300	5,040	3,900	5,900	30,400	48,100	54,500	15,200	7,050	5,410
24	4,620	6,450	3,860	4,750	4,020	5,800	29,800	59,600	54,400	14,700	6,850	5,410
25	4,590	6,960	3,470	4,620	3,920	5,700	29,400	72,100	51,800	14,400	6,720	5,390
26	4,570	7,990	3,190	4,300	3,780	5,730	29,700	81,900	49,300	14,200	6,530	5,360
27	4,790	7,640	3,390	4,200	3,700	5,900	30,600	89,800	46,900	13,600	6,340	5,270
28	4,950	7,270	4,080	4,290	3,640	6,210	32,000	86,000	43,700	12,800	6,210	5,320
29	5,800	6,770	5,220	4,170	-	6,370	34,600	88,600	41,600	12,200	6,180	5,200
30	7,470	6,370	6,990	3,900	-	6,420	40,300	84,200	38,900	11,800	6,080	5,130
31	10,400	-	8,230	3,370	-	6,290	-	81,000	-	11,400	6,110	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	154,470	10,400	4,440	4,983	0.383	0.44	306,400
November	222,840	11,200	5,530	7,428	.571	.64	442,000
December	148,220	8,230	3,100	4,781	.368	.42	294,000
Calendar year 1937	4,015,340	52,300	1,400	11,000	.846	11.48	7,965,000
January	156,450	7,300	3,370	5,047	.388	.45	310,300
February	105,830	4,590	2,800	3,780	.291	.30	209,900
March	168,730	8,050	3,660	5,443	.419	.48	334,700
April	664,010	56,000	5,980	22,130	1.70	1.90	1,317,000
May	1,517,400	89,800	27,300	48,950	3.77	4.35	3,010,000
June	1,621,900	78,100	38,900	54,060	4.16	4.64	3,217,000
July	662,400	36,900	11,400	21,370	1.64	1.89	1,314,000
August	245,720	11,100	6,080	7,926	.610	.70	487,400
September	174,230	6,850	5,130	5,808	.447	.50	345,600
Water year 1937-38	5,842,200	89,800	2,800	16,010	1.23	16.71	11,590,000

Kootenai River near Bonners Ferry, Idaho

Location.- Water-stage recorder, lat. 48°41'55", long. 116°20'40", in NW¼ sec. 28, T. 62 N., R. 1 E., 1.6 miles downstream from highway bridge at Bonners Ferry. Zero of gage is 1,700.00 feet above mean sea level (U. S. Coast and Geodetic Survey datum).

Drainage area.- 13,000 square miles.

Records available.- May 1928 to September 1938.

Extremes.- Maximum water-surface elevation during year, 1,773.74 feet May 30; minimum, 1,741.86 feet Mar. 10.
1928-38: Maximum water-surface elevation, 1,774.17 feet June 20, 1933; minimum, 1,740.31 feet Feb. 9, 1936.

Remarks.- Records excellent except those for Apr. 15-18 and July 1-5, which are good. Those for Oct. 12, 13, Apr. 15-18 computed on basis of records for stations at Klockmann Ranch and near Copeland. Elevations affected by backwater from Kootenay Lake.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44.31	47.64	45.52	45.42	42.60	42.16	43.81	61.17	73.24	63.63	49.76	45.10
2	44.36	47.40	45.29	45.29	42.69	42.16	43.74	62.65	72.49	62.95	49.59	45.04
3	44.39	47.11	45.14	44.62	42.79	42.12	43.74	63.05	71.64	62.25	49.30	44.94
4	44.48	46.86	44.97	44.36	42.90	42.10	43.86	62.55	71.15	61.64	49.04	44.89
5	44.52	46.65	44.87	44.36	43.12	42.08	44.12	61.46	71.00	61.13	48.76	44.89
6	44.52	46.48	44.75	44.26	43.38	42.09	44.46	60.09	71.09	60.61	48.43	44.86
7	44.47	46.27	44.72	44.17	43.43	42.04	44.88	58.82	71.15	60.07	48.16	44.90
8	44.41	46.16	44.48	44.10	43.41	41.99	45.33	57.78	70.73	59.55	48.10	44.97
9	44.36	46.52	44.27	43.94	43.30	41.97	45.95	57.20	69.80	59.13	47.90	45.03
10	44.31	46.63	44.08	43.89	43.25	41.91	46.56	56.94	68.89	58.75	47.66	44.97
11	44.29	46.60	44.09	43.82	43.17	41.91	47.06	56.93	67.76	58.28	47.43	44.81
12	44.27	46.50	44.30	43.70	43.14	42.08	47.58	57.29	66.48	57.58	47.18	44.65
13	44.26	46.54	44.39	43.74	42.84	42.36	47.98	58.22	65.63	56.90	46.98	44.55
14	44.25	46.71	44.41	43.80	42.61	42.86	48.46	59.21	65.61	56.32	46.87	44.44
15	44.22	46.69	44.52	44.27	42.27	43.43	49.10	60.05	66.12	55.81	46.79	44.35
16	44.16	46.53	44.33	44.58	42.34	44.06	49.80	60.56	66.65	55.42	46.64	44.28
17	44.32	46.26	44.26	44.54	42.47	44.54	53.00	60.76	67.00	55.04	46.44	44.23
18	44.33	46.02	44.15	44.55	42.39	44.52	56.00	60.80	66.98	54.68	46.31	44.18
19	44.29	45.76	44.02	44.31	42.51	44.33	62.40	60.65	66.79	54.35	46.25	44.09
20	44.37	45.50	43.88	44.09	42.56	44.08	62.05	60.56	66.56	54.02	46.20	44.06
21	44.40	45.36	43.74	43.88	42.62	43.81	59.66	60.50	66.46	53.70	46.10	44.06
22	44.40	45.19	43.71	43.72	42.63	43.61	57.64	61.24	66.72	53.17	46.09	44.07
23	44.38	45.26	43.44	43.63	42.61	43.54	56.52	62.96	67.16	52.78	45.95	44.10
24	44.36	45.47	43.60	43.50	42.52	43.52	56.20	65.80	67.36	52.46	45.79	44.12
25	44.39	45.69	43.39	43.36	42.42	43.49	56.06	68.79	67.15	52.16	45.67	44.17
26	44.38	46.23	43.31	43.36	42.34	43.46	56.19	71.20	66.76	51.87	45.50	44.17
27	44.44	46.15	43.42	43.32	42.28	43.55	56.58	71.65	66.34	51.52	45.35	44.15
28	44.59	46.07	43.70	43.35	42.21	43.72	57.00	72.55	65.71	51.05	45.21	44.15
29	45.16	45.84	44.29	43.38	-	43.93	57.75	73.28	65.04	50.62	45.12	44.16
30	45.92	45.66	45.16	42.74	-	43.93	59.26	73.67	64.38	50.30	45.07	44.10
31	46.97	-	45.81	42.61	-	43.88	-	73.48	-	50.01	45.06	-

Note.- Add 1,700.00 feet to obtain elevation above mean sea level.

Kootenai River at Klockmann ranch, near Bonners Ferry, Idaho

Location.- Water-stage recorder, lat. 48°47'40", long. 116°22'50", in SE¼ sec. 19, T. 63 N., R. 1 E., at Klockmann ranch, 800 feet south of viaduct on Kootenai Valley branch of Great Northern Railway and 8 miles north of Bonners Ferry. Zero of gage is 1,700.00 feet above mean sea level (U. S. Coast and Geodetic Survey datum).

Records available.- May 1928 to September 1938.

Extremes.- Maximum water-surface elevation during year, 1,770.95 feet May 30; minimum, 1,741.22 feet Mar. 10.
1928-38: Maximum water-surface elevation, 1,771.24 feet June 20, 1933; minimum, 1,739.99 feet Jan. 2, 1931.

Remarks.- Records good; those for Sept. 29, 30 computed on basis of records for stations near Bonners Ferry and Copeland. Elevations affected by backwater from Kootenay Lake.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43.86	46.72	44.97	44.33	42.06	41.44	42.92	59.25	70.76	62.44	49.11	44.49
2	43.91	46.59	44.79	44.02	42.05	41.46	42.88	60.67	70.23	61.80	48.95	44.47
3	43.94	46.40	44.67	43.84	42.09	41.47	42.87	61.10	69.59	61.15	48.66	44.37
4	44.00	46.24	44.53	43.62	42.12	41.46	42.96	60.71	69.17	60.57	48.38	44.33
5	44.04	46.06	44.41	43.65	42.24	41.42	43.15	59.78	68.99	60.08	48.12	44.29
6	44.04	45.89	44.31	43.57	42.36	41.40	43.40	58.53	69.07	59.59	47.82	44.28
7	44.01	45.74	44.26	43.50	42.43	41.37	43.72	57.37	69.14	59.09	47.56	44.27
8	43.98	45.67	44.08	43.47	42.45	41.32	44.09	56.42	68.90	58.59	47.47	44.33
9	43.94	45.83	43.85	43.36	42.37	41.29	44.60	55.87	68.14	58.15	47.29	44.35
10	43.90	45.97	43.72	43.32	42.34	41.26	45.11	55.59	67.32	57.76	47.06	44.30
11	43.88	45.96	43.72	43.25	42.31	41.24	45.59	55.57	66.36	57.31	46.82	44.19
12	43.86	45.88	43.80	43.09	42.25	41.35	46.06	55.87	65.23	56.66	46.60	44.04
13	43.86	45.84	43.81	43.09	42.05	41.54	46.44	56.66	64.43	56.02	46.40	43.94
14	43.85	46.00	43.80	43.12	41.88	41.91	46.89	57.55	64.28	55.48	46.27	43.85
15	43.83	46.04	43.83	43.42	41.70	42.33	47.46	58.33	64.61	54.98	46.17	43.77
16	43.78	45.88	43.76	43.74	41.68	42.82	48.05	58.83	65.04	54.60	46.04	43.71
17	43.91	45.64	43.75	41.74	41.74	43.28	49.70	59.03	65.35	54.23	45.86	43.66
18	43.91	45.42	43.58	43.73	41.65	43.29	55.01	59.05	65.37	53.88	45.72	43.62
19	43.88	45.22	43.46	43.55	41.71	43.18	59.97	58.95	65.20	53.54	45.64	43.55
20	43.95	45.00	43.32	43.36	41.72	43.01	59.86	58.88	64.98	53.22	45.57	43.50
21	43.97	44.87	43.23	43.21	41.74	42.83	57.69	58.86	64.88	52.83	45.51	43.51
22	43.98	44.71	43.19	43.07	41.74	42.68	55.83	59.51	65.09	52.41	45.48	43.52
23	43.97	44.73	42.89	42.99	41.73	42.66	54.78	61.05	65.47	52.04	45.39	43.56
24	43.97	44.88	42.90	42.87	41.65	42.63	54.49	63.63	65.71	51.69	45.23	43.61
25	43.99	45.03	42.80	42.73	41.58	42.64	54.39	66.30	65.59	51.41	45.08	43.66
26	43.99	45.45	42.73	42.69	41.53	42.63	54.54	68.40	65.26	51.11	44.94	43.66
27	44.04	45.42	42.80	42.60	41.48	42.69	54.89	68.91	64.90	50.77	44.82	43.66
28	44.19	45.39	42.95	42.61	41.46	42.84	55.32	69.97	64.34	50.35	44.67	43.66
29	44.70	45.22	43.34	42.57	-	42.98	56.03	70.33	63.72	49.95	44.55	43.66
30	45.26	45.09	43.98	42.20	-	43.00	57.42	70.90	63.12	49.64	44.49	43.65
31	46.08	-	44.54	42.07	-	42.97	-	70.89	-	49.36	44.47	-

Note.- Add 1,700.00 feet to obtain elevations above mean sea level.

Kootenai River near Copeland, Idaho

(International gaging station)

Location.- Water-stage recorder, lat. 48°54'45", long. 116°25'00", in NW¼NW¼SW¼ sec. 12, T. 64 N., R. 1 W., at Andrews ranch, three-quarters of a mile downstream from Mission Creek and 1½ miles northwest of Copeland. Zero of gage is 1,700.00 feet above mean sea level (U. S. Coast and Geodetic Survey datum).

Drainage area.- 13,400 square miles.

Records available.- October 1927 to September 1938 (only gage heights prior to May 1929) in reports of Geological Survey. April 1925 to September 1927 (gage heights only) in reports of Dominion Water and Power Bureau, Department of Mines and Resources, Canada.

Extremes.- Maximum daily discharge during year, 87,400 second-feet May 29; maximum water-surface elevation, 1,767.88 feet May 31; minimum daily discharge, 3,000 second-feet Feb. 1, during ice period; minimum water-surface elevation, 1,704.97 feet Mar. 11.
1929-38: Maximum daily discharge, 90,500 second-feet June 19, 1933; maximum water-surface elevation, 1,767.98 feet June 20, 1933; minimum daily discharge, 1,350 second-feet Feb. 8, 1936; minimum water-surface elevation, 1,739.59 feet Jan. 25, 1930.

Remarks.- Records of discharge good except those for periods of ice effect, Dec. 10-13, 24-31, Jan. 1-20, 26-31, Feb. 1 to Mar. 10 (computed on basis of three discharge measurements and records for station at Bonners Ferry), and those for period when adjacent drainage districts were inundated, May 28-31 (computed on basis of records for station at Bonners Ferry and overflow to inundated districts), which are fair. Discharge computed from mean elevation-fall-discharge diagram drawn on basis of fall between station at Klockmann ranch near Bonners Ferry and station at Port Hill and discharge measurements made at station near Copeland.
Records of water-surface elevations excellent except those for July 14-20, which are fair. Elevations affected by backwater from Kootenay Lake.
Drainage districts 7 and 4, adjacent to Kootenai River above this station and below station at Bonners Ferry, were inundated on May 27 and 28, respectively.
This station is one of the international gaging stations maintained by the United States under agreement with Canada. The records of discharge for water year 1936-37, as published in Water-Supply Paper 832, have been approved by the Dominion Water and Power Bureau, Department of Mines and Resources, Canada.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43.67	45.86	44.64	43.58	41.93	41.14	42.35	56.38	67.69	60.87	48.57	44.17
2	43.73	45.86	44.50	43.46	41.90	41.15	42.33	57.66	67.33	60.33	48.38	44.12
3	43.76	45.80	44.40	43.37	41.89	41.14	42.33	58.19	66.89	59.76	48.11	44.05
4	43.82	45.72	44.29	43.27	41.88	41.14	42.39	58.02	66.50	59.24	47.84	44.00
5	43.84	45.63	44.20	43.28	41.93	41.13	42.52	57.32	66.32	58.78	47.59	43.97
6	43.84	45.53	44.12	43.24	41.98	41.12	42.68	56.38	66.39	58.32	47.32	43.92
7	43.82	45.43	44.06	43.19	42.02	41.10	42.89	55.45	66.51	57.85	47.09	43.92
8	43.79	45.38	43.90	43.18	42.03	41.06	43.15	54.68	66.38	57.38	47.01	43.94
9	43.77	45.48	43.74	43.09	41.98	41.02	43.51	54.20	65.79	56.96	46.81	43.93
10	43.73	45.52	43.63	43.05	41.95	41.01	43.87	53.95	65.09	56.56	46.58	43.88
11	43.71	45.51	43.60	42.98	41.95	41.01	44.23	53.87	64.33	56.12	46.35	43.79
12	43.70	45.44	43.61	42.83	41.86	41.05	44.59	54.05	63.46	55.58	46.16	43.67
13	43.70	45.40	43.60	42.80	41.75	41.18	44.92	54.66	62.76	55.03	45.98	43.58
14	43.69	45.51	43.55	42.81	41.67	41.39	45.27	55.32	62.47	54.54	45.85	43.51
15	43.66	45.50	43.55	43.00	41.56	41.69	45.73	55.97	62.57	54.08	45.74	43.45
16	43.62	45.41	43.47	43.18	41.51	42.03	46.21	56.41	62.83	53.70	45.61	43.40
17	43.73	45.19	43.40	43.18	41.52	42.35	47.42	56.61	63.09	53.36	45.45	43.36
18	43.73	45.01	43.30	43.18	41.45	42.42	51.55	56.66	63.11	53.00	45.33	43.32
19	43.70	44.84	43.19	43.07	41.46	42.37	56.27	56.63	62.99	52.67	45.24	43.25
20	43.76	44.68	43.08	42.94	41.43	42.29	56.57	56.62	62.82	52.36	45.15	43.22
21	43.79	44.56	43.00	42.84	41.45	42.19	54.98	56.65	62.73	52.00	45.05	43.22
22	43.79	44.42	42.94	42.73	41.42	42.13	53.48	57.16	62.83	51.62	45.02	43.23
23	43.79	44.44	42.71	42.67	41.40	42.13	52.60	58.41	63.12	51.29	44.92	43.28
24	43.80	44.52	42.70	42.59	41.34	42.12	52.36	60.52	63.33	50.97	44.79	43.34
25	43.81	44.64	42.63	42.49	41.28	42.14	52.30	62.86	63.34	50.70	44.68	43.38
26	43.83	44.91	42.59	42.43	41.24	42.13	52.44	64.89	63.12	50.41	44.52	43.39
27	43.86	44.91	42.62	42.35	41.21	42.17	52.75	65.74	62.84	50.11	44.41	43.38
28	44.03	44.92	42.68	42.32	41.18	42.26	53.13	66.17	62.44	49.71	44.30	43.39
29	44.44	44.81	42.89	42.26	-	42.38	53.68	66.60	61.94	49.35	44.21	43.42
30	44.89	44.73	43.29	42.06	-	42.39	54.84	67.45	61.43	49.05	44.19	43.41
31	45.40	-	43.64	41.97	-	42.37	-	67.74	-	48.79	44.18	-

Note.- Add 1,700.00 feet to obtain elevations above mean sea level.

Discharge, in second-feet, of Kootenai River near Copeland, Idaho, for water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,770	11,300	6,420	8,150	3,000	3,890	7,120	45,700	80,300	39,400	10,900	6,300
2	4,940	10,300	6,110	7,310	3,300	3,970	6,960	49,900	76,900	37,100	10,800	6,500
3	4,850	9,370	5,930	6,350	3,640	4,110	6,870	50,500	72,200	34,900	10,600	6,240
4	4,960	8,630	5,550	6,040	3,900	4,170	7,140	48,200	70,200	33,200	10,200	6,270
5	5,120	7,760	5,330	5,830	4,390	4,250	7,580	44,000	69,000	32,100	9,860	6,210
6	5,120	7,190	5,140	5,330	4,740	4,310	8,290	39,000	68,900	31,000	9,400	6,510
7	5,060	6,790	5,230	5,260	4,770	4,310	9,090	34,600	68,600	29,700	8,980	6,450
8	5,010	6,600	4,900	4,910	4,820	4,250	10,000	31,200	67,300	28,600	8,950	6,680
9	4,900	7,150	4,420	4,680	4,670	4,310	11,200	29,400	63,200	27,700	8,750	6,880
10	4,840	7,930	3,350	4,770	4,540	4,210	12,400	28,700	59,200	27,200	8,740	6,760
11	4,830	7,980	3,810	4,790	4,420	4,410	13,500	29,000	54,200	26,500	8,500	6,560
12	4,780	7,830	4,560	4,310	4,510	4,700	14,400	30,400	48,600	24,500	8,100	6,290
13	4,780	7,710	4,750	4,580	3,930	5,200	15,100	33,300	45,100	22,700	7,820	6,140
14	4,770	8,270	5,190	4,790	3,260	6,330	16,100	36,700	45,800	21,400	7,800	5,950
15	4,810	8,460	5,490	6,030	3,450	7,230	17,300	39,400	48,900	20,400	7,870	5,770
16	4,700	8,000	5,460	6,620	3,740	8,290	18,400	40,900	51,800	19,900	7,810	5,690
17	4,990	7,600	5,470	6,950	3,490	9,310	22,800	41,300	53,400	19,400	7,530	5,630
18	4,940	7,150	5,390	7,020	3,800	9,100	39,000	41,100	53,600	18,800	7,310	5,550
19	4,830	6,850	5,240	6,600	3,610	8,620	53,700	40,500	52,800	18,400	7,360	5,580
20	4,950	6,320	5,040	6,200	3,820	7,980	51,400	39,800	51,600	17,900	7,450	5,400
21	4,960	6,160	4,970	6,100	3,970	7,480	42,500	39,400	51,100	17,100	7,620	5,450
22	5,010	5,990	5,080	5,760	4,060	7,000	35,900	41,500	52,400	16,300	7,600	5,410
23	4,910	6,050	4,500	5,590	4,130	6,800	32,400	47,000	54,400	15,400	7,670	5,390
24	4,860	6,630	4,090	5,300	4,250	6,630	31,400	57,000	55,300	14,800	7,420	5,350
25	4,830	6,970	3,740	4,860	4,170	6,600	30,900	67,700	54,000	14,500	7,150	5,470
26	4,830	8,340	3,490	4,600	4,030	6,550	31,000	75,400	52,000	14,200	7,020	5,320
27	4,940	8,050	3,340	4,550	3,950	6,720	31,800	74,900	50,300	13,700	6,920	5,320
28	4,800	7,730	4,160	4,550	3,900	7,030	33,000	74,600	47,400	12,900	6,590	5,320
29	5,710	7,170	5,560	4,620	-	7,270	35,200	87,400	44,600	12,100	6,260	5,230
30	7,040	6,680	7,850	4,320	-	7,410	39,600	86,500	42,000	11,600	6,160	5,220
31	9,540	-	9,000	3,630	-	7,310	-	82,900	-	11,200	6,180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	159,380	9,540	4,700	5,141	0.384	0.44	316,100
November	228,960	11,300	5,990	7,632	.570	.64	454,100
December	158,560	9,000	3,340	5,115	.382	.44	314,500
Calendar year 1937	4,156,470	52,300	1,410	11,390	.850	11.53	8,244,000
January	170,400	8,150	3,630	5,497	.410	.47	338,000
February	112,260	4,820	3,000	4,009	.299	.31	222,700
March	189,750	9,310	3,890	6,121	.457	.53	376,400
April	692,050	53,700	6,870	23,070	1.72	1.92	1,373,000
May	1,507,900	87,400	28,700	48,640	3.63	4.18	2,991,000
June	1,705,100	80,300	42,000	56,840	4.24	4.73	3,382,000
July	684,600	39,400	11,200	22,080	1.65	1.90	1,358,000
August	251,320	10,900	6,160	8,107	.605	.70	498,500
September	176,840	6,880	5,220	5,895	.440	.49	350,800
Water year 1937-38	6,037,120	87,400	3,000	16,540	1.23	16.75	11,980,000

Kootenai River at Lucas Creek, near Port Hill, Idaho

Location.- Staff gage, lat. 48°57'25", long. 116°28'55", in sec. 28, T. 65 N., R. 1 W., at mouth of Lucas Creek, 3 miles southeast of Port Hill. Zero of gage is 1,700.00 feet above mean sea level (U. S. Coast and Geodetic Survey datum).

Records available.- May 1928 to September 1930, May 1932 to July 1935, May 1937 to August 1938.

Extremes.- Maximum water-surface elevation observed during year, 1,765.95 feet May 31; minimum elevation occurred during period of no record.
1928-30, 1932-35, 1937-38: Maximum water-surface elevation observed, that of May 31, 1938; minimum occurred during period of no record.

Remarks.- Records reliable. None obtained during periods Aug. 16, 1937, to May 16, 1938, Aug. 13 to Sept. 30, 1938. Elevation affected by backwater from Kootenay Lake.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	65.65	60.09	48.42	
2								-	65.44	59.61	48.21	
3								-	65.17	59.10	47.94	
4								-	64.85	58.61	47.67	
5								-	64.75	58.15	47.46	
6								-	64.85	57.74	47.21	
7								-	64.99	57.29	47.00	
8								-	64.88	56.84	46.90	
9								-	64.39	56.45	46.70	
10								-	63.82	56.05	46.47	
11								-	63.20	55.63	46.26	
12								-	62.47	55.12	46.07	
13								-	61.88	54.60	-	
14								-	61.58	54.13	-	
15								-	61.61	53.70	-	
16								-	61.76	53.27	-	
17								55.50	61.95	52.94	-	
18								55.56	61.95	52.64	-	
19								55.51	61.85	52.34	-	
20								55.56	61.73	52.03	-	
21								55.62	61.63	51.71	-	
22								56.13	61.73	51.36	-	
23								57.21	61.97	51.05	-	
24								59.09	62.15	50.72	-	
25								61.25	62.21	50.45	-	
26								63.05	62.03	50.16	-	
27								63.83	61.76	49.87	-	
28								64.40	61.46	49.47	-	
29								64.76	61.05	49.14	-	
30								65.36	60.59	48.87	-	
31								65.79	-	48.62	-	

Note.- Add 1,700 feet to obtain elevation above mean sea level.

Kootenai River at Port Hill, Idaho

(International gaging station)

Location.- Water-stage recorder, lat. 49°00'00", long. 116°30'10", in SW¼ sec. 8, T. 65 N., R. 1 W., 300 feet south of international boundary, at Port Hill. Zero of gage is 1,700.00 feet above mean sea level, U. S. Coast and Geodetic Survey datum, and 1,699.80 feet above mean sea level, datum of Geodetic Survey of Canada (adjustment of 1928).

Drainage area.- 13,700 square miles.

Records available.- May to July 1904 and October 1927 to April 1928 (gage heights only), April 1928 to September 1938 in reports of Geological Survey. October 1924 to September 1927 (gage heights only) in reports of Dominion Water and Power Bureau, Department of Mines and Resources, Canada.

Average discharge.- 10 years, 14,470 second-feet.

Extremes.- Maximum daily discharge during year, 91,100 second-feet May 29; maximum water-surface elevation, 1,764.08 feet May 31; minimum daily discharge, 3,100 second-feet Feb. 1; minimum water-surface elevation, 1,740.65 feet Mar. 11.

1928-38: Maximum daily discharge, 93,200 second-feet June 19, 1933; maximum water-surface elevation, that of May 31, 1938; minimum daily discharge, 1,380 second-feet Feb. 8, 1936; minimum water-surface elevation, 1,739.32 feet Jan. 28, 1936. Maximum water-surface elevation known, 1,772.7 feet sometime in June 1894.

Remarks.- Records of discharge good except those for Dec. 10-13, 24-31, Jan. 1-20, 28-31, Feb. 1 to Mar. 10, May 28-31, which are fair. Daily discharge, which represents entire flow passing international boundary, obtained by adding tributary inflow, including that of Boundary Creek, to discharge at station near Copeland. Boundary dike of Reclamation Farm failed May 31, and breaches continued open during remainder of year. Flow through the breaches occurred May 31 to July 2 and was limited to discharge of Boundary Creek and part of river flow entering mouth of that creek. Discharge measurements of flow in regular channel and reversed flow entering mouth of Boundary Creek are shown for the period.

Records of water-surface elevations excellent. Elevations affected by backwater from Kootenay Lake.

Drainage district 10, Severn's Bend district, and Klockmann Boundary Farm adjacent to Kootenai River above this station and below station near Copeland were inundated May 29 and 30. River flow diverted into districts at that time gradually drained back to river channel as stages receded during succeeding months.

This station is one of the international gaging stations maintained by the United States under agreement with Canada. Records of discharge for water year 1936-37 as published in Water-Supply Paper 832 have been checked and approved by the Dominion Water and Power Bureau, Department of Mines and Resources, Canada.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43.44	45.28	44.32	43.07	41.69	40.83	41.92	53.74	63.80	59.26	48.08	43.82
2	43.46	45.34	44.18	43.01	41.66	40.84	41.91	54.64	63.64	58.82	47.91	43.76
3	43.51	45.33	44.09	42.98	41.62	40.81	41.92	55.35	63.52	58.36	47.62	43.70
4	43.55	45.30	44.01	42.92	41.60	40.80	41.96	55.32	63.27	57.90	47.38	43.65
5	43.56	45.26	43.92	42.93	41.61	40.78	42.06	54.90	63.21	57.48	47.15	43.62
6	43.56	45.18	43.85	42.90	41.65	40.77	42.16	54.25	63.34	57.07	46.90	43.55
7	43.54	45.09	43.78	42.87	41.69	40.75	42.32	53.61	63.47	56.66	46.70	43.55
8	43.52	45.05	43.65	42.86	41.69	40.73	42.50	53.07	63.37	56.23	46.60	43.57
9	43.50	45.12	43.50	42.79	41.66	40.71	42.77	52.72	62.99	55.84	46.43	43.56
10	43.47	45.13	43.42	42.75	41.64	40.70	43.05	52.51	62.53	55.46	46.18	43.52
11	43.45	45.11	43.37	42.66	41.63	40.69	43.32	52.43	62.03	55.03	45.96	43.44
12	43.44	45.05	43.37	42.54	41.55	40.74	43.62	52.52	61.44	54.57	45.79	43.33
13	43.44	45.03	43.34	42.49	41.49	40.83	43.89	52.95	60.95	54.09	45.62	43.25
14	43.43	45.10	43.29	42.48	41.41	40.97	44.18	53.41	60.65	53.66	45.48	43.19
15	43.40	45.11	43.26	42.62	41.35	41.21	44.54	53.90	60.59	53.25	45.36	43.14
16	43.37	45.02	43.19	42.71	41.28	41.48	44.94	54.26	60.69	52.88	45.23	43.09
17	43.45	44.83	43.10	42.69	41.25	41.73	45.83	54.45	60.83	52.53	45.08	43.05
18	43.46	44.67	43.01	42.68	41.20	41.81	48.89	54.52	60.83	52.21	44.97	43.02
19	43.45	44.51	42.91	42.61	41.19	41.81	52.65	54.52	60.74	51.89	44.87	42.94
20	43.50	44.37	42.80	42.51	41.15	41.79	53.17	54.56	60.64	51.60	44.78	42.92
21	43.52	44.26	42.72	42.46	41.14	41.72	52.17	54.64	60.59	51.28	44.66	42.92
22	43.52	44.12	42.65	42.38	41.12	41.68	51.13	55.09	60.65	50.94	44.65	42.94
23	43.53	44.13	42.45	42.33	41.09	41.70	50.53	56.06	60.83	50.65	44.54	42.99
24	43.54	44.18	42.42	42.26	41.02	41.70	50.37	57.69	61.01	50.34	44.41	43.05
25	43.57	44.26	42.38	42.40	40.98	41.72	50.38	59.53	61.06	50.07	44.30	43.08
26	43.57	44.48	42.34	42.14	40.93	41.72	50.56	61.19	60.94	49.77	44.17	43.11
27	43.60	44.50	42.36	42.07	40.90	41.75	50.84	62.05	60.74	49.48	44.06	43.11
28	43.79	44.53	42.39	42.03	40.87	41.85	51.16	62.52	60.48	49.13	43.96	43.11
29	44.16	44.45	42.53	41.96	-	41.95	51.64	62.87	60.11	48.81	43.89	43.13
30	44.52	44.40	42.81	41.81	-	41.93	52.52	63.54	59.72	48.54	43.85	43.12
31	44.93	-	43.07	41.73	-	41.93	-	63.88	-	48.30	43.82	-

Note.- Add 1,700.00 feet to obtain elevations above mean sea level.

Discharge, in second-feet, of Kootenai River at Port Hill, Idaho, for water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,850	11,500	6,640	8,390	3,100	4,000	7,270	48,200	83,200	40,100	11,000	6,340
2	5,060	10,500	6,360	7,530	3,410	4,080	7,120	52,300	79,900	37,800	10,900	6,540
3	4,950	9,530	6,180	6,550	3,760	4,220	7,040	52,400	75,300	35,500	10,700	6,280
4	5,070	8,780	5,780	6,230	4,040	4,280	7,330	49,800	73,400	33,700	10,300	6,310
5	5,220	7,900	5,560	6,000	4,530	4,360	7,790	45,400	72,300	32,600	9,930	6,250
6	5,210	7,330	5,360	5,480	4,870	4,420	8,520	40,200	71,900	31,600	9,470	6,550
7	5,140	6,920	5,420	5,400	4,890	4,420	9,340	35,700	71,300	30,200	9,050	6,510
8	5,080	6,820	5,030	5,050	4,930	4,360	10,300	32,300	69,900	29,100	9,020	6,730
9	4,970	7,500	4,530	4,820	4,780	4,420	11,500	30,500	65,100	28,200	8,810	6,930
10	4,910	8,210	3,470	4,900	4,640	4,320	12,700	29,800	60,800	27,600	8,800	6,800
11	4,890	8,390	3,940	4,910	4,510	4,530	13,800	30,200	55,900	26,900	8,560	6,600
12	4,840	8,210	4,710	4,440	4,600	4,860	14,800	31,800	50,600	24,800	8,160	6,330
13	4,840	8,030	4,900	4,720	4,010	5,430	15,500	35,000	47,400	23,000	7,880	6,180
14	4,830	8,630	5,350	4,950	3,340	6,610	16,500	38,500	47,900	21,700	7,860	5,990
15	4,870	8,830	5,660	6,290	3,530	7,490	17,800	41,300	50,800	20,700	7,930	5,800
16	4,780	8,330	5,640	6,860	3,820	8,570	19,000	42,800	53,900	20,100	7,870	5,720
17	5,240	7,880	5,640	7,160	3,570	9,560	23,800	43,100	55,400	19,600	7,580	5,660
18	5,090	7,380	5,560	7,220	3,880	9,330	41,900	42,700	55,300	19,000	7,380	5,580
19	4,950	7,080	5,400	6,790	3,690	8,820	55,800	42,300	54,400	18,600	7,440	5,610
20	5,060	6,560	5,200	6,380	3,910	8,170	52,900	41,900	53,200	18,100	7,510	5,430
21	5,060	6,390	5,120	6,280	4,060	7,650	43,800	41,900	52,900	17,300	7,680	5,480
22	5,110	6,220	5,220	5,930	4,160	7,180	37,100	44,600	54,200	16,400	7,650	5,440
23	5,000	6,490	4,610	5,750	4,230	6,980	33,600	50,800	56,000	15,500	7,720	5,420
24	4,950	7,040	4,180	5,450	4,350	6,800	32,600	61,000	56,800	14,900	7,470	5,380
25	4,910	7,380	3,850	5,000	4,270	6,770	32,100	72,200	55,700	14,600	7,200	5,510
26	4,910	8,760	3,610	4,740	4,130	6,720	32,400	80,100	53,300	14,300	7,070	5,360
27	5,090	8,400	3,480	4,680	4,060	6,900	33,300	79,300	51,400	13,800	6,960	5,350
28	5,190	8,040	4,360	4,670	4,010	7,220	34,600	78,600	48,400	13,000	6,630	5,350
29	5,990	7,440	5,860	4,730	-	7,450	37,100	91,100	45,500	12,200	6,300	5,260
30	7,260	6,940	8,220	4,410	-	7,580	41,900	89,900	42,800	11,700	6,200	5,260
31	9,750	-	9,280	3,720	-	7,470	-	85,900	-	11,300	6,220	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	163,070	9,750	4,780	5,260	0.384	0.44	323,400
November	237,410	11,500	6,220	7,914	.578	.64	470,900
December	164,120	9,280	3,470	5,294	.386	.44	325,500
Calendar year 1937	4,288,200	54,300	1,430	11,750	.858	11.61	8,506,000
January	175,430	8,390	3,720	5,659	.413	.48	348,000
February	115,080	4,930	3,100	4,110	.300	.31	228,300
March	194,970	9,560	4,000	6,289	.459	.53	386,700
April	719,210	55,800	7,040	23,970	1.75	1.95	1,427,000
May	1,581,600	91,100	29,800	51,020	3.72	4.29	3,137,000
June	1,764,900	83,200	42,800	58,830	4.29	4.79	3,501,000
July	693,900	40,100	11,300	22,380	1.63	1.88	1,376,000
August	253,250	11,000	6,200	8,169	.596	.69	502,300
September	177,950	6,930	5,260	5,932	.433	.48	353,000
Water year 1937-38	6,240,890	91,100	3,100	17,100	1.25	16.92	12,380,000

Below is a list of discharge measurements during period when a part of the total flow was bypassing gage and measuring section through breaks in the boundary dike of the Reclamation Farm in Canada. Measurements of reversed river flow through mouth of Boundary Creek plus flow passing gaging station on Boundary Creek near Port Hill represent total flow being bypassed, as U. S. Forest Service roadway dike continued intact during period.

Date	Main channel (second-feet)	Reversed flow through mouth of Boundary Creek (second-feet)	Daily discharge of Boundary Creek near Port Hill (second-feet)
June 9	61,800	3,930	780
16	49,800	2,370	870
27	47,800	2,480	415

Granite Creek near Libby, Mont.

Location.- Staff gage and concrete control, lat. 48°18', long. 115°35', in SE¼ sec. 5, T. 29 N., R. 31 W., at Glacier Silver Lead Mine, 7 miles southwest of Libby. Prior to Sept. 9, 1938, there was no concrete control.

Records available.- January to September 1933, August 1936 to September 1938.

Extremes.- Maximum discharge observed during year, 1,960 second-feet Apr. 18 (gage height, 4.40 feet); minimum, 4.5 second-feet Oct. 1.
1933, 1936-38: Maximum discharge observed, that of Apr. 18, 1938; no flow Jan. 4, 1933 (creek blocked by snowslide).

Remarks.- Records fair. Discharge for Aug. 23 to Sept. 8 estimated.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	59	29	43	22	14	32	467	265	89	16	
2	7.5	53	27	37	20	14	32	367	265	78	16	
3	9.9	43	26	35	20	14	35	265	302	68	14	
4	11	34	24	30	22	14	41	202	284	61	12	8
5	12	26	23	27	23	14	45	152	440	58	12	
6	12	19	22	26	22	16	51	142	323	60	12	
7	12	34	20	26	20	18	56	132	248	60	12	
8	11	53	19	24	19	20	61	124	232	60	11	15
9	9.9	67	17	22	16	21	66	115	175	51	11	16
10	9.1	56	17	22	20	21	66	124	124	49	10	14
11	8.3	43	16	20	19	22	68	142	115	47	9.1	12
12	9.1	41	24	19	18	25	73	152	152	44	9.9	11
13	6.9	37	38	20	16	31	76	175	175	44	9.1	9.8
14	6.3	39	34	26	16	36	84	202	175	44	8.3	9.0
15	5.7	39	31	37	14	44	89	232	164	46	8.3	9.0
16	6.3	34	29	35	12	53	109	265	232	48	8.3	8.3
17	7.5	30	27	34	11	58	390	248	217	48	9.1	8.3
18	6.9	29	26	32	9.9	65	1,960	217	164	42	9.1	8.3
19	6.3	26	23	32	9.1	70	788	188	142	41	9.9	7.6
20	6.3	24	20	30	9.9	60	467	188	142	39	9.1	7.6
21	5.7	28	22	29	11	47	248	188	152	39	9.1	7.0
22	5.7	33	22	27	12	32	248	390	188	37	9.1	7.0
23	5.7	38	20	26	12	35	248	494	164	37		6.3
24	6.9	3e	20	24	12	38	248	523	142	37		6.3
25	8.3	36	19	23	12	34	284	523	132	28		5.6
26	11	36	23	22	12	31	323	523	124	26	9	5.6
27	12	34	27	20	12	31	344	494	115	24		5.1
28	43	33	30	19	14	33	367	367	109	22		5.1
29	65	33	37	18	-	36	415	344	95	22		5.1
30	82	31	49	20	-	34	440	323	92	21		6.3
31	77	-	45	23	-	33	-	264	-	18		-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	490.8	82	4.5	15.8	973
November	1,126	67	19	37.5	2,230
December	806	49	16	26.0	1,600
Calendar year 1937	21,295.2	415	-	58.3	42,247
January	828	43	18	26.7	1,640
February	435.9	23	9.1	15.6	865
March	1,014	70	14	32.7	2,010
April	7,754	1,960	32	258	15,380
May	8,552	523	115	276	16,960
June	5,649	440	92	188	11,200
July	1,388	89	18	44.8	2,750
August	315.4	16	-	10.2	626
September	251.3	16	5.1	8.38	498
Water year 1937-38	28,610.4	1,960	4.5	78.4	56,732

Boulder Creek near Leonia, Idaho

Location.- Water-stage recorder, lat. 48°36', long. 116°06', in NW¼ sec. 32, T. 61 N., R. 3 E., half a mile downstream from McGinty Creek, 1 mile upstream from buildings of Idamount Lead-Zinc Mines Co., 3 miles upstream from mouth, and 3 miles southwest of Leonia.

Drainage area.- 53 square miles.

Records available.- November 1928 to September 1938. April to November 1928 at site 1¼ miles downstream.

Extremes.- Maximum discharge during year, 2,050 second-feet Apr. 18 (gage height, 5.50 feet); minimum, 7 second-feet Sept. 3, 4 (gage height, 0.23 foot).
1928-38: Maximum discharge, that of Apr. 18, 1938; minimum, 2 second-feet Aug. 25, Sept. 5, 1931.

Remarks.- Records good except those for periods of ice effect or of missing gage heights, Dec. 9-13, 23-27, Jan. 27 to Feb. 4, Mar. 13, 14, which were computed on basis of gage heights, weather records, and records for stations on nearby streams, and are fair.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	42	79	115	45	33	68	793	452	57	13	8
2	16	36	78	97	50	34	70	720	456	57	13	e
3	15	32	75	81	55	34	73	546	434	55	12	7
4	16	29	68	73	55	33	85	466	430	53	12	7
5	15	28	64	76	59	33	99	407	425	49	11	8
6	14	28	62	68	56	33	112	362	366	53	11	10
7	13	26	56	62	54	33	127	331	311	45	11	12
8	12	72	37	60	54	34	146	340	262	50	11	12
9	12	191	30	58	53	36	168	380	202	48	11	12
10	12	113	35	54	52	36	174	398	173	38	11	11
11	11	119	50	44	38	40	187	434	171	34	10	11
12	11	119	70	52	35	54	199	556	182	32	10	10
13	11	101	75	52	33	70	215	595	187	30	10	9
14	11	110	79	64	35	90	249	590	171	28	11	9
15	11	113	83	187	34	97	277	610	160	26	11	9
16	14	92	78	133	34	133	372	580	199	35	11	8
17	34	78	76	108	34	121	867	551	179	26	10	8
18	20	68	73	94	34	106	1,570	551	158	23	12	8
19	16	64	69	86	33	95	732	575	142	22	14	8
20	15	60	65	79	32	85	570	600	131	22	11	8
21	15	58	64	76	30	76	520	635	136	20	10	8
22	15	58	58	75	29	73	488	705	136	19	10	8
23	15	151	40	70	29	71	515	810	118	18	10	8
24	14	131	35	62	29	68	515	864	110	18	9	8
25	14	182	40	64	29	68	502	876	99	18	9	8
26	13	209	45	54	29	71	546	820	90	17	9	8
27	18	142	50	50	30	76	575	680	84	16	9	8
28	37	119	123	45	31	92	635	645	76	15	8	8
29	94	103	182	40	-	85	730	600	70	15	8	8
30	53	92	218	35	-	76	815	546	63	14	8	8
31	54	-	148	40	-	73	-	479	-	13	8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	633	94	11	20.4	0.385	0.44	1,260
November	2,766	209	26	92.2	1.74	1.94	5,490
December	2,304	218	30	74.3	1.40	1.61	4,570
Calendar year 1937	36,144	722	-	99.0	1.87	25.34	71,700
January	2,254	187	35	72.7	1.37	1.58	4,470
February	1,111	59	29	39.7	.749	.78	2,200
March	2,059	133	33	66.4	1.25	1.44	4,080
April	12,251	1,570	58	408	7.70	8.59	24,300
May	18,045	876	331	582	11.0	12.68	35,790
June	6,173	456	63	206	3.89	4.34	12,240
July	966	57	13	31.2	.589	.68	1,920
August	324	14	8	10.5	.198	.23	643
September	263	12	7	8.8	.166	.19	522
Water year 1937-38	49,149	1,570	7	135	2.55	34.50	97,480

Moyie River at Eastport, Idaho

(International gaging station)

Location.- Water-stage recorder, lat. 49°00', long. 116°11', in SE¼ sec. 10, T. 65 N., R. 2 E., 1,000 feet downstream from international boundary at Eastport.

Drainage area.- 570 square miles.

Records available.- August 1929 to September 1938 in reports of Geological Survey. January to December 1915, March to December 1916, and discharge measurements during 1914 and 1917 in reports of Dominion Water and Power Bureau, Department of Mines and Resources, Canada.

Extremes.- Maximum discharge during year, 6,080 second-feet Apr. 18 (gage height, 8.99 feet); minimum, 55 second-feet Sept. 29 (gage height, 3.46 feet).
1929-38: Maximum discharge, 6,240 second-feet Apr. 28, 1934; minimum, 23 second-feet Nov. 7, 1936 (gage height, 3.20 feet).

Remarks.- Records good except those for periods of ice effect, Dec. 8-12, 23-28, Jan. 4-13, Jan. 24 to Feb. 4, Feb. 12-16, 18-27, which were computed on basis of one discharge measurement, gage heights, weather records, records for station at Eileen, and are fair. No diversion or regulation above station. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	209	308	330	170	209	423	4,440	4,280	876	167	73
2	94	202	286	308	190	224	445	4,280	3,970	819	160	73
3	102	198	286	295	240	227	491	3,670	3,820	758	154	71
4	121	191	266	280	300	224	552	3,220	3,670	714	144	73
5	112	191	262	260	291	220	651	2,870	3,600	671	138	75
6	109	184	254	250	258	216	796	2,590	3,520	644	135	77
7	106	177	242	240	238	216	934	2,320	3,300	610	132	80
8	104	194	200	230	220	220	1,100	2,200	3,080	590	126	80
9	102	295	160	220	224	220	1,250	2,130	2,730	590	124	84
10	102	295	180	210	212	231	1,210	2,200	2,390	539	121	80
11	99	382	230	180	205	250	1,310	2,390	2,130	503	118	77
12	96	429	260	*207	200	304	1,360	2,460	2,010	462	115	75
13	94	403	250	210	190	440	1,460	2,940	2,010	434	109	73
14	92	398	231	220	190	623	1,620	3,080	1,950	403	109	71
15	92	413	220	299	180	644	1,720	3,220	1,890	377	106	69
16	94	398	216	339	180	664	1,890	3,220	1,890	353	106	66
17	121	363	212	308	177	610	2,940	3,080	1,840	334	104	66
18	115	308	205	286	180	558	5,570	2,940	1,720	321	109	64
19	106	299	198	274	180	503	4,600	3,010	1,620	299	115	62
20	106	291	191	270	180	462	3,440	2,940	1,510	286	106	64
21	106	282	191	262	180	429	3,080	3,300	1,510	270	102	62
22	106	282	191	258	180	413	2,870	3,740	1,460	258	99	62
23	106	348	150	246	180	408	2,800	4,440	1,460	246	94	62
24	106	392	140	240	180	392	2,800	5,080	1,360	238	92	62
25	106	418	130	240	190	392	2,730	5,400	1,410	235	89	62
26	106	468	160	230	190	408	3,010	5,740	1,360	227	89	62
27	121	413	180	230	190	440	3,220	5,740	1,260	216	86	59
28	177	392	250	220	198	473	3,300	5,400	1,160	209	82	57
29	191	344	348	160	-	457	3,670	5,240	1,140	194	80	57
30	194	330	445	140	-	434	4,120	5,080	951	184	77	60
31	209	-	377	160	-	429	-	4,600	-	177	73	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	3,579	209	84	115	0.202	0.23	7,100
November	9,479	468	177	316	.554	.62	18,800
December	7,219	445	130	233	.409	.47	14,320
Calendar year 1937	192,092	3,220	-	526	.923	12.54	381,000
January	7,602	339	140	245	.430	.50	15,080
February	5,693	300	170	203	.356	.37	11,290
March	11,940	664	209	385	.675	.78	23,680
April	65,362	5,570	423	2,179	3.82	4.26	129,600
May	112,960	5,740	2,130	3,644	6.39	7.37	224,100
June	66,001	4,280	951	2,200	3.86	4.31	130,900
July	13,037	876	177	421	.739	.85	25,860
August	3,461	167	73	112	.196	.23	6,860
September	2,058	84	57	68.6	.120	.13	4,080
Water year 1937-38	308,391	5,740	57	845	1.48	20.12	611,700

*Discharge measurement.

Moyie River at Eileen, Idaho

Location.- Water-stage recorder, lat. 48°46', long. 116°10', in NE¼ sec. 35, T. 63 N., R. 2 E., 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 square miles.

Records available.- October 1925 to September 1938.

Average discharge.- 13 years, 792 second-feet.

Extremes.- Maximum discharge during year, 7,680 second-feet Apr. 18 (gage height, 4.39 feet); minimum, 100 second-feet Sept. 29 (gage height, -0.23 foot).
1925-38: Maximum discharge, 8,780 second-feet Apr. 29, 1934; maximum gage height, 4.8 feet May 17, June 10, 11, 1927, May 13, 17-19, 1928; minimum discharge, 40 second-feet Nov. 27, 1936 (gage height, -0.25 foot).

Remarks.- Records good except those for periods of ice effect, Jan. 3-13, Jan. 25 to Feb. 3, Feb. 14-21, which were computed on basis of two discharge measurements, gage heights, weather records, and records for station at Eastport and are fair. No diversion or regulation above station.

Rating tables, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 25						May 26 to Sept. 30					
0.20	100	1.80	857	3.40	3,260	-0.30	91	1.60	829	3.60	4,120
.60	181	2.20	1,290	3.80	4,480	.00	137	2.00	1,210	4.00	5,690
1.00	325	2.60	1,830	4.20	6,460	.40	231	2.40	1,690	4.40	7,950
1.40	540	3.00	2,470	4.40	7,750	.80	365	2.80	2,310		
						1.20	556	3.20	3,060		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	131	260	450	623	300	283	676	5,420	4,830	1,020	215	119
2	140	249	407	540	340	296	691	5,370	4,570	974	210	118
3	148	245	407	450	380	321	758	4,690	4,430	904	205	116
4	168	238	376	380	391	317	848	4,080	4,220	854	198	116
5	165	235	366	370	357	317	955	3,510	4,190	821	188	116
6	153	231	357	360	330	*314	1,140	3,150	4,000	775	186	121
7	148	221	334	340	325	312	1,330	2,900	3,670	752	181	123
8	146	245	275	330	317	317	1,510	2,740	3,460	702	176	124
9	146	348	225	320	296	321	1,760	2,670	3,020	702	174	132
10	144	381	245	310	312	330	1,650	2,740	2,710	668	170	132
11	142	450	325	260	300	362	1,800	2,900	2,470	622	165	123
12	142	547	386	300	283	422	1,830	3,130	2,350	574	158	119
13	140	547	348	330	235	601	1,920	3,510	2,350	545	156	118
14	140	574	330	371	250	916	2,170	3,620	2,330	518	156	116
15	137	594	321	547	250	1,040	2,320	3,820	2,160	481	156	114
16	137	567	312	660	250	1,150	2,420	3,890	2,190	456	154	113
17	155	515	312	594	250	1,080	3,360	3,710	2,210	433	152	110
18	165	444	300	540	250	986	6,770	3,540	2,000	402	163	108
19	153	422	287	509	250	886	6,120	3,460	1,860	377	163	108
20	151	407	283	472	250	802	4,560	3,540	1,770	361	158	107
21	151	391	283	467	260	724	3,890	3,850	1,730	346	150	106
22	148	381	272	450	268	700	3,590	4,480	1,690	327	143	104
23	148	472	208	422	256	683	3,510	5,230	1,680	310	141	104
24	148	594	205	362	238	653	3,540	5,950	1,590	292	139	104
25	148	630	202	400	249	646	3,460	6,460	1,560	292	137	104
26	144	758	238	350	253	668	3,790	6,720	1,570	282	133	104
27	153	646	268	340	253	700	3,950	6,500	1,480	270	132	104
28	193	581	402	374	264	766	4,110	6,080	1,320	257	128	103
29	231	528	653	280	-	749	4,560	5,890	1,210	246	124	101
30	238	484	839	250	-	708	5,280	5,740	1,110	234	123	106
31	253	-	749	290	-	683	-	5,280	-	223	121	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	4,906	253	131	158	0.209	0.24	9,730
November	13,185	758	221	440	.583	.65	26,150
December	10,965	839	202	354	.469	.54	21,750
Calendar year 1937	242,048	3,760	-	663	.878	11.92	480,100
January	12,591	660	250	406	.538	.62	24,970
February	7,957	391	235	284	.376	.39	15,780
March	19,053	1,150	283	615	.815	.94	37,790
April	84,268	6,770	676	2,809	3.72	4.15	167,100
May	134,570	6,720	2,670	4,341	5.75	6.63	266,900
June	75,710	4,830	1,110	2,524	3.34	3.73	150,200
July	16,020	1,020	223	517	.685	.79	31,780
August	4,955	215	121	160	.212	.24	9,830
September	3,393	132	101	113	.150	.17	6,730
Water year 1937-38	387,573	6,770	101	1,062	1.41	19.09	768,700

*Discharge interpolated.

Deep Creek at Moravia, Idaho

Location.- Staff gage, lat. 48°38', long. 116°24', in sec. 18, T. 61 N., R. 1 E., at concrete highway bridge, 1 mile downstream from Ruby Creek and 1 mile southwest of Moravia.

Drainage area.- 133 square miles.

Records available.- May 1928 to September 1938 (except winters prior to 1933).

Extremes.- Maximum discharge observed during year, 1,260 second-feet Apr. 18 (gage height, 4.20 feet); minimum observed, 11 second-feet Sept. 3, 5 (gage height, 0.18 foot).

1928-38: Maximum discharge observed, 1,300 second-feet Dec. 22, 1933; maximum gage height, 4.20 feet Dec. 22, 1933, Apr. 18, 1938; minimum discharge, 7 second-feet Aug. 15, 24, 25, 1931: minimum gage height, that of Sept. 3, 5, 1938.

Remarks.- Records good except those for periods of ice effect, Jan. 26 to Feb. 5, Feb. 12-22, which were computed on basis of one discharge measurement, weather records, and records for stations on nearby streams and are poor. Staff gage read once daily. No diversions above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	38	164	342	110	111	252	930	425	109	19	13
2	44	34	160	252	120	111	265	930	460	92	19	12
3	30	30	139	202	130	122	265	930	442	86	18	11
4	32	29	127	202	140	125	294	930	460	89	18	12
5	32	29	116	190	150	122	310	930	425	82	18	11
6	23	30	120	155	145	125	358	880	391	86	17	16
7	21	30	116	137	141	137	374	880	358	75	17	20
8	24	46	113	133	122	141	358	830	342	73	17	19
9	23	123	116	133	122	137	425	690	280	70	16	16
10	21	92	131	129	125	137	478	530	238	73	16	16
11	21	99	160	131	114	149	478	512	265	70	17	15
12	21	113	151	135	110	213	478	495	294	70	16	15
13	23	139	139	139	105	294	512	495	252	63	16	15
14	23	202	123	160	100	425	570	495	238	46	17	14
15	23	238	135	478	108	495	610	495	226	42	16	14
16	26	190	147	460	100	730	730	495	265	40	17	15
17	38	147	147	342	95	570	830	460	238	44	17	15
18	36	123	143	265	90	570	1,260	442	202	36	16	15
19	24	99	143	226	90	325	1,140	460	190	32	18	14
20	23	95	147	202	90	294	980	495	213	32	19	17
21	23	92	113	202	90	294	880	495	213	30	16	18
22	23	91	114	202	95	294	650	530	213	27	15	15
23	23	213	118	202	94	238	730	690	202	27	15	14
24	23	238	111	202	94	252	730	730	213	26	15	15
25	23	425	137	166	107	294	690	690	190	24	14	15
26	23	358	151	160	104	294	730	730	179	24	14	14
27	34	265	147	150	104	310	690	650	164	24	16	15
28	44	226	213	135	107	310	730	570	122	24	15	15
29	32	190	358	110	-	310	830	530	120	24	14	16
30	38	164	690	100	-	265	880	512	116	23	12	18
31	42	-	478	105	-	252	-	460	-	20	15	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	868	44	21	28.0	0.211	0.24	1,720
November	4,188	425	29	140	1.05	1.17	8,310
December	5,367	690	111	173	1.30	1.50	10,650
Calendar year 1937	46,231	830	13	127	.955	12.93	91,700
January	6,147	478	100	198	1.49	1.72	12,190
February	3,102	150	90	111	.835	.87	6,150
March	8,446	730	111	272	2.05	2.36	16,750
April	18,507	1,260	252	617	4.64	5.18	36,710
May	19,891	930	442	642	4.83	5.57	39,450
June	7,936	460	116	265	1.99	2.22	15,740
July	1,583	109	20	51.1	.384	.44	3,140
August	505	19	12	16.3	.123	.14	1,000
September	450	20	11	15.0	.113	.13	893
Water year 1937-38	76,990	1,260	11	211	1.59	21.54	152,700

Long Canyon Creek near Port Hill, Idaho

Location.- Water-stage recorder, lat. 48°57', long. 116°32', in NW¼ sec. 36, T. 65 N., R. 2 W., on U. S. Forest Service bridge at mouth of canyon, 4 miles southwest of Port Hill.

Drainage area.- 29 square miles.

Records available.- May 1928 to September 1938 (except winters prior to 1935).

Extremes.- Maximum discharge during year, 938 second-feet May 25 (gage height, 4.38 feet); minimum, 6 second-feet Sept. 19-24, 27-29; minimum gage height, 1.15 feet Sept. 22-24.

1928-38: Maximum daily discharge, 950 second-feet (estimated) June 15, 1933; maximum gage height, 6.55 feet (drift jam) June 15, 1933; minimum discharge, 3 second-feet Nov. 1-3, 28, Dec. 4-10, 1936, Jan. 6-8, 1937; minimum gage height, 0.91 foot Nov. 8, 1930.

Remarks.- Records good except those for periods of ice effect or of missing gage heights, Dec. 2-16, Dec. 19 to Jan. 16, Jan. 25 to Feb. 6, Feb. 11-20, which were computed on basis of weather records and records for stations on nearby streams and are poor. No diversions above gage.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	30	30	30	14	14	18	311	381	128	16	7
2	14	27	35	28	16	14	18	311	393	119	16	7
3	12	25	37	25	18	14	18	275	385	103	16	7
4	13	24	35	24	20	14	21	233	402	93	15	7
5	12	23	35	22	20	14	25	200	460	98	14	7
6	10	22	33	20	19	14	28	181	402	110	13	8
7	10	22	25	19	18	14	30	165	372	90	13	e
8	10	33	20	19	18	13	34	154	345	86	13	8
9	9	39	15	18	17	14	38	143	277	79	12	9
10	9	33	18	18	16	14	38	140	237	69	11	8
11	9	47	20	16	14	14	40	140	240	63	11	8
12	9	42	22	18	13	18	41	159	262	57	11	7
13	8	39	23	19	12	31	42	181	303	53	11	7
14	8	42	24	20	12	34	44	193	284	50	11	7
15	8	42	25	25	12	30	47	215	259	47	11	7
16	11	39	24	25	12	30	59	233	265	46	10	7
17	27	35	23	25	12	27	102	229	254	41	10	7
18	17	30	22	25	12	24	363	211	234	38	12	7
19	14	32	21	24	12	22	275	211	227	35	13	6
20	13	32	21	22	12	21	215	229	234	33	10	6
21	13	30	20	23	13	18	187	270	251	31	10	6
22	13	30	19	22	13	20	178	352	254	29	9	6
23	12	49	14	21	12	18	168	497	240	27	9	6
24	12	45	12	20	12	18	162	630	227	26	9	6
25	11	50	14	18	12	18	154	735	254	24	8	7
26	11	50	16	18	12	18	165	782	214	22	8	7
27	22	44	19	18	13	19	171	718	182	21	8	6
28	51	41	25	16	13	20	181	658	164	20	8	6
29	46	38	33	15	-	19	211	524	154	19	8	6
30	36	36	40	12	-	18	270	446	139	18	8	7
31	33	-	35	13	-	18	-	402	-	17	7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	494	51	8	15.9	0.548	0.63	980
November	1,071	50	22	35.7	1.23	1.37	2,120
December	755	40	12	24.4	.841	.97	1,500
Calendar year 1937	19,029	426	-	52.1	1.80	24.42	37,740
January	638	30	12	20.6	.710	.82	1,270
February	399	20	12	14.2	.490	.51	791
March	594	34	13	19.2	.662	.76	1,180
April	3,343	363	18	111	3.83	4.27	6,630
May	10,128	782	140	327	11.3	13.03	20,090
June	8,295	460	139	276	9.52	10.62	16,450
July	1,692	128	17	54.6	1.88	2.17	3,360
August	341	16	7	11.0	.379	.44	676
September	208	9	6	6.9	.238	.27	413
Water year 1937-38	27,958	782	6	76.6	2.64	35.86	55,460

Peak discharge.- Apr. 18 (2:30 p.m.) 567 sec.-ft.; May 25 (9 p.m.) 938 sec.-ft.; June 5 (9 p.m.) 572 sec.-ft.

Smith Creek near Port Hill, Idaho

Location.- Water-stage recorder, lat. 48°57'40", long. 116°33'20", in NE¼ sec. 26, T. 65 N., R. 2 W., at U. S. Forest Service bridge, 1 mile south of Smith Creek ranger station and 4 miles southwest of Port Hill.

Drainage area.- 70 square miles.

Records available.- May 1928 to September 1938 (except winters prior to 1935).

Extremes.- Maximum discharge during year, 2,100 second-feet May 25 (gage height, 6.35 feet); minimum, 8 second-feet Sept. 19-24; minimum gage height, 1.36 feet Sept. 23, 24.

1928-38: Maximum discharge, 3,060 second-feet June 14, 1933 (gage height, 7.15 feet); minimum, 4 second-feet Dec. 4-10, 1936; minimum gage height, 0.80 foot Sept. 15-18, 1929, Sept. 10, 1930.

Remarks.- Records good except those for periods of ice effect or of missing gage heights, Dec. 8-13, 23-26, Jan. 5-13, Jan. 25 to Feb. 22, which were computed on basis of weather records and records for stations on nearby streams and are poor. No diversions above station.

Rating table, Apr. 19 to Sept. 30, 1938 (gage height, in feet, and discharge, in second-feet)

1.30	6	2.80	142	4.80	929
1.60	16	3.20	226	5.20	1,190
1.90	34	3.60	345	5.60	1,470
2.20	61	4.00	505	6.00	1,790
2.50	97	4.40	701	6.40	2,140

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	88	115	106	40	47	58	990	1,160	266	30	10
2	57	81	123	98	45	44	61	929	1,260	261	29	10
3	42	76	120	91	50	44	67	691	1,300	224	28	10
4	49	70	112	85	55	44	75	565	1,360	202	26	10
5	44	67	108	75	60	43	82	479	1,400	219	24	10
6	36	64	101	70	55	43	89	420	1,260	255	23	11
7	32	62	93	65	50	42	93	377	1,160	207	22	20
8	29	115	60	60	45	42	106	359	1,090	195	21	16
9	28	178	45	58	43	42	116	363	728	198	20	14
10	27	143	50	55	40	44	121	389	614	160	20	13
11	26	225	55	50	35	48	128	428	680	140	19	12
12	24	202	60	55	34	67	130	551	811	128	18	11
13	24	168	62	60	33	101	138	644	960	117	18	10
14	23	197	65	73	33	120	158	675	869	108	18	10
15	22	195	74	136	33	105	172	733	723	100	18	10
16	38	166	81	123	33	102	227	739	840	94	18	10
17	131	143	82	98	33	91	451	675	783	85	17	9
18	75	123	79	91	33	83	1,440	614	670	77	27	9
19	57	116	75	86	33	77	960	701	604	71	30	8
20	51	116	73	80	34	70	609	811	629	66	22	8
21	49	109	71	80	35	62	501	990	723	61	18	8
22	47	109	67	77	37	68	457	1,220	733	57	17	8
23	44	249	50	73	39	67	457	1,510	670	52	16	8
24	41	211	40	67	41	66	457	1,670	589	49	15	8
25	38	215	45	60	46	64	457	1,790	701	46	14	10
26	37	227	55	60	46	66	537	1,750	537	44	14	10
27	75	180	65	55	48	68	585	1,590	432	41	13	9
28	193	160	97	50	49	70	614	1,440	374	39	12	9
29	135	142	152	45	-	66	783	1,400	342	36	11	9
30	103	131	180	35	-	62	929	1,360	300	33	11	11
31	100	-	128	37	-	60	-	1,220	-	31	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	1,710	193	22	55.2	0.789	0.91	3,390
November	4,328	249	62	144	2.06	2.30	8,580
December	2,583	180	40	83.3	1.19	1.37	5,120
Calendar year 1937	53,640	1,160	-	147	2.10	28.49	106,400
January	2,254	136	35	72.7	1.04	1.20	4,470
February	1,158	60	33	41.4	.591	.62	2,300
March	2,018	120	42	65.1	.930	1.07	4,000
April	11,058	1,440	58	369	5.27	5.88	21,930
May	28,073	1,790	359	906	12.9	14.87	55,680
June	24,302	1,400	300	810	11.6	12.94	48,200
July	3,662	266	31	118	1.69	1.95	7,260
August	600	30	11	19.4	.277	.32	1,190
September	311	20	8	10.4	.149	.17	617
Water year 1937-38	82,057	1,790	8	225	3.21	43.60	162,700

Peak discharge.- Apr. 18 (6 a.m.) 1,830 sec.-ft.; May 25 (9 p.m.) 2,100 sec.-ft.; June 4 (10 p.m.) 1,590 sec.-ft.; June 13 (8 p.m.) 1,220 sec.-ft.

Boundary Creek near Port Hill, Idaho

(International gaging station)

Location.- Water-stage recorder, lat. 48°59'50", long. 116°34'05", in SW¼ sec. 11, T. 65 N., R. 2 W., 140 feet downstream from bridge at mouth of canyon, 0.2 mile south of international boundary, and 3 miles west of Port Hill.
Drainage area.- 97 square miles.
Records available.- May 1928 to September 1938.
Extremes.- Maximum discharge during year, 2,270 second-feet May 25 (gage height, 5.12 feet), from rating curve extended above 1,600 second-feet; minimum, 14 second-feet Sept. 23 (gage height, 0.53 foot).
1928-38: Maximum discharge, 2,400 second-feet June 15, 1933 (gage height, 5.22 feet); minimum, 5 second-feet sometime during period Nov. 10 to Dec. 3, 1936 (gage height, 0.27 foot).
Remarks.- Records good except those for period of missing gage heights, Oct. 1-14, and periods of ice effect, Dec. 8-14, 23-30, Jan. 4-13, Jan. 24 to Feb. 4, Feb. 8-21, which were computed on basis of available gage heights, weather records, and records for stations on nearby streams and are fair. Result of discharge measurement shown for Feb. 10. No diversions above gage. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 13 to Sept. 30)

0.50	13	2.50	402	4.50	1,700
.90	36	2.90	590	4.90	2,070
1.30	78	3.30	810	5.10	2,270
1.70	149	3.70	1,060		
2.10	256	4.10	1,360		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	56	57	74	35	42	58	1,020	1,160	266	34	18
2	45	50	72	68	40	44	63	960	1,160	266	34	18
3	40	48	77	63	45	45	68	780	1,200	225	33	18
4	42	45	70	60	48	45	73	640	1,280	208	32	17
5	40	42	70	55	47	44	81	566	1,280	197	30	18
6	35	42	66	50	43	44	89	497	1,200	211	30	22
7	31	41	57	48	43	44	94	464	1,060	184	29	28
8	29	58	40	47	40	43	113	460	1,060	189	28	25
9	27	106	35	46	35	43	132	478	780	187	28	22
10	26	82	40	45	32	45	134	502	668	153	27	21
11	25	118	45	40	32	48	141	536	695	136	27	20
12	24	113	50	43	31	56	153	640	810	124	26	18
13	24	95	54	46	30	77	160	750	930	111	25	18
14	23	94	56	49	30	94	176	780	870	102	27	17
15	22	106	58	62	30	92	194	810	780	94	26	16
16	30	97	56	61	30	100	231	840	870	86	25	16
17	75	85	55	61	30	97	379	780	840	78	25	16
18	47	60	53	63	30	86	870	722	722	72	32	15
19	39	68	51	57	30	79	722	780	640	66	34	14
20	37	72	51	55	32	73	551	900	640	62	28	14
21	36	75	50	54	35	65	469	1,060	722	57	25	14
22	35	72	47	53	38	69	451	1,320	722	54	24	14
23	33	109	35	51	38	70	469	1,560	640	51	23	14
24	32	118	30	50	35	69	474	1,520	575	48	22	15
25	30	109	35	45	35	66	512	1,700	615	47	22	20
26	29	109	40	45	36	68	590	1,920	487	45	21	18
27	42	99	45	45	38	69	630	1,840	415	42	20	16
28	124	88	60	42	39	72	668	1,700	367	41	20	16
29	82	68	80	40	-	68	810	1,560	333	39	20	16
30	64	74	100	30	-	65	960	1,400	297	37	19	21
31	66	-	86	32	-	64	-	1,240	-	35	18	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	1,264	124	22	40.8	0.421	0.49	2,510
November	2,399	118	41	80.0	.825	.92	4,760
December	1,721	100	30	55.5	.572	.66	3,410
Calendar year 1937	50,014	1,100	-	137	1.41	19.20	99,220
January	1,580	74	30	51.0	.526	.61	3,130
February	1,007	48	30	36.0	.371	.39	2,000
March	1,986	100	42	64.1	.661	.76	3,940
April	10,515	960	58	350	3.61	4.03	20,860
May	30,725	1,920	460	991	10.2	11.76	60,940
June	23,818	1,280	297	794	8.19	9.14	47,240
July	3,513	266	35	113	1.16	1.34	6,970
August	814	34	18	26.3	.271	.31	1,610
September	535	28	14	17.8	.184	.21	1,060
Water year 1937-38	79,877	1,920	14	219	2.26	30.62	158,400

Peak discharge.- Apr. 18 (11 a.m.) 1,130 sec.-ft.; May 23 (11:30 p.m.) 2,270 sec.-ft.; May 25 (11:40 p.m.) 2,270 sec.-ft.; June 4, (9:15 and 10:15 p.m.) 1,520 sec.-ft.; June 13 (8 p.m.) 1,160 sec.-ft.; June 16 (8:30 p.m.) 1,100 sec.-ft.

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Clark Fork above Missoula, Mont.

Location.- Water-stage recorder, lat. 46°53', long. 113°55', in SE¼ sec. 18, T. 13 N., R. 18 W., 1½ miles downstream from Blackfoot River and 4 miles east of Missoula.

Records available.- March 1929 to September 1938.

Extremes.- Maximum discharge, 19,700 second-feet May 30 (gage height, 10.01 feet); minimum daily discharge, 350 second-feet (estimated) Jan. 31.
1929-38: Maximum discharge, 21,600 second-feet June 2, 1933 (gage height, 9.90 feet); minimum, 86 second-feet Jan. 8, 1930 (gage height, 0.52 foot, ice jammed above gage).

Remarks.- Records good. Slight regulation caused by operation of power plant near Bonner. Several diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,000	843	762	*850	*500	970	1,250	5,280	15,900	7,050	1,650	1,190
2	980	852	674	*750	990	1,000	1,120	7,050	14,400	7,290	1,770	1,140
3	930	843	753	*680	1,110	1,100	1,160	7,290	13,500	8,540	1,770	1,100
4	970	870	970	*630	1,100	1,070	1,190	6,570	12,900	9,060	1,770	1,140
5	1,000	834	861	*600	1,050	1,110	1,350	5,860	12,400	8,800	1,710	1,140
6	970	852	930	*630	1,120	1,030	1,360	5,280	12,400	8,290	1,710	1,140
7	960	861	807	*800	1,180	1,020	1,430	4,830	11,800	7,790	1,530	1,170
8	890	852	*650	*820	1,060	910	1,530	4,510	10,700	7,050	1,530	1,170
9	930	861	*550	*850	1,050	960	1,830	4,310	9,860	6,570	1,590	1,170
10	900	843	*500	*1,000	1,040	950	2,220	4,110	9,060	6,330	1,590	1,190
11	950	852	1,010	*1,000	1,040	1,000	2,360	3,920	7,790	5,860	1,520	1,250
12	940	870	1,330	980	1,050	1,030	2,430	3,920	7,050	5,280	1,520	1,180
13	940	861	1,650	940	816	1,110	2,880	3,920	6,810	4,830	2,100	1,210
14	900	852	1,400	1,040	900	1,350	2,290	4,110	7,050	4,510	1,370	1,200
15	960	900	1,280	1,030	708	1,590	2,290	4,310	7,290	4,310	861	1,160
16	930	890	1,190	1,070	*650	1,650	2,360	4,720	6,810	4,310	1,460	1,150
17	940	980	1,070	1,020	*650	1,890	2,500	5,170	6,810	3,630	1,460	1,060
18	970	861	1,080	980	674	1,890	3,030	5,860	7,790	3,820	1,410	1,140
19	910	798	1,010	930	843	1,650	3,920	5,850	8,290	3,640	1,470	1,110
20	910	789	1,010	900	990	1,490	4,110	6,330	7,790	3,370	1,370	1,080
21	910	960	960	900	1,010	1,270	3,820	6,810	6,810	3,120	1,400	1,100
22	890	880	930	900	1,040	1,200	3,550	7,540	7,050	2,870	1,390	1,050
23	910	900	*800	880	1,040	1,190	3,370	7,540	8,290	2,800	1,290	1,040
24	890	950	*700	816	1,120	1,090	3,370	8,540	9,860	2,640	1,350	1,030
25	880	910	*650	*800	1,020	1,280	3,370	10,700	10,700	2,570	1,300	1,040
26	852	940	*650	*780	960	1,260	3,640	13,500	10,400	2,500	1,220	1,050
27	890	950	*850	*770	930	1,370	3,730	15,600	9,590	2,500	1,250	1,030
28	870	910	*950	890	940	1,470	3,730	17,100	9,060	2,360	1,250	1,030
29	861	990	1,050	682	-	1,530	3,820	19,100	8,040	2,290	1,210	1,080
30	843	900	990	*450	-	1,370	4,210	18,700	7,290	2,290	1,190	1,080
31	861	-	970	*350	-	1,180	-	17,800	-	2,020	1,180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	28,537	1,000	843	921	56,600
November	26,454	990	789	882	52,470
December	28,987	1,650	500	935	57,490
Calendar year 1937	510,128	4,830	340	1,398	1,012,000
January	25,718	1,070	350	830	51,010
February	26,581	1,180	500	949	52,720
March	38,980	1,890	910	1,257	77,320
April	79,220	4,210	1,120	2,641	157,100
May	246,130	19,100	3,920	7,940	488,200
June	283,490	15,900	6,810	9,450	562,300
July	148,290	9,060	2,020	4,734	294,100
August	45,191	2,100	861	1,458	89,640
September	33,620	1,250	1,030	1,121	66,680
Water year 1937-38	1,011,198	19,100	350	2,770	2,006,000

*Stage-discharge relation affected by ice; discharge computed on basis of gage heights, weather records, and records for stations below Missoula and at St. Regis.

Clark Fork below Missoula, Mont.

Location.- Water-stage recorder, lat. 46°53', long. 114°07', in SE¼ sec. 21, T. 13 N., R. 20 W., 2 miles downstream from Bitterroot River and 6 miles west of Missoula.

Records available.- October 1929 to September 1938.

Extremes.- Maximum discharge during year, 35,700 second-feet May 30, 31 (gage height, 10.00 feet); minimum, 720 second-feet Jan. 31 (gage height, 0.51 foot).
1929-38: Maximum discharge, 36,800 second-feet June 11, 1933 (gage height, 10.14 feet); minimum, 388 second-feet Jan. 18, 1933 (gage height, 0.58 foot, ice present).

Remarks.- Records good except those for Mar. 11-14, Apr. 8-12, which were computed on basis of observer's daily readings and are fair. Many diversions above station.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-10)

0.6	810	2.5	3,850	6.0	15,400
.8	1,030	3.0	5,050	7.0	20,200
1.1	1,400	3.5	6,450	8.0	25,200
1.5	1,980	4.0	8,010	9.0	30,200
2.0	2,820	5.0	11,300	10.0	35,700

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,320	1,340	1,440	1,570	975	1,620	2,140	11,700	30,800	12,800	2,300	1,670
2	1,480	1,350	1,260	1,430	1,310	1,740	2,090	15,400	27,700	12,400	2,220	1,610
3	1,400	1,360	1,260	1,310	1,580	1,880	2,030	15,000	26,200	12,900	2,220	1,540
4	1,470	1,370	1,530	1,190	1,720	1,950	2,040	12,800	25,700	14,500	2,220	1,570
5	1,480	1,370	1,460	1,140	1,700	2,010	2,220	11,300	24,700	13,600	2,140	1,580
6	1,440	1,350	1,470	1,170	1,680	1,980	2,300	10,300	24,700	13,200	2,140	1,600
7	1,510	1,370	1,480	1,410	1,710	1,950	2,300	9,300	24,200	12,400	2,030	1,650
8	1,410	1,370	1,260	1,430	1,640	1,830	2,470	8,330	22,700	11,700	1,940	1,680
9	1,440	1,390	1,110	1,470	1,600	1,820	2,730	8,010	20,700	10,600	2,040	1,710
10	1,410	1,390	1,040	1,640	1,550	1,800	3,210	7,530	17,800	10,300	2,000	1,770
11	1,410	1,410	1,430	1,650	1,640	1,900	3,420	7,370	15,000	9,630	1,950	1,740
12	1,410	1,440	2,300	1,600	1,670	1,960	3,420	7,220	13,200	8,650	1,940	1,770
13	1,370	1,430	2,920	1,580	1,370	2,030	3,850	7,370	13,600	7,370	2,470	1,710
14	1,360	1,470	2,730	1,680	1,430	2,120	3,630	8,010	15,000	6,600	2,010	1,700
15	1,370	1,470	2,470	1,740	1,230	2,920	3,740	8,650	14,500	6,150	1,460	1,640
16	1,390	1,460	2,220	1,860	1,190	2,920	3,850	9,630	13,600	5,720	1,820	1,600
17	1,360	1,540	2,110	1,840	1,220	3,010	4,180	10,600	13,600	5,580	1,980	1,550
18	1,390	1,480	2,060	1,840	1,220	3,110	5,720	11,700	16,300	5,180	1,960	1,550
19	1,390	1,440	1,960	1,780	1,320	2,920	10,600	12,000	18,200	5,050	2,000	1,550
20	1,400	1,400	1,920	1,720	1,540	2,730	12,000	13,200	15,900	4,660	2,000	1,530
21	1,410	1,550	1,840	1,670	1,570	2,470	9,960	12,800	14,100	4,300	1,920	1,460
22	1,390	1,540	1,760	1,680	1,570	2,220	8,650	12,800	17,300	3,960	2,010	1,440
23	1,390	1,550	1,600	1,710	1,600	2,220	7,690	13,600	19,200	3,630	1,860	1,400
24	1,370	1,640	1,270	1,650	1,610	2,110	7,220	15,400	19,200	3,420	1,860	1,410
25	1,360	1,600	1,220	1,580	1,550	2,220	7,060	20,200	19,700	3,320	1,830	1,400
26	1,320	1,610	1,220	1,470	1,570	2,220	7,690	24,200	18,700	3,210	1,770	1,460
27	1,360	1,620	1,580	1,360	1,540	2,300	8,010	27,700	18,200	3,010	1,760	1,460
28	1,320	1,640	1,770	1,480	1,640	2,380	8,010	30,200	17,300	2,920	1,760	1,430
29	1,360	1,620	1,890	1,430	-	2,470	8,330	33,500	15,400	2,820	1,720	1,480
30	1,350	1,550	1,830	975	-	2,300	9,630	35,700	13,600	2,920	1,680	1,580
31	1,350	-	1,820	810	-	2,140	-	34,600	-	2,640	1,670	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	43,190	1,510	1,320	1,393	85,670
November	44,120	1,640	1,340	1,471	87,510
December	53,130	2,920	1,040	1,714	105,400
Calendar year 1937	927,957	11,300	660	2,542	1,840,000
January	46,865	1,860	810	1,512	92,960
February	41,945	1,720	975	1,498	83,200
March	69,250	3,110	1,620	2,234	137,400
April	160,190	12,000	2,030	5,340	317,700
May	466,120	35,700	7,220	15,040	924,500
June	566,800	30,800	13,200	18,890	1,124,000
July	225,040	14,500	2,640	7,259	446,400
August	60,680	2,470	1,670	1,957	120,400
September	47,240	1,770	1,400	1,575	93,700
Water year 1937-38	1,824,570	35,700	810	4,999	3,619,000

Clark Fork at St. Regis, Mont.

Location.- Water-stage recorder, lat. 47°18', long. 115°05', in sec. 19, T. 18 N., R. 27 W., at St. Regis, half a mile downstream from St. Regis River.

Drainage area.- 10,500 square miles.

Records available.- October 1910 to September 1923, February 1929 to September 1938.

Average discharge.- 22 years, 7,458 second-feet (figure published in Water-Supply Paper 832, for 21 years, has been revised to 7,494 second-feet).

Extremes.- Maximum discharge during year, 46,400 second-feet May 31 (gage height, 16.00 feet); minimum, 1,170 second-feet Feb. 1 (gage height, 3.34 feet).
1910-23, 1929-38: Maximum discharge observed, 62,800 second-feet May 30, 31, 1913 (gage height, 19.1 feet); minimum daily discharge, 1,050 second-feet Feb. 19-22, 1929, stage-discharge relation affected by ice.

Remarks.- Records good. Many diversions above station.

Rating tables, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 31

3.4	1,220	8.0	9,790
3.7	1,470	9.0	12,900
4.0	1,800	10.0	16,400
4.5	2,400	11.0	20,400
5.0	3,060	12.0	24,700
5.6	4,130	13.0	29,500
6.2	5,340	14.5	37,400
7.0	7,100	16.0	46,400

June 1 to Sept. 30

4.4	1,900	7.0	6,730
4.7	2,350	8.0	9,490
5.0	2,830	9.0	12,700
5.4	3,510	10.0	16,400
6.0	4,660		

Note.- Above gage height 9.9 feet same as preceding table.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,680	1,800	2,040	2,340	1,260	2,100	3,060	17,500	42,100	16,000	3,510	2,270
2	1,740	1,800	1,920	2,100	1,380	2,100	2,980	20,400	37,400	15,300	3,160	2,190
3	1,860	1,800	1,800	1,980	1,920	*2,100	2,980	21,600	34,700	15,300	3,160	2,190
4	1,860	1,800	1,740	1,680	2,160	*2,250	2,980	19,500	33,100	16,400	3,080	2,120
5	1,860	1,800	1,980	†1,600	2,280	*2,400	3,060	17,200	32,600	16,800	3,080	2,190
6	1,860	1,800	1,920	†1,550	2,280	*2,460	3,390	15,300	31,500	16,000	2,990	2,120
7	1,860	1,800	1,980	†1,600	2,280	*2,430	3,570	13,600	31,000	15,300	2,910	2,190
8	1,920	1,800	1,920	†1,900	2,280	*2,340	3,750	12,600	29,500	14,600	2,750	2,270
9	1,860	1,860	1,680	1,920	2,220	*2,340	4,040	11,600	27,000	13,400	2,750	2,270
10	1,860	1,920	1,680	1,980	2,160	*2,340	4,420	11,300	23,800	12,700	2,830	2,350
11	1,860	1,920	1,680	2,100	2,100	*2,370	5,020	11,000	20,800	11,700	2,750	2,350
12	1,860	1,860	2,160	2,160	2,160	*2,400	5,450	11,300	18,300	10,700	2,670	2,350
13	1,860	1,920	2,770	2,160	2,340	*2,500	5,780	12,000	17,500	9,790	2,670	2,350
14	1,860	1,920	3,300	2,100	1,920	*3,060	6,440	12,900	18,300	8,600	3,160	2,270
15	1,860	1,980	3,060	2,220	1,980	*3,700	6,220	13,600	18,700	7,750	2,750	2,270
16	1,860	1,980	2,910	2,340	1,570	*3,750	6,440	14,600	17,900	7,220	2,270	2,190
17	1,920	1,980	2,700	2,400	†1,550	*4,040	7,820	15,700	17,900	6,970	2,590	2,190
18	1,860	1,980	2,640	2,400	1,570	4,320	15,500	16,800	18,700	6,500	2,670	2,120
19	1,860	1,980	2,520	2,400	1,680	4,130	19,100	17,200	21,200	6,280	2,750	2,120
20	1,860	1,920	2,460	2,340	1,800	3,840	19,100	17,200	20,800	6,070	2,750	2,120
21	1,920	1,860	2,460	2,280	2,040	3,570	16,800	17,500	18,700	5,660	2,670	2,040
22	1,920	1,980	2,340	2,280	2,100	3,220	13,900	17,900	18,700	5,260	2,670	2,190
23	1,860	2,040	2,280	2,280	2,100	3,060	12,600	18,700	22,500	4,960	2,670	1,970
24	1,860	2,040	2,040	2,280	2,100	3,060	12,000	21,200	22,500	4,760	2,510	1,900
25	1,860	2,100	1,800	2,220	2,100	2,910	11,600	24,700	22,900	4,460	2,510	1,900
26	1,860	2,160	1,800	2,100	2,040	3,060	12,000	30,000	22,500	4,360	2,510	1,900
27	1,860	2,160	1,980	1,980	2,040	3,140	12,300	33,600	22,100	4,270	2,430	1,900
28	1,800	2,160	2,100	1,980	2,040	3,300	12,600	38,000	21,200	4,080	2,430	1,970
29	1,860	2,160	2,280	2,040	-	3,300	13,200	41,500	19,500	3,890	2,350	1,970
30	1,860	2,100	2,400	1,800	-	3,390	15,000	45,100	17,500	3,800	2,350	1,970
31	1,800	-	2,400	1,340	-	3,220	-	45,700	-	3,800	2,270	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	57,480	1,920	1,680	1,854	114,000
November	58,380	2,160	1,800	1,946	115,800
December	68,740	3,300	1,680	2,217	136,300
Calendar year 1937	1,329,220	16,700	1,180	3,642	2,636,000
January	63,850	2,400	1,340	2,060	126,600
February	55,450	2,340	1,260	1,980	110,000
March	92,200	4,320	2,100	2,974	182,900
April	263,100	19,100	2,980	8,770	521,900
May	636,800	45,700	11,000	20,540	1,263,000
June	720,900	42,100	17,500	24,030	1,430,000
July	282,680	16,800	3,800	9,119	560,700
August	84,620	3,510	2,270	2,730	167,800
September	64,200	2,350	1,900	2,140	127,300
Water year 1937-38	2,448,400	45,700	1,260	6,708	4,856,000

*Water-stage recorder not operating; discharge computed on basis of gage readings made on alternate days and records for station below Missoula.
†Stage-discharge relation affected by ice; discharge computed on basis of records for station below Missoula.

Clark Fork near Plains, Mont.

Location.- Water-stage recorder, lat. 47°26', long. 114°51', on lot 7, sec. 7, T. 19 N., R. 26 W., 3 miles above Plains and 7 miles downstream from Flathead River.

Drainage area.- 19,900 square miles.

Records available.- October 1910 to September 1938.

Average discharge.- 22 years (1912-15, 1917-19, 1920-24, 1925-38), 18,750 second-feet.

Extremes.- Maximum discharge during year, 88,000 second-feet May 31 (gage height, 14.98 feet).
1910-38: Maximum discharge, 126,000 second-feet May 28, 1928; minimum, 3,200 second-feet Feb. 8, 1936, stage-discharge relation affected by ice.

Remarks.- Records good except those for periods when stage was below intake pipe and for periods of ice effect, which are fair. Many diversions for irrigation above station. Flow slightly regulated by natural storage in Flathead Lake.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 10 to Jan. 9, Feb. 28 to Apr. 18)

3.5	5,080	6.0	15,100	11.0	49,000
3.7	5,770	7.0	20,100	12.0	57,500
4.0	6,870	8.0	26,000	13.0	67,000
4.5	8,800	9.0	33,000	14.0	77,000
5.0	10,800	10.0	40,500	15.0	88,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,080	*4,850	5,770	6,130	*4,500	4,920	7,060	36,000	85,800	45,600	7,810	8,800
2	5,080	*4,900	5,600	6,320	4,920	4,920	6,870	40,500	83,600	43,800	7,430	9,600
3	5,250	*4,950	5,420	6,320	†5,450	5,080	7,060	43,800	80,300	38,200	6,500	10,400
4	5,420	*5,000	5,420	5,950	†5,700	5,250	6,870	43,800	79,200	37,500	5,420	11,200
5	5,420	*5,000	5,420	6,130	†5,800	5,420	7,060	42,200	79,200	35,200	4,920	11,200
6	5,250	*5,000	5,600	6,130	†5,800	5,420	7,240	41,300	79,200	29,400	4,920	11,600
7	5,250	*4,900	5,600	5,600	†5,800	5,420	7,620	39,800	79,200	30,000	5,600	12,500
8	5,250	*4,800	5,600	5,600	†5,800	5,250	7,620	38,200	77,000	30,000	5,770	12,500
9	5,250	*4,800	4,920	5,770	†5,700	5,250	8,000	37,500	74,000	30,800	5,600	12,000
10	5,250	4,920	4,750	5,600	†5,600	5,250	8,200	36,800	72,000	30,800	5,250	12,000
11	5,080	5,080	5,420	5,600	†5,650	5,250	8,800	36,000	68,000	29,400	5,600	12,000
12	5,080	5,250	6,130	5,600	†5,750	5,420	8,600	35,200	64,000	26,600	5,950	11,600
13	5,250	5,080	6,680	5,770	†5,800	5,770	6,680	36,000	61,200	24,700	5,950	11,600
14	5,080	5,080	6,870	5,600	†5,600	6,320	8,400	36,800	61,200	23,500	6,680	11,600
15	5,080	5,250	6,870	5,600	†5,400	7,060	10,800	38,200	60,200	21,200	6,500	12,500
16	*4,950	5,250	6,680	5,950	†5,200	7,810	11,200	39,800	59,300	20,100	6,130	11,600
17	*4,900	5,420	6,320	5,950	†5,000	8,200	12,500	41,300	58,400	18,000	5,950	10,800
18	*4,850	5,600	6,320	5,950	†4,900	7,810	18,400	43,000	58,400	16,900	6,320	7,430
19	*4,800	5,420	6,130	5,950	†5,000	7,620	26,000	44,700	60,200	15,500	6,680	7,240
20	*4,750	5,250	6,130	5,950	†5,200	7,240	28,000	45,600	60,200	16,900	6,680	7,240
21	*4,750	5,250	6,130	5,950	†5,200	7,060	28,600	45,600	58,400	15,100	6,870	7,240
22	*4,850	5,250	6,130	5,770	†5,200	6,870	27,300	45,600	57,500	13,700	7,060	7,240
23	*4,850	5,420	5,950	5,770	†5,200	6,500	27,300	47,200	60,200	12,900	7,430	7,620
24	*4,800	5,420	5,250	5,770	†5,200	6,500	27,300	49,800	60,200	12,500	8,600	7,810
25	*4,750	5,420	5,080	5,770	†5,200	6,500	28,000	54,000	60,200	12,900	9,800	7,620
26	*4,750	5,420	5,080	5,770	†5,150	6,500	28,600	60,200	59,300	12,900	8,800	7,620
27	*4,950	5,420	4,920	5,950	†5,100	6,680	29,400	67,000	57,500	12,500	6,320	6,500
28	*4,850	5,600	5,080	5,770	5,080	6,680	30,000	75,000	56,600	12,000	6,320	5,600
29	*4,750	5,770	5,950	5,420	-	6,870	30,800	79,200	54,000	11,600	7,060	8,000
30	*4,900	5,770	6,870	4,920	-	7,060	33,000	84,700	49,800	10,400	7,240	9,200
31	*4,900	-	6,500	*4,500	-	7,060	-	86,900	-	8,600	7,620	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	155,420	5,420	4,750	5,014	308,300
November	156,540	5,770	4,800	5,218	310,500
December	180,590	6,870	4,750	5,825	358,200
Calendar year 1937	4,501,860	50,000	-	12,330	8,929,000
January	178,830	6,320	4,500	5,769	354,700
February	149,900	5,800	4,500	5,354	297,300
March	194,960	8,200	4,920	6,289	386,700
April	503,280	33,000	6,870	16,780	998,200
May	1,489,700	86,900	35,200	48,050	2,955,000
June	1,974,300	85,800	49,800	65,810	3,916,000
July	699,200	45,600	8,600	22,550	1,387,000
August	204,780	9,800	4,920	6,606	406,200
September	289,860	12,500	5,600	9,662	574,900
Water year 1937-38	6,177,360	86,900	4,500	16,920	12,250,000

*Gage height missing (stage below intake pipe); discharge computed on basis of weather records and records for Clark Fork at St. Regis and Flathead River near Polson.
†Stage-discharge relation affected by ice; discharge computed on basis of available gage heights, weather records, and records for Clark Fork at St. Regis and Flathead River near Polson.

Clark Fork near Heron, Mont.

Location.- Water-stage recorder, lat. 48°04', long. 115°59', in sec. 28, T. 27 N., R. 34 W., 600 feet upstream from Dead Horse Creek and 1½ miles northwest of Heron.
Drainage area.- 21,800 square miles.
Records available.- September 1928 to September 1938.
Average discharge.- 10 years, 19,350 second-feet.
Extremes.- Maximum discharge during year, 96,200 second-feet June 1 (gage height, 37.47 feet); minimum, 2,140 second-feet (regulated) Feb. 3 (gage height, 8.34 feet), from rating curve extended below 4,000 second-feet.
1928-38: Maximum discharge, 137,000 second-feet June 17, 1933 (gage height, 46.62 feet, present datum); minimum, 620 second-feet Dec. 23, 1935, during period of extreme regulation (gage height, 7.59 feet), from rating curve extended below 4,000 second-feet.
Maximum stage known, 59.1 feet, present datum, June 1894.
Remarks.- Records good. Discharge for periods of missing or incomplete gage-height record, Jan. 22-31, July 31 to Aug. 5, computed on basis of weather records and records for Clark Fork near Plains, Mont. Diurnal fluctuation during low-water periods owing to operation of power plant at Thompson Falls. Considerable water diverted for irrigation from tributaries upstream.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

8.30	2,070	11.10	6,200	14.50	12,960	19.00	24,710	26.00	48,780	33.00	76,730
8.70	2,620	11.50	6,890	15.00	14,110	20.00	27,830	27.00	52,570	34.00	80,980
9.10	3,180	12.00	7,800	15.50	15,290	21.00	31,090	28.00	56,430	35.00	85,280
9.50	3,740	12.50	8,750	16.00	16,500	22.00	34,460	29.00	60,350	36.00	89,590
9.90	4,340	13.00	9,750	16.50	17,750	23.00	37,920	30.00	64,350	37.00	93,990
10.30	4,940	13.50	10,790	17.00	19,050	24.00	41,460	31.00	68,410	38.00	98,390
10.70	5,550	14.00	11,860	18.00	21,780	25.00	45,080	32.00	72,530		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,240	5,390	6,710	7,610	5,390	6,030	8,950	44,300	95,800	51,800	10,000	8,560
2	5,870	5,390	6,540	6,890	4,640	6,200	9,150	46,200	93,100	48,800	8,500	9,150
3	5,710	5,390	6,200	6,370	3,460	6,200	8,950	48,400	89,600	46,200	8,000	10,200
4	5,710	5,390	6,540	6,710	6,030	6,540	8,950	50,300	87,400	41,500	7,500	10,600
5	5,870	5,550	6,370	6,540	6,540	6,540	8,750	49,600	87,000	40,700	6,700	10,600
6	5,710	5,390	5,710	6,200	6,710	6,710	10,200	47,700	86,100	37,200	6,370	10,200
7	5,710	5,390	6,370	6,370	6,710	7,610	9,750	46,200	86,100	33,400	5,870	11,600
8	5,710	5,550	6,200	6,540	6,890	7,250	10,400	44,700	85,300	33,400	6,370	12,700
9	5,710	5,550	6,540	6,370	6,710	6,710	10,600	43,600	82,700	33,100	6,890	13,400
10	5,710	5,550	6,370	6,710	6,710	7,070	11,600	42,900	79,300	33,400	6,710	11,000
11	5,710	5,240	5,550	6,710	6,890	6,370	12,100	42,200	75,500	32,800	6,370	12,600
12	5,710	6,030	7,250	6,370	7,070	6,370	12,700	42,200	72,100	31,100	6,710	12,600
13	5,550	5,710	6,030	6,540	6,710	7,250	12,700	42,900	68,800	28,500	6,890	12,100
14	5,550	5,710	7,430	6,710	6,030	7,430	12,700	44,000	66,400	27,200	6,890	12,100
15	5,550	6,030	7,610	6,890	6,710	8,180	13,400	45,400	65,600	25,600	7,610	12,100
16	5,550	6,030	7,610	6,890	6,370	9,350	15,800	46,900	65,200	22,900	7,430	12,700
17	5,550	5,870	7,610	7,250	6,030	11,000	18,300	48,400	64,400	21,800	7,070	12,300
18	5,390	5,710	7,070	7,250	5,710	11,000	26,600	50,300	63,600	19,000	6,890	10,800
19	5,390	6,200	7,070	7,430	5,550	11,000	39,700	51,800	63,600	17,200	7,430	8,370
20	5,240	6,030	7,070	7,250	5,550	10,400	39,700	52,200	64,400	16,200	7,610	7,610
21	5,390	6,030	7,070	7,250	4,790	9,750	38,600	52,600	63,600	18,500	7,800	8,180
22	5,390	6,030	7,070	7,000	6,200	9,550	36,900	53,700	62,000	16,000	9,550	8,750
23	5,390	6,030	7,250	7,000	6,200	9,550	35,800	55,300	62,400	15,300	9,950	8,370
24	5,390	6,370	7,070	7,000	6,370	9,150	35,500	58,400	64,000	14,300	9,750	6,710
25	5,240	6,200	6,710	7,000	6,370	9,150	35,800	62,800	63,600	14,100	9,750	8,180
26	5,390	6,540	5,870	7,000	6,370	8,370	36,500	68,800	63,600	14,300	10,600	8,180
27	5,240	6,370	5,390	7,000	6,370	8,370	37,600	75,900	62,000	13,200	9,750	7,990
28	5,550	6,540	5,390	7,000	6,030	8,750	38,600	80,100	60,800	13,600	7,800	7,070
29	5,090	6,370	5,240	6,800	-	9,950	40,400	86,100	58,800	13,400	7,610	7,070
30	5,390	6,540	7,250	6,400	-	7,610	42,200	91,400	55,600	13,000	7,990	7,800
31	5,240	-	7,800	6,000	-	8,950	-	94,900	-	11,500	8,180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	170,840	5,870	5,090	5,511	338,900
November	176,120	6,540	5,240	5,871	349,300
December	205,960	7,800	5,240	6,644	408,500
Calendar year 1937	5,025,600	54,900	2,970	13,770	9,968,000
January	211,050	7,610	6,000	6,808	418,600
February	171,110	7,070	3,460	6,111	339,400
March	254,360	11,000	6,030	8,205	504,500
April	678,900	42,200	8,750	22,630	1,347,000
May	1,710,100	94,900	42,200	55,160	3,392,000
June	2,158,400	95,800	55,600	71,950	4,281,000
July	799,000	51,800	11,500	25,770	1,585,000
August	242,540	10,600	5,870	7,824	481,100
September	299,390	13,400	6,710	9,980	593,800
Water year 1937-38	7,077,770	95,800	3,460	19,390	14,040,000

Pend Oreille Lake at Hope, Idaho

Location.- Water-stage recorder, 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. Zero of gage is 2,000.00 feet above mean sea level (U. S. Coast and Geodetic Survey datum).

Drainage area.- 22,900 square miles.

Records available.- September 1921 to September 1938. March 1914 to September 1922 at site at Sandpoint.

Extremes.- Maximum water-surface elevation during year, 2,082.70 feet June 8; minimum, 2,047.00 feet Oct. 27.
1921-38: Maximum water-surface elevation, 2,088.78 feet June 21, 1933; minimum, 2,046.47 feet Feb. 17, 1936.
Maximum known water-surface elevation, 2,076.08 feet June 1894.

Remarks.- Records excellent. Considerable water diverted from tributaries of Clark Fork for irrigation.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47.17	47.15	47.92	48.30	48.28	47.63	48.78	54.80	61.23	59.03	50.20	47.91
2	47.18	47.12	47.92	48.31	48.24	47.62	48.77	55.16	61.65	58.72	50.02	47.90
3	47.18	47.12	47.91	48.28	48.16	47.63	48.76	55.51	61.96	58.42	49.80	47.91
4	47.21	47.12	47.89	48.25	48.09	47.64	48.77	55.86	62.19	58.07	49.62	47.97
5	47.22	47.12	47.88	48.22	48.08	47.64	48.77	56.11	62.35	57.70	49.44	47.99
6	47.21	47.12	47.86	48.18	48.08	47.66	48.77	56.28	62.48	57.31	49.25	48.01
7	47.21	47.12	47.83	48.13	48.06	47.67	48.78	56.37	62.57	56.90	49.08	48.03
8	47.19	47.17	47.79	48.10	48.04	47.70	48.80	56.41	62.65	56.49	48.89	48.10
9	47.18	47.26	47.75	48.07	48.01	47.72	48.84	56.42	62.66	56.13	48.73	48.21
10	47.18	47.26	47.86	48.04	48.00	47.73	48.91	56.40	62.58	55.80	48.64	48.25
11	47.17	47.27	48.00	48.00	47.99	47.74	48.99	56.37	62.44	55.53	48.52	48.31
12	47.16	47.32	47.98	47.99	47.98	47.75	49.06	56.34	62.26	55.26	48.42	48.34
13	47.14	47.40	47.95	47.98	48.02	47.78	49.15	56.34	62.03	54.96	48.32	48.39
14	47.13	47.43	47.95	48.02	48.08	47.84	49.23	56.35	61.81	54.67	48.23	48.42
15	47.13	47.47	47.96	48.16	48.06	47.95	49.32	56.39	61.55	54.36	48.16	48.45
16	47.13	47.49	48.01	48.28	48.03	48.12	49.45	56.45	61.33	54.05	48.11	48.48
17	47.18	47.49	48.04	48.34	47.99	48.29	49.65	56.55	61.16	53.75	48.06	48.50
18	47.15	47.45	48.08	48.38	47.95	48.47	50.12	56.64	60.94	53.45	48.02	48.52
19	47.14	47.42	48.07	48.40	47.90	48.62	50.90	56.76	60.74	53.10	47.99	48.50
20	47.13	47.45	48.06	48.41	47.85	48.70	51.69	56.88	60.57	52.78	47.97	48.42
21	47.12	47.46	48.06	48.41	47.80	48.74	52.24	57.01	60.42	52.49	47.94	48.36
22	47.10	47.47	48.04	48.46	47.77	48.77	52.66	57.17	60.27	52.25	47.94	48.31
23	47.09	47.52	48.02	48.46	47.74	48.80	52.98	57.33	60.11	52.00	47.92	48.27
24	47.09	47.58	48.03	48.41	47.71	48.84	53.20	57.54	59.99	51.71	47.96	48.20
25	47.09	47.68	48.03	48.38	47.70	48.85	53.42	57.80	59.89	51.44	47.97	48.13
26	47.07	47.76	48.03	48.36	47.68	48.83	53.64	58.16	59.80	51.26	47.99	48.09
27	47.09	47.84	48.04	48.32	47.66	48.81	53.83	58.60	59.71	51.03	48.01	48.05
28	47.10	47.91	48.02	48.28	47.65	48.84	54.05	59.10	59.58	50.86	48.01	48.01
29	47.15	47.93	48.04	48.24	-	48.85	54.25	59.64	59.43	50.71	48.00	47.97
30	47.13	47.93	48.17	48.23	-	48.84	54.50	60.19	59.26	50.53	47.97	47.94
31	47.14	-	48.25	48.28	-	48.80	-	60.72	-	50.38	47.92	-

Pend Oreille River at Priest River, Idaho

(Formerly published as Clark Fork at Priest River, Idaho)

Location.- Water-stage recorder, lat. 48°10'30", long. 116°55'30", in lot. 4, sec. 26 T. 56 N., R. 5 W., at town of Priest River, 1½ miles downstream from Priest River. Zero of gage 2,000 feet above mean sea level. Discharge measurements made at highway bridge at Newport, Wash., 6 miles downstream.
Drainage area.- 24,200 square miles.
Records available.- June 1903 to April 1905 and October 1921 to September 1938. June 1903 to September 1921, at Newport, Wash., 6 miles downstream; records equivalent.
Average discharge.- 35 years, 25,520 second-feet (adjusted for storage in Pend Oreille Lake).
Extremes.- Maximum discharge during year, 93,400 second-feet June 9 (elevation, 2,058.59 feet); minimum, 5,620 second-feet Dec. 11 (elevation, 2,044.31 feet).
1903-38: Maximum discharge, 136,000 second-feet June 15, 1913, June 21, 1933; minimum, 2,200 second-feet Dec. 12, 1919.
Maximum stage known, 38.9 feet June 1894, from floodmarks, referred to Newport gage (discharge, 217,000 second-feet, estimated).
Remarks.- Records excellent except those for period of ice effect, and period of backwater from logs, which are fair. Many small diversions from upper tributaries for irrigation. Flow subject to natural regulation in several lakes and to slight regulation during log-driving seasons, owing to operations of flash dam on tributary of Priest River. Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, water year 1937-38 except period of ice effect and period of backwater from logs (gage height, in feet, and discharge, in second-feet)

44.0	4,750	46.0	12,100	49.0	27,500	54.0	61,200
44.5	6,200	47.0	16,800	50.0	33,600	57.0	82,200
45.0	7,950	48.0	21,800	52.0	47,200	60.0	103,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,060	7,200	11,200	12,500	*8,300	9,470	14,600	43,400	83,600	69,000	19,200	†9,700
2	7,060	7,350	10,800	12,500	*9,600	9,550	14,500	45,600	86,200	67,300	18,500	†9,700
3	7,020	6,960	10,900	12,500	*10,900	9,710	14,400	47,800	88,500	65,200	17,800	†9,700
4	7,130	7,130	11,000	12,100	11,200	9,890	14,400	49,800	90,000	62,900	17,000	†9,700
5	7,100	6,960	10,800	11,800	11,200	9,630	14,500	51,500	91,000	60,700	16,300	†9,600
6	7,020	6,850	10,500	11,900	11,100	9,710	14,500	52,400	92,000	58,300	15,500	†9,900
7	7,060	6,920	10,700	11,700	11,100	9,760	14,700	53,100	92,600	55,800	14,700	†10,100
8	7,020	6,920	10,800	11,300	11,000	9,960	14,800	53,400	92,300	53,100	14,300	†10,300
9	7,020	7,720	10,300	11,200	11,300	10,000	14,800	53,400	93,000	51,000	13,600	†10,500
10	6,990	7,870	6,930	10,800	11,000	10,000	15,200	53,200	92,600	48,900	13,100	†10,900
11	6,990	7,910	6,630	11,000	11,000	10,100	15,500	53,100	91,600	47,000	12,300	†11,100
12	7,020	7,840	10,400	11,100	11,600	10,300	15,700	51,700	90,400	45,500	12,000	†11,300
13	7,060	8,500	10,800	11,000	8,460	10,600	16,200	52,300	88,900	43,700	11,500	†11,500
14	7,060	8,780	10,900	11,400	7,350	10,700	16,400	52,700	87,400	41,900	11,300	†11,700
15	6,850	8,860	10,900	12,500	9,060	11,500	16,900	53,100	85,800	40,100	10,900	†11,800
16	6,850	9,220	11,300	12,800	10,200	12,200	17,400	53,600	84,400	38,200	11,100	†11,800
17	6,960	9,670	11,400	12,900	10,500	12,800	18,100	53,700	82,900	36,200	10,500	†11,700
18	6,880	9,340	11,300	12,900	10,300	13,100	19,600	55,300	81,700	34,500	10,400	†11,200
19	6,920	9,340	11,400	13,000	10,300	13,500	23,400	55,600	80,300	33,000	10,300	†11,700
20	6,850	8,860	11,200	13,000	10,200	14,300	27,200	56,000	79,300	31,500	10,200	†11,700
21	6,880	8,700	10,900	12,900	10,000	14,400	29,600	56,900	78,400	30,100	9,760	†11,600
22	7,100	9,020	11,400	12,600	9,920	14,600	31,600	57,800	77,400	28,700	†9,700	†11,300
23	6,960	9,180	11,100	12,900	9,880	14,700	33,100	58,900	76,300	27,500	†9,800	†11,200
24	6,780	9,470	10,800	12,900	9,840	14,800	34,600	60,100	75,600	26,900	†9,900	†10,900
25	6,820	9,710	10,100	12,900	9,670	14,800	35,600	61,900	74,900	25,000	†10,000	†10,900
26	6,880	10,400	10,300	12,700	9,630	14,700	36,600	64,200	74,100	24,100	†10,000	†10,400
27	6,820	10,800	10,800	*12,400	9,590	14,600	37,900	66,800	73,500	23,100	†10,000	†10,300
28	6,720	10,800	10,800	*12,200	9,550	14,400	39,100	69,900	72,700	22,200	†10,100	†10,200
29	7,020	11,000	11,300	*11,300	-	14,500	40,200	73,400	71,700	21,400	†9,900	†10,100
30	7,310	11,200	11,600	*7,400	-	14,800	41,900	76,800	70,400	20,800	†9,800	†9,900
31	6,990	-	12,300	*7,600	-	14,600	-	80,400	-	20,000	†9,800	-

Month	Observed: Discharge in second-feet: Maximum	Minimum	Mean	Observed: Run-off in acre-feet	Gain or loss in storage in Pend Oreille Lake (acre-feet)	Adjusted for storage: Run-off in acre-feet	Discharge in second-feet: Mean	Per square mile	Run-off in inches
October	7,310	6,720	6,974	428,800	-2,500	426,300	6,933	0.286	0.33
November	11,200	6,850	8,683	516,700	+66,000	582,700	9,793	.405	.45
December	12,300	6,630	10,700	657,600	+26,900	684,500	11,130	.460	.53
Calendar year 1937	68,500	3,000	16,780	12,150,000	+113,500	12,260,000	16,930	.700	9.49
January	13,000	7,400	11,860	729,300	+2,500	731,800	11,900	.492	.57
February	11,600	7,350	10,130	562,800	-52,900	509,900	9,181	.379	.39
March	14,800	9,470	12,170	748,500	+97,000	845,500	13,750	.568	.65
April	41,900	14,400	23,100	1,375,000	+497,000	1,872,000	31,460	1.30	1.45
May	80,400	43,400	57,020	3,506,000	+566,300	4,072,000	66,220	2.74	3.16
June	93,000	70,400	83,320	4,958,000	-135,300	4,823,000	81,050	3.35	3.74
July	69,000	20,000	40,440	2,486,000	-792,700	1,693,000	27,530	1.14	1.31
August	19,200	9,700	12,230	752,300	-209,600	542,700	8,826	.365	.42
September	11,800	9,600	10,750	639,600	+1,700	641,200	10,780	.445	.50
Water year 1937-38	93,000	6,630	23,980	17,360,000	+64,400	17,420,000	24,070	.995	13.50

*Stage-discharge relation affected by ice; discharge computed on basis of one discharge measurement, gage heights, weather records and records for station below Z Canyon.
†Backwater from logs; discharge computed on basis of records for station below Z Canyon.

Pend Oreille River below Z Canyon, near Metaline Falls, Wash.
(Formerly published as Clark Fork below Z Canyon, near Metaline Falls, Wash.)

(International gaging station)

Location.- Water-stage recorder, lat. 48°59', long. 117°21', in lot 2, sec. 11, T. 40 N., R. 43 E., 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 Metaline Falls.

Drainage area.- 25,200 square miles.

Records available.- October 1928 to September 1938. November 1908 to September 1910 and October 1912 to September 1928 at site at Metaline Falls.

Average discharge.- 26 years (1912-38), 26,150 second-feet (adjusted for storage in Pend Oreille Lake).

Extremes.- Maximum discharge during year, 96,600 second-feet June 10 (gage height, 40.10 feet); minimum, 6,590 second-feet Nov. 4 (gage height, 10.47 feet).
1912-38: Maximum discharge, 139,000 second-feet June 16, 1913 (gage height, 41.2 feet, former site); minimum, 2,500 second-feet Dec. 12, 1919 (gage height, -2.4 feet, former site).

Remarks.- Records excellent except those for period of ice effect, Jan. 31 to Feb. 3, which were computed on basis of one discharge measurement, gage heights, and weather records and are fair. Many small diversions from upper tributaries for irrigation. No artificial regulation of any consequence. Flow regulated by natural storage in Pend Oreille Lake. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

10.0	5,720	13.0	12,200	16.0	21,800	20.0	34,900	30.0	65,200
11.0	7,600	14.0	15,000	17.0	25,400	22.0	40,900	35.0	80,200
12.0	9,720	15.0	18,100	18.0	28,800	26.0	53,100	40.0	96,300

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,110	7,450	11,100	13,100	8,900	10,200	16,200	46,400	81,800	72,800	21,200	10,100
2	7,070	7,280	11,200	13,400	9,900	10,400	16,200	47,800	84,300	71,500	20,300	9,960
3	6,970	7,560	11,000	13,300	11,100	10,500	16,200	49,400	88,100	69,900	19,400	9,980
4	7,160	7,140	10,800	13,200	12,200	10,800	16,200	51,000	90,600	68,000	18,500	9,960
5	7,240	7,160	10,800	13,000	12,400	10,700	16,400	52,400	92,500	65,900	17,700	9,740
6	7,280	7,110	10,700	12,600	12,300	10,600	16,700	54,100	94,000	63,800	16,900	9,890
7	7,300	7,030	10,500	12,400	12,200	10,700	16,800	55,100	95,500	61,600	16,200	10,200
8	7,300	7,110	10,400	12,200	11,800	10,600	17,000	56,000	96,000	59,100	15,300	10,400
9	7,330	7,070	10,500	12,000	11,600	10,600	17,300	56,500	96,000	56,300	14,900	10,600
10	7,330	7,220	10,400	11,800	11,600	11,000	17,200	56,600	96,500	53,900	14,200	10,800
11	7,350	7,710	9,200	11,400	11,600	10,900	17,500	56,500	96,200	51,700	13,700	11,200
12	7,330	7,980	7,520	11,400	11,400	11,000	17,900	56,500	95,300	49,400	13,100	11,400
13	7,350	8,020	8,710	11,600	11,800	11,400	18,200	55,400	94,500	47,600	12,500	11,600
14	7,390	8,410	10,300	11,600	10,600	12,300	18,800	55,400	92,800	46,000	12,000	11,800
15	7,430	9,160	10,800	12,400	8,670	13,000	19,300	55,900	90,900	44,400	11,700	12,000
16	7,390	9,090	11,000	13,400	8,800	14,100	19,800	56,200	89,100	42,800	11,400	12,100
17	7,370	9,140	11,100	14,000	9,890	15,100	20,900	56,900	87,600	41,000	11,200	12,100
18	7,300	9,430	11,500	14,300	10,500	15,400	22,800	56,600	85,800	39,200	10,900	12,000
19	7,220	9,430	11,500	14,200	10,700	15,700	24,300	58,000	84,100	37,500	10,800	11,600
20	7,200	9,430	11,600	14,100	10,700	15,600	27,100	58,900	82,800	35,800	10,600	12,000
21	7,160	9,160	11,500	14,200	10,700	16,000	30,700	59,500	81,800	34,200	10,400	12,000
22	7,220	8,840	11,400	14,000	10,500	16,400	33,600	60,300	80,800	32,700	10,200	11,900
23	7,260	9,160	11,500	13,800	10,400	16,600	36,200	61,400	79,800	31,300	9,980	11,600
24	7,370	9,620	11,500	13,600	10,300	16,600	37,600	62,800	78,800	30,000	10,100	11,500
25	7,260	9,910	11,300	13,600	10,300	16,700	39,100	64,200	78,100	29,100	10,200	11,200
26	7,160	10,300	10,900	13,500	10,200	16,700	40,300	65,800	77,400	27,800	10,300	11,200
27	7,240	10,500	10,800	13,400	10,200	16,600	41,200	67,700	76,700	26,400	10,300	10,700
28	7,280	10,800	10,800	13,300	10,200	16,600	42,200	69,900	75,900	25,300	10,300	10,600
29	7,160	11,000	11,400	13,300	-	16,200	43,400	72,700	75,000	24,200	10,400	10,500
30	7,110	11,000	12,300	13,000	-	16,200	44,700	75,700	74,100	23,200	10,200	10,400
31	7,350	-	13,000	10,300	-	16,200	-	78,700	-	22,200	10,100	-

Month	Observed				Gain or loss in storage in Pend Oreille Lake (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	7,430	6,970	7,258	446,300	-2,500	443,800	7,218	0.286	0.33
November	11,000	7,030	8,674	516,100	+66,000	582,100	9,782	.388	.43
December	13,000	7,520	10,870	668,500	+26,900	695,400	11.310	.449	.52
Calendar year 1937	59,900	3,500	17,380	12,580,000	+113,500	12,690,000	17,530	.696	9.44
January	14,300	10,300	12,950	796,200	+2,500	798,700	12,990	.515	.59
February	12,400	8,670	10,770	597,900	-52,900	545,000	9,813	.389	.41
March	16,700	10,200	13,590	835,800	+97,000	932,800	15,170	.602	.69
April	44,700	16,200	25,390	1,511,000	+497,000	2,008,000	33.750	1.34	1.50
May	78,700	46,400	59,040	3,630,000	+566,300	4,196,000	68.240	2.71	3.12
June	96,500	74,100	86,430	5,143,000	-135,300	5,008,000	84.160	3.34	3.73
July	72,800	22,200	44,660	2,746,000	-792,700	1,953,000	31,760	1.26	1.45
August	21,200	9,980	13,060	803,300	-209,600	593,700	9,656	.383	.44
September	12,100	9,740	11,030	656,600	+1,700	658,300	11.060	.439	.49
Water year 1937-38	96,500	6,970	25,350	18,350,000	+64,400	18,410,000	25,440	1.01	13.70

Middle Fork of Rock Creek near Philipsburg, Mont.

Location.- Wire-weight gage, lat. 46°11', long. 113°30', in NE¼ sec. 17, T. 5 N., R. 15 W., three-quarters of a mile upstream from East Fork, 2½ miles upstream from West Fork, and 15 miles southwest of Philipsburg.

Records available.- September 1937 to September 1938.

Extremes.- Maximum discharge observed during period, 980 second-feet May 29 (gage height, 3.96 feet); minimum observed, 17 second-feet Jan. 29 (discharge measurement).

Remarks.- Records fair except those for December and January, which were estimated and are poor. Gage read twice daily during periods of record. A few small diversions for irrigation upstream.

Discharge, in second-feet, Sept. 21-30, 1937

Sept.21	43	Sept. 26	40
22	41	27	40
23	40	28	40
24	40	29	43
25	41	30	41

Note.- Mean discharge Sept. 21-30, 40.9 second-feet (run-off, 811 acre-feet).

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	37				-	29	266	657	332	86	50
2	41	40				-	28	266	657	427	81	54
3	40	40				-	29	238	657	492	81	51
4	40	39				-	27	211	657	427	77	47
5	40	*38				-	24	198	657	369	75	47
6	40	36	†40			-	25	186	657	369	71	52
7	37	*36				-	21	173	657	313	70	50
8	38	35		†25		-	22	162	607	296	67	48
9	39	35				-	22	162	514	280	71	46
10	38	33				-	26	150	448	251	71	44
11	37	33				-	26	150	408	224	67	42
12	37	34				-	30	150	388	211	65	41
13	37	36				-	31	162	408	186	66	40
14	36	34				26	32	173	388	186	65	38
15	36	35				22	30	211	369	186	65	38
16	36	35	†35	-		24	31	238	350	198	62	40
17	34	36		-		26	36	238	369	173	60	37
18	35	*36		-		26	63	251	427	162	65	36
19	37	*36		-		*27	80	266	350	150	65	35
20	36	*36		-		*27	67	211	313	140	65	34
21	37	36		-		*27	61	211	313	140	61	32
22	37	*36		-		*26	71	251	388	140	61	32
23	40	37		-		*26	65	251	388	130	62	36
24	40	35		-		*26	67	332	408	130	55	36
25	39	37		-		26	102	492	388	130	53	37
26	38	*37	†30	-		27	117	632	369	130	57	37
27	38	37		-		27	116	865	350	123	59	34
28	37	38		-		29	126	865	313	107	54	36
29	38	*38		‡17		27	140	920	296	99	52	37
30	38	*38		-		27	186	865	350	96	48	36
31	37	-		-		28	-	759	-	92	44	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,174	41	34	37.9	2,330
November	1,089	40	33	36.3	2,160
December	1,080	-	-	34.8	2,140
Calendar year					
January 1-15	375	-	-	25	744
February	-	-	-	-	-
March 14-31	474	29	22	26.3	940
April	1,730	186	21	57.7	3,430
May	10,505	920	150	339	20,840
June	13,501	657	296	450	26,780
July	6,689	492	92	216	13,270
August	2,001	86	44	64.5	3,970
September	1,223	54	32	40.8	2,430
Water year					

*Stage-discharge relation affected by ice; discharge computed on basis of record for preceding and following days.
†Estimated.
‡Discharge measurement.

East Fork of Rock Creek near Philipsburg, Mont.

Location.- Staff gage, lat. 46°08'10", long. 113°23'10" (revised), in NW¼ sec. 5, T. 4 N., R. 14 W., 200 feet upstream from Flint Creek canal, 300 feet downstream from Rock Creek Dam, 3 miles upstream from Meadow Creek, and 14 miles southwest of Philipsburg.

Records available.- June 1935 to September 1938.

Extremes.- Maximum discharge observed during year, 122 second-feet July 10 (gage height, 1.94 feet); minimum observed, 2.1 second-feet Jan. 8-17 (gage height, 0.56 foot).
1935-38: Maximum discharge observed, 269 second-feet June 15, 1935 (gage height, 3.06 feet, former site and datum); minimum observed, that of Jan. 8-17, 1938.

Remarks.- Records fair. Flow regulated by storage in Rock Creek Reservoir (capacity, 16,000 acre-feet). Water running over spillway July 7-19. Gage read once daily.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

0.5	1.5	1.0	17	1.6	70
.6	2.5	1.2	31	1.8	98
.8	7.2	1.4	48	2.0	130

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	15	2.9	*2.4	2.3	2.5	2.9	*3.3	5.6	63	54	*46
2	16	15	2.9	*2.3	2.3	*2.5	2.5	3.3	6.7	60	37	46
3	16	15	2.9	2.3	*2.3	2.5	*2.7	3.3	7.2	60	37	46
4	16	15	2.9	2.3	2.3	*2.5	2.9	3.3	7.2	*62	48	*46
5	16	15	2.9	2.3	2.3	2.5	*2.9	3.3	20	63	*47	*46
6	17	15	2.9	2.3	*2.3	*2.5	2.9	3.3	98	63	46	46
7	17	*13	2.5	2.3	2.3	2.5	2.9	3.3	113	63	*47	56
8	17	11	2.5	2.1	*2.3	2.5	2.9	*3.3	56	83	48	56
9	17	5.6	2.5	*2.1	2.3	2.5	2.9	3.3	58	89	*48	56
10	17	*4.2	2.5	2.1	2.3	*2.5	*2.9	3.8	56	122	48	56
11	17	2.9	2.9	2.1	*2.3	2.5	2.9	3.8	*53	113	48	*56
12	17	2.5	*2.9	2.1	2.3	2.5	2.9	18	*51	106	46	56
13	17	2.5	2.9	2.1	*2.3	*2.5	2.9	14	48	98	*46	56
14	16	*2.4	2.5	2.1	*2.3	2.5	2.9	14	*48	95	*46	56
15	16	2.3	2.5	2.1	2.3	2.5	2.9	*14	48	83	46	*56
16	16	2.3	*2.5	*2.1	2.3	*2.7	2.9	14	50	78	46	56
17	16	*2.3	2.5	2.1	*2.3	2.9	3.3	16	50	73	46	48
18	*16	2.3	2.5	2.3	2.3	*2.9	3.3	17	52	68	56	*48
19	16	2.3	*2.5	2.3	*2.3	2.9	3.3	*17	*52	65	68	48
20	16	2.3	2.5	2.3	*2.4	*2.7	3.3	*18	52	63	68	48
21	16	*2.3	2.5	*2.3	2.5	2.5	3.3	18	52	60	*68	48
22	15	2.3	*2.4	2.3	2.5	2.5	*3.3	9.7	54	58	68	46
23	15	2.3	2.3	*2.3	2.5	2.5	3.3	*7.0	58	56	68	46
24	*15	2.3	2.3	2.3	*2.5	*2.5	*3.6	4.4	63	58	68	46
25	15	2.3	*2.3	2.3	*2.5	2.5	3.8	*4.3	65	60	68	*51
26	15	*2.3	*2.3	*2.3	2.5	2.5	3.8	4.2	65	63	68	56
27	15	2.3	2.3	2.3	*2.5	*2.6	3.8	*4.4	*65	63	46	56
28	15	2.3	2.5	2.3	2.5	*2.8	3.3	4.6	65	63	*46	54
29	15	2.3	2.5	2.3	-	2.9	3.3	*4.4	65	63	46	54
30	15	2.5	2.5	*2.3	-	*2.9	*3.3	*4.2	65	63	46	54
31	*15	-	2.5	2.3	-	*2.9	-	4.0	-	*58	46	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	494	17	15	15.9	980
November	171.1	15	2.3	5.70	339
December	80.0	2.9	2.3	2.58	159
Calendar year 1937	5,669.3	123	2.3	15.5	11,250
January	69.4	2.4	2.1	2.24	138
February	66.1	2.5	2.3	2.36	131
March	80.7	2.9	2.5	2.60	160
April	93.8	3.8	2.5	3.13	186
May	248.5	18	3.3	8.02	493
June	1,548.7	113	5.6	51.6	3,070
July	2,235	122	56	72.1	4,430
August	1,614	68	37	52.1	3,200
September	1,539	56	46	51.3	3,050
Water year 1937-38	8,240.3	122	2.1	22.6	16,340

*Gage height missing; discharge interpolated.

Nevada Creek near Finn, Mont.

Location.- Staff gage, lat. 46°48', long. 112°48', in NE¼ sec. 13, T. 12 N., R. 10 W., 6 miles west of Finn.

Records available.- May 1934 to September 1938.

Extremes.- Maximum discharge observed during year, 398 second-feet June 25 (gage height, 4.10 feet).
1934-38: Maximum discharge, 1,200 second-feet (estimated) Apr. 11, 1936 (gage height, 4.26 feet, from floodmark); minimum discharge observed, 4.6 second-feet Sept. 18-20, 1937.

Remarks.- Records fair except those for periods of ice effect, Nov. 5, Nov. 21 to Apr.3, which were estimated and are poor. Gage read twice daily. Some diversions above gage.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	6.8					10	152	165	93	21	15
2	6.8	6.2					15	178	146	142	20	11
3	6.8	6.2					20	146	132	235	20	11
4	7.0	6.5					30	126	120	121	20	11
5	7.0	6.9				10	35	108	102	114	18	11
6	7.3	7.3					35	102	90	114	18	11
7	6.8	7.6					78	120	84	100	16	11
8	6.5	7.3					126	102	78	142	15	11
9	6.5	7.3					235	96	72	107	18	11
10	6.8	7.3					265	76	71	93	19	11
11	6.2	7.3					206	65	66	80	18	11
12	6.2	7.6					165	62	57	67	18	11
13	5.6	6.8					120	62	60	58	17	11
14	5.6	7.0					146	57	65	54	15	10
15	5.6	8.0				15	139	68	56	57	15	9.4
16	5.6	7.6					132	84	45	55	16	9.4
17	5.6	6.8					120	96	139	58	16	9.0
18	5.9	7.0					139	114	102	50	18	8.6
19	6.5	7.0					108	178	71	44	20	8.6
20	5.6	7.6					90	165	54	41	22	8.6
21	5.6						67	139	46	35	21	9.0
22	5.6						66	132	70	34	18	8.6
23	5.6						63	152	206	31	18	8.6
24	6.2						62	206	206	30	17	9.0
25	6.8	7					66	280	206	34	17	9.0
26	6.8					10	69	265	220	31	17	8.2
27	6.5						65	265	170	30	17	8.2
28	6.5						63	344	114	29	17	8.2
29	6.2						70	296	107	28	16	8.2
30	6.8						84	250	100	25	16	9.0
31	7.0	—					-	206	-	23	15	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	196.5	7.0	5.6	6.34	390
November	212.1	-	-	7.07	421
December	186	-	-	6	369
Calendar year 1937	5,727.9	102	4.6	15.7	11,370
January	186	-	-	6	369
February	168	-	-	6	333
March	360	-	-	11.6	714
April	2,889	265	10	96.3	5,730
May	4,692	344	57	151	9,310
June	3,220	220	45	107	6,390
July	2,155	235	23	69.5	4,270
August	549	22	15	17.7	1,090
September	296.6	15	8.2	9.89	588
Water year 1937-38	15,110.2	344	-	41.4	29,970

Bitterroot River near Darby, Mont.

Location.- Wire-weight gage, lat. 45°59', long. 114°09', in NE¼ sec. 36, T. 3 N., R. 21 W., at bridge on U. S. Highway 93, a quarter of a mile downstream from Chaffin Creek and 4 miles southeast of Darby.

Records available.- April 1937 to September 1938.

Extremes.- Maximum discharge observed during year, 5,480 second-feet May 29 (gage height, 6.51 feet); minimum observed, 84 second-feet Dec. 9 (gage height, 1.06 feet).
1937-38: Maximum discharge observed, that of May 29, 1938; minimum observed, that of Dec. 9, 1937.

Remarks.- Records good except those for periods of ice effect, which are fair. Gage read twice daily. Diversions for irrigation above gage.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.0	74	3.0	1,080	5.0	3,400
1.5	180	3.5	1,570	5.5	4,080
2.0	378	4.0	2,140	6.0	4,780
2.5	680	4.5	2,750	6.5	5,480

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	145	142	106	*155	*180	199	219	3,400	4,220	1,470	378	223
2	142	142	114	150	174	226	199	3,010	4,220	1,470	378	216
3	142	142	158	*147	190	234	223	2,380	4,220	1,570	354	212
4	140	147	155	*135	169	223	241	2,020	4,080	1,570	331	209
5	142	145	155	*152	163	202	234	1,680	4,080	1,680	309	202
6	142	147	160	*160	160	209	248	1,470	3,940	1,570	309	206
7	142	150	145	160	160	190	248	1,280	3,660	1,370	309	202
8	142	155	120	*180	166	172	287	1,180	3,530	1,280	309	202
9	142	163	88	172	174	199	354	1,180	3,010	1,280	287	219
10	140	152	166	180	169	196	378	1,130	2,620	1,180	287	219
11	138	158	268	180	166	216	404	1,130	2,380	1,080	287	212
12	138	158	430	172	163	223	430	1,280	2,260	995	268	202
13	138	155	331	169	*152	241	458	1,470	2,140	910	268	193
14	138	158	237	174	*138	287	458	1,680	2,620	830	268	193
15	135	160	237	183	*140	287	458	2,020	2,260	870	268	183
16	138	160	223	186	*138	287	517	2,380	2,140	870	268	180
17	138	158	206	177	*142	287	646	2,620	2,380	792	248	177
18	152	145	202	174	*163	248	1,790	2,620	3,010	753	244	172
19	160	142	202	172	*183	268	2,380	2,260	2,140	680	248	169
20	158	160	145	172	202	237	1,790	1,900	1,900	646	248	163
21	155	172	160	160	163	209	1,470	1,900	2,140	611	248	158
22	147	169	152	190	160	186	1,280	2,020	2,380	579	230	155
23	147	177	142	180	158	226	1,230	2,140	2,140	547	234	155
24	147	180	147	*163	155	226	1,180	2,880	2,140	517	234	155
25	145	180	147	*160	180	202	1,470	3,660	1,900	487	237	160
26	142	177	163	*155	183	196	1,790	4,360	1,790	458	309	158
27	145	166	199	*169	193	202	1,680	4,640	2,020	458	244	158
28	142	172	212	160	202	226	1,680	5,340	1,680	458	234	155
29	138	172	190	*155	-	216	1,900	5,340	1,570	430	237	163
30	135	130	199	*152	-	219	2,500	5,060	1,570	404	226	163
31	140	-	180	*152	-	216	-	4,640	-	404	216	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	4,435	160	135	143	8,800
November	4,734	180	130	158	9,390
December	5,739	430	88	185	11,380
Calendar year 1937					
January	5,146	190	135	166	10,210
February	4,686	202	138	167	9,290
March	6,955	287	172	224	13,800
April	28,142	2,500	199	938	55,820
May	80,070	5,340	1,130	2,583	158,800
June	81,140	4,220	1,570	2,705	160,900
July	28,219	1,680	404	910	55,970
August	8,515	378	216	275	16,890
September	5,534	223	155	184	10,980
Water year 1937-38	263,315	5,340	88	721	522,200

*Stage-discharge relation affected by ice; discharge computed on basis of record for preceding and following days, one discharge measurement, and observer's notes.

East Fork of Bitterroot River at Conner, Mont.

Location.- Wire-weight gage, lat. 45°56', long. 114°08', in SW¼ sec. 7, T. 2 N., R. 20 W., at highway bridge at Conner, about half a mile upstream from confluence with West Fork.

Records available.- April 1937 to September 1938. September 1910 to September 1916 at site 2½ miles upstream.

Extremes.- Maximum discharge observed during year, 1,810 second-feet May 29 (gage height, 5.78 feet); minimum observed, 19 second-feet Sept. 24, 27 (gage height, 1.12 feet).

1937-38: Maximum discharge observed, that of May 29, 1938; minimum observed, 1.4 second-feet Aug. 17, 1937.

Remarks.- Records good except those for periods of ice effect, Dec. 23 to Feb. 11, Feb. 18-21, which are poor. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	38	30		46	71	59	609	1,430	473	100	47
2	44	40	36		50	63	63	655	1,430	518	96	36
3	45	40	45		59	65	63	563	1,380	609	97	37
4	44	39	50		67	64	63	473	1,330	540	86	41
5	42	38	45		71	64	60	430	1,330	540	79	40
6	42	42	47	40	77	61	60	389	1,280	518	77	41
7	44	41	44		77	56	64	368	1,180	473	75	42
8	45	48	47		76	51	67	328	1,130	452	72	41
9	45	54	36		73	65	78	348	1,080	410	72	40
10	44	54	50		71	60	83	368	891	348	69	45
11	41	49	85		74	58	83	328	796	389	65	40
12	44	53	114		70	63	84	348	796	328	65	39
13	40	44	97		83	72	91	368	749	286	61	37
14	39	44	67		75	79	89	410	749	239	63	36
15	40	47	66		72	75	90	452	702	266	63	37
16	39	44	61	50	70	73	100	540	655	286	55	37
17	40	46	60		55	71	115	609	655	239	49	37
18	41	41	54		57	65	227	702	749	216	49	38
19	45	40	55		71	65	328	655	655	194	51	37
20	53	45	56		87	59	262	609	563	184	50	32
21	46	52	58		91	57	231	586	609	172	48	26
22	41	46	56		86	61	201	609	655	175	45	22
23	42	46	48	50	64	66	190	655	702	166	45	22
24	41	44	48		60	60	197	796	702	160	47	20
25	39	46	50		63	63	254	987	609	150	50	23
26	39	47	66	44	64	55	348	1,230	609	134	59	22
27	40	46	85	42	67	60	328	1,430	609	124	58	22
28	39	47	87	45	67	75	348	1,640	563	115	57	25
29	38	45	88	40	-	58	368	1,700	496	113	54	24
30	38	41	74	36	-	61	452	1,640	496	108	55	23
31	38	-	45	36	-	60	-	1,540	-	105	57	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,341	53	38	43.3	2,660
November	1,347	54	38	44.9	2,670
December	1,850	114	30	59.7	3,670
Calendar year 1937					
January	1,393	-	-	44.9	2,760
February	1,943	91	46	69.4	3,850
March	1,976	79	51	63.7	3,920
April	5,046	452	59	168	10,010
May	22,365	1,700	328	721	44,360
June	25,580	1,430	496	853	50,740
July	9,030	609	105	291	17,910
August	1,969	100	45	63.5	3,910
September	1,009	47	20	33.6	2,000
Water year 1937-38	74,849	1,700	20	205	148,500

Blodgett Creek near Hamilton, Mont.

Location.- Wire-weight gage, lat. 46°17', long. 114°10', in sec. 12, T. 6 N., R. 21 W., at highway bridge about 1½ miles upstream from mouth and 2½ miles north of Hamilton.

Records available.- April to September 1938.

Extremes.- Maximum discharge observed during period, 606 second-feet May 28, 29 (gage height, 3.45 feet); minimum observed, 0.9 second-feet Aug. 1, 2 (gage height, 0.46 foot).

Remarks.- Records good except those above 300 second-feet, which are fair. Gage read once daily. Many diversions for irrigation above gage.

Rating table, Apr. 16 to Sept. 30, 1938 (gage height, in feet, and discharge, in second-feet)

0.5	1.2	1.5	42	2.7	293
.7	3.5	1.8	75	3.0	409
.9	8.0	2.1	121	3.5	630
1.2	20	2.4	192		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	330	293	76	0.9	1.0
2							-	257	312	69	.9	1.0
3							-	148	330	67	1.2	1.0
4							-	105	293	64	1.2	1.0
5							-	90	330	53	1.2	1.0
6							-	74	369	53	1.2	1.0
7							-	67	350	56	1.2	1.0
8							-	55	275	49	1.2	1.0
9							-	60	114	48	1.2	1.0
10							-	55	91	28	1.2	1.0
11							-	62	85	23	1.2	1.0
12							-	64	117	18	1.2	1.0
13							-	112	160	14	1.2	1.0
14							-	123	160	8.4	1.1	1.0
16							-	158	137	4.4	1.1	1.0
16							24	195	137	5.0	1.1	1.0
17							88	208	257	9.8	1.1	1.0
18							257	135	293	12	1.1	1.0
19							492	131	141	3.7	1.1	1.0
20							257	123	151	2.9	1.1	1.0
21							165	108	155	2.0	1.1	1.0
22							133	123	275	1.8	1.1	1.0
23							107	208	204	1.1	1.1	1.3
24							94	350	151	1.1	1.1	1.3
25							103	409	187	1.0	1.1	1.3
26							121	514	165	1.0	1.1	1.3
27							107	536	176	1.0	1.1	1.3
28							110	606	121	1.0	1.1	1.3
29							155	606	110	1.0	1.1	1.3
30							275	430	97	1.0	1.1	1.3
31							-	309	-	1.0	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October					
November					
December					
Calendar year					
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April 16-30	2,488	492	24	166	4,930
May	6,831	606	55	220	13,550
June	6,036	369	85	201	11,970
July	676.2	76	1.0	21.8	1,340
August	34.8	1.2	.9	1.12	69
September	32.4	1.3	1.0	1.08	64
The period					31,920

Willow Creek at Anfinson ranch, near Corvallis, Mont.

Location.- Staff gage, lat. 46°18', long. 114°01', in NW¼ sec. 7, T. 6 N., R. 19 W., at Anfinson ranch, 5 miles southeast of Corvallis.

Records available.- April to September 1938. April 1920 to May 1924 at site about one mile upstream; records not equivalent.

Extremes.- Maximum discharge observed during period, 73 second-feet June 19 (gage height, 2.28 feet); minimum observed, 0.1 second-foot Sept. 11.

Remarks.- Records good. Gage read once or twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	8.7	37	35	4.5	1.3
2							-	2.2	40	32	4.3	1.1
3							-	1.3	40	40	3.9	1.0
4							-	.2	56	38	3.4	.8
5							-	.1	61	32	3.0	.5
6							-	.1	61	26	2.5	.2
7							-	.1	61	22	2.4	.2
8							-	.1	44	21	2.4	.2
9							-	1.2	40	20	2.4	.2
10							-	.8	37	19	2.4	.2
11							-	.3	37	17	2.4	.1
12							-	.3	40	16	2.6	.2
13							-	.4	42	13	2.6	.2
14							4.5	.5	40	11	3.2	.2
15							4.9	.5	40	9.3	3.8	.2
16							5.7	.8	51	8.7	4.7	.2
17							6.9	1.2	66	9.3	5.2	.2
18							9.3	7.1	68	8.7	6.1	.2
19							7.4	13	73	8.7	4.7	.2
20							6.9	12	56	8.2	4.7	.2
21							6.1	11	49	7.6	4.3	.2
22							4.9	13	63	7.1	3.9	.2
23							5.2	17	61	6.6	3.6	.2
24							5.4	20	58	6.1	3.2	.2
25							4.7	23	51	7.1	2.8	.3
26							4.5	23	49	7.1	2.4	.3
27							2.5	27	44	7.1	2.4	.3
28							2.2	61	40	6.6	2.4	.3
29							.9	44	38	6.4	2.4	.3
30							1.2	40	37	5.9	1.8	.3
31							-	37	-	5.2	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October					
November					
December					
Calendar year					
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April 14-30	83.2	9.3	0.9	4.88	165
May	366.9	61	.1	11.8	728
June	1,480	73	37	49.3	2,940
July	467.7	40	5.2	15.1	928
August	101.8	6.1	1.4	3.28	202
September	10.2	1.3	.1	.34	20
The period					4,980

Bear Creek near Victor, Mont.

Location.- Staff gage, lat. 46°23', long. 114°13', in NE¼ sec. 9, T. 7 N., R. 21 W., 5 miles southwest of Victor.

Records available.- April to September 1938.

Extremes.- Maximum discharge observed during period, 865 second-feet April 18 (gage height, 3.45 feet, from graph based on observer's readings); minimum observed, 2.9 second-feet Sept. 23, 26-28.

Remarks.- Records good except those above 500 second-feet, which are fair. Gage read twice daily. No diversions above gage.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	364	411	141	11	5
2							-	245	390	131	11	5
3							-	185	411	118	10	5
4							-	155	433	109	10	4
5							-	125	433	103	9	4
6							-	112	433	99	9	4
7							-	99	411	89	9	4
8							-	91	327	82	8	5
9							-	89	236	79	9	7
10							-	89	183	69	9	7
11							-	95	198	62	8	6
12							-	123	271	59	8	5
13							-	166	308	56	7	5
14							-	177	271	51	7	5
15							33	228	253	48	8	4
16							52	263	271	52	7	4
17							130	245	271	46	7	4
18							588	194	289	42	6	4
19							432	163	220	40	11	4
20							245	135	236	35	10	3
21							182	130	348	31	8	3
22							145	166	327	24	7	3
23							140	245	236	18	6	3
24							132	364	253	17	6	3
25							152	455	236	16	6	3
26							152	550	220	16	8	3
27							140	502	220	15	7	3
28							150	650	195	14	6	3
29							200	650	167	14	6	3
30							301	478	156	13	5	6
31							-	411	-	12	5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October					
November					
December					
Calendar year					
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April 15-30	3,174	588	33	198	6,300
May	7,944	650	89	256	15,760
June	8,614	433	156	287	17,090
July	1,701	141	12	54.9	3,370
August	244	11	5	7.9	484
September	127	7	3	4.2	252
The period					43,260

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Flathead River at Flathead, British Columbia

(International gaging station)

Location.- Staff gage, lat. 49°00', long. 114°29', 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, Mont.

Drainage area.- 450 square miles.

Records available.- March 1929 to September 1938 (except during winter).

Extremes.- Maximum daily discharge during year, 8,950 second-feet May 26 (gage height, 6.82 feet); minimum discharge observed, 186 second-feet Oct. 11-13, 15 (gage height, 1.16 feet).

1929-38: Maximum discharge observed, 10,600 second-feet June 17, 1933 (gage height, 8.90 feet); minimum observed, 85 second-feet Apr. 9, 1929 (gage height, 0.76 foot).

Remarks.- Records good. None for Dec. 1 to Mar. 31. Stage-discharge relation affected by ice Nov. 18-20, 29, and 30. Discharge interpolated Apr. 1. Gage read twice daily. This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.10	165	1.90	590	3.00	1,620	4.20	3,420	5.40	5,910	6.60	8,480
1.30	240	2.10	745	3.30	2,000	4.50	3,990	5.70	6,560	6.90	9,130
1.50	330	2.40	1,000	3.60	2,430	4.80	4,630	6.00	7,190		
1.70	450	2.70	1,290	3.90	2,900	5.10	5,270	6.30	7,640		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	204	628					190	4,590	5,820	1,640	534	280
2	216	590					190	4,300	5,670	1,580	520	272
3	224	548					190	3,660	6,100	1,480	492	272
4	220	534					196	3,140	6,100	1,360	464	272
5	220	506					204	2,480	5,890	1,320	450	264
6	216	492					208	1,990	5,800	1,290	444	264
7	212	464					212	1,690	5,010	1,260	438	260
8	208	450					252	1,610	4,840	1,200	426	280
9	200	444					285	1,610	4,390	1,120	414	276
10	193	438					348	1,690	3,930	1,060	402	272
11	186	426					408	1,990	2,870	1,030	384	268
12	186	444					457	2,500	2,820	1,010	372	264
13	186	450					541	3,170	3,810	919	366	264
14	190	464					650	3,580	3,810	902	354	264
15	186	450					785	3,910	3,510	876	354	260
16	190	450					964	3,850	4,120	850	354	260
17	200	450					1,460	3,750	4,610	809	354	256
18	200	450					2,330	3,700	3,770	769	384	252
19	200	450					2,090	3,560	3,330	737	414	248
20	204	450					3,330	3,620	2,980	721	402	248
21	208	457					2,630	3,700	3,120	721	390	240
22	200	438					2,370	4,370	3,090	673	378	232
23	200	426					2,210	5,970	2,920	681	366	224
24	193	402					2,250	7,390	2,660	665	342	220
25	193	378					2,320	8,330	2,580	650	320	216
26	208	376					2,880	8,950	2,500	635	310	216
27	260	384					3,220	8,780	2,300	605	300	212
28	414	378					3,770	8,230	2,130	605	290	208
29	1,030	374					4,140	5,800	1,910	583	285	208
30	793	370					4,430	6,370	1,690	562	280	208
31	721	-					-	6,220	-	548	280	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	8,461	1,030	186	273	0.61	0.70	16,800
November	13,563	628	370	452	1.00	1.12	26,900
December	-	-	-	-	-	-	-
Calendar year							
January	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-
April	51,510	5,330	190	1,720	3.82	4.26	102,000
May	134,500	8,950	1,610	4,340	9.64	11.11	267,000
June	114,080	6,100	1,690	3,800	8.44	9.42	226,000
July	28,861	1,640	548	931	2.07	2.39	57,200
August	11,863	534	280	383	.85	.98	23,500
September	7,480	280	208	249	.55	.61	14,800
Water year							

Flathead River near Columbia Falls, Mont.

Location.- Water-stage recorder, lat. 48°29', long. 114°05', in NW¼ sec. 7, T. 31 N., R. 19 W., at Potter's ranch, three-quarters of a mile upstream from Middle Fork and 10 miles northeast of Columbia Falls.

Drainage area.- 1,620 square miles.

Records available.- September 1910 to September 1917, April 1929 to September 1938.

Average discharge.- 10 years (1910-17, 1935-38), 2,948 second-feet.

Extremes.- Maximum discharge during year, 23,500 second-feet May 28 (gage height, 10.81 feet); minimum, about 366 second-feet Jan. 30, stage-discharge relation affected by ice.
1910-17, 1929-38: Maximum discharge, 29,500 second-feet June 20, 1916 (gage height, 9.8 feet, former site and datum); minimum, 340 second-feet Jan. 26-31, 1936, stage-discharge relation affected by ice.

Remarks.- Records good except those for periods of missing gage heights, Nov. 19 to Dec. 19, May 29 to June 2, June 20 to July 20 (computed on basis of records for Flathead River at Columbia Falls and of South Fork near Columbia Falls), and those for periods of ice effect, Nov. 16-18, Dec. 20 to Feb. 23 (computed on basis of two discharge measurements, temperature records, gage heights, and records for Flathead River at Columbia Falls and of South Fork near Columbia Falls), which are fair.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	708	1,650		976	476	651	761	11,200	16,200	7,200	1,790	1,040
2	747	1,600		862	593	663	768	13,200	16,300	6,900	1,740	1,030
3	816	1,520		734	688	669	796	12,500	16,600	6,600	1,700	1,020
4	908	1,420		701	761	639	855	10,500	16,600	6,300	1,650	1,000
5	855	1,380		694	740	633	968	9,000	17,400	6,100	1,600	1,010
6	816	1,340		662	720	604	1,000	7,830	17,800	5,800	1,560	1,020
7	769	1,250		682	708	610	1,040	6,800	16,200	5,500	1,520	1,020
8	768	1,340		669	694	576	1,200	6,090	14,300	5,200	1,470	1,030
9	754	1,470		688	639	593	1,470	6,090	13,200	5,000	1,420	1,160
10	740	1,470	700	688	627	621	1,790	6,090	11,800	4,800	1,380	1,160
11	727	1,380		708	663	627	2,000	6,090	10,200	4,600	1,380	1,080
12	708	1,380		701	576	633	2,100	6,560	9,300	4,400	1,340	1,040
13	694	1,420		734	414	688	2,400	7,630	9,900	4,200	1,290	1,010
14	682	1,360		789	404	796	2,800	9,300	11,500	4,000	1,290	976
15	675	1,290		1,080	483	632	3,250	9,900	11,500	3,800	1,340	960
16	675	1,160		1,160	530	976	3,730	10,500	11,800	3,700	1,290	930
17	682	1,120		1,080	566	1,080	4,800	10,800	13,900	3,500	1,250	915
18	694	984		1,020	571	1,020	8,700	10,500	13,600	3,300	1,290	900
19	682			938	645	968	12,800	11,200	12,200	3,100	1,420	885
20	701		720	840	639	892	11,200	10,200	11,500	2,900	1,420	870
21	708		740	796	651	818	8,700	9,600	11,100	2,800	1,340	855
22	708		720	825	657	803	7,560	10,500	11,500	2,660	1,290	832
23	701		540	789	645	810	7,050	12,800	12,000	2,530	1,290	818
24	708	1,040	465	651	651	789	7,050	15,800	11,200	2,460	1,250	796
25	708		515	566	645	768	6,800	19,000	10,400	2,400	1,200	796
26	708		510	657	645	768	6,320	21,600	9,800	2,280	1,200	782
27	727		639	694	645	803	6,320	23,500	9,200	2,160	1,160	775
28	810		768	675	639	855	6,320	22,100	8,400	2,050	1,120	761
29	1,160		938	593	-	885	7,300	19,000	7,900	2,000	1,120	754
30	1,740		1,160	400	-	855	9,000	16,800	7,400	1,890	1,080	754
31	1,740	-	1,080	384	-	825	-	16,300	-	1,840	1,080	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	25,243	1,740	675	814	0.502	0.58	50,070
November	37,034	1,650	984	1,234	.762	.85	73,460
December	22,095	1,160	465	713	.440	.51	43,820
Calendar year 1937	836,055	13,600	-	2,291	1.41	19.20	1,658,000
January	23,456	1,160	384	757	.467	.54	46,520
February	17,517	761	404	618	.381	.40	34,750
March	23,750	1,080	576	766	.473	.55	47,110
April	136,848	12,800	761	4,562	2.82	3.15	271,400
May	369,180	23,500	6,090	11,910	7.35	8.47	732,300
June	370,700	17,800	7,400	12,360	7.63	8.51	735,300
July	121,970	7,200	1,840	3,935	2.43	2.80	241,900
August	42,270	1,790	1,080	1,364	.842	.97	83,840
September	27,979	1,160	754	933	.576	.64	55,500
Water year 1937-38	1,218,000	23,500	384	3,337	2.06	27.97	2,416,000

Flathead River at Columbia Falls, Mont.

Location.- Water-stage recorder, lat. 48°22', long. 114°11', in SW¼ sec. 17, T. 30 N., R. 20 W., about 200 feet downstream from highway bridge at Columbia Falls. Zero of gage is 2,978.44 feet above mean sea level.

Drainage area.- 4,440 square miles.

Records available.- May 1922 to September 1923 (fragmentary), June 1928 to September 1938.

Extremes.- Maximum discharge during year, 70,400 second-feet May 27 (gage height, 15.25 feet); minimum, 1,390 second-feet Dec. 9 (gage height, 0.65 foot).
1922-23, 1928-38: Maximum discharge, 102,000 second-feet June 1, 1923 (gage height, 17.3 feet); minimum, 798 second-feet Dec. 8, 1929 (gage height, -0.08 foot).

Remarks.- Records good except those for periods of ice effect, which are fair. No diversions.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

0.6	1,340	3.0	4,610	8.0	21,100
.8	1,540	3.5	5,850	9.0	26,100
1.0	1,760	4.0	6,960	10.0	31,800
1.2	1,980	4.5	8,160	11.0	38,300
1.4	2,220	5.0	9,620	12.0	45,400
1.6	2,470	5.5	11,200	13.0	52,900
1.8	2,760	6.0	13,000	14.0	60,700
2.0	3,060	6.5	14,800	15.0	68,800
2.5	3,890	7.0	16,800		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,820	3,460	2,470	2,760	2,160	*2,030	2,610	36,900	49,100	17,200	4,620	2,610
2	1,870	3,300	2,280	2,400	2,470	*2,050	2,610	41,800	46,900	16,000	4,430	2,540
3	1,980	3,220	2,400	2,280	2,680	*2,070	2,680	36,200	47,600	15,600	4,340	2,470
4	2,280	3,060	2,470	*2,250	2,760	*2,040	2,840	30,100	48,400	15,600	4,160	2,470
5	2,160	2,910	2,400	*2,250	2,680	*2,000	3,140	25,000	50,600	15,200	4,250	2,470
6	2,100	2,840	2,400	*2,300	2,470	*1,980	3,380	21,600	52,900	14,500	3,890	2,470
7	1,980	2,760	2,340	*2,300	2,400	1,920	3,550	19,300	45,400	13,400	3,800	2,470
8	1,920	2,910	2,100	2,160	2,280	1,870	4,070	17,200	39,700	12,600	3,720	2,470
9	1,920	3,460	*1,440	2,160	*2,200	1,870	5,120	16,000	35,600	12,300	3,640	2,610
10	1,870	3,460	*1,700	2,220	2,100	1,870	6,070	16,400	30,700	11,600	3,550	2,680
11	1,870	3,220	*2,500	2,280	*2,100	1,920	6,730	16,800	25,600	10,900	3,460	2,610
12	1,820	3,300	*2,550	2,100	*2,000	2,040	6,960	18,000	23,500	10,200	3,380	2,470
13	1,760	3,380	*2,500	2,100	*1,800	2,160	7,920	22,000	25,600	9,620	3,300	2,400
14	1,760	3,380	*2,480	2,220	*1,750	2,400	8,730	25,600	29,500	9,320	3,220	2,340
15	1,760	3,220	*2,440	3,300	*1,900	2,610	9,930	27,800	28,900	9,020	3,380	2,220
16	1,760	3,140	*2,420	3,720		2,980	11,600	30,700	28,900	8,450	3,220	2,220
17	1,760	2,980	*2,400	3,640		3,460	16,300	31,800	34,300	8,730	3,140	2,160
18	1,820	2,680	*2,380	3,380		3,380	37,800	31,200	33,000	8,180	3,220	2,040
19	†1,760	2,610	*2,350	3,140		3,220	53,900	30,700	29,500	7,920	3,640	2,160
20	†1,820	2,610	2,340	2,980		2,980	37,500	27,800	28,400	7,430	3,720	2,160
21	†1,820	2,610	2,340	2,760		2,840	27,800	26,100	27,300	6,960	3,550	2,100
22	†1,870	2,610	2,340	2,760	*2,100	2,680	23,500	28,900	28,400	6,730	3,300	2,100
23	†1,870	2,610	2,100	2,680		2,680	22,000	35,600	29,500	6,510	3,220	2,040
24	†1,920	2,760	1,760	2,540		2,680	21,600	47,600	27,800	6,290	3,140	2,020
25	†1,920	2,910	1,820	2,470		2,610	20,200	57,500	25,600	6,290	2,980	2,000
26	†1,920	3,300	1,980	2,340		2,610	19,300	65,600	24,000	5,850	2,910	1,980
27	†1,980	3,220	2,160	2,280		2,610	18,900	69,600	22,500	5,640	2,910	1,980
28	†2,040	3,140	2,400	2,220		2,840	18,900	66,400	21,100	5,430	2,840	1,980
29	†2,400	2,980	2,760	1,980		2,910	21,600	58,300	19,700	5,220	2,760	1,980
30	†3,380	2,760	3,220	1,700	-	2,840	28,400	54,400	18,400	5,010	2,680	1,980
31	3,460	-	3,060	1,870	-	2,760	-	54,400	-	4,810	2,680	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	62,370	3,460	1,760	2,012	0.453	0.52	123,700
November	90,800	3,460	2,610	3,027	.682	.76	180,100
December	72,300	3,220	1,440	2,332	.525	.61	143,400
Calendar year 1937	2,635,090	45,300	850	7,219	1.63	22.05	5,226,000
January	77,540	3,720	1,700	2,501	.563	.65	153,800
February	61,050	2,760	1,750	2,180	.491	.5[illegible]	121,100
March	76,910	3,460	1,870	2,481	.559	.64	152,500
April	455,640	53,900	2,610	15,190	3.42	3.82	903,700
May	1,088,100	69,600	16,400	35,100	7.91	9.12	2,158,000
June	978,400	52,900	18,400	32,610	7.34	8.19	1,941,000
July	298,510	17,200	4,810	9,629	2.17	2.50	592,100
August	107,050	4,620	2,680	3,453	.778	.90	212,300
September	68,200	2,680	1,980	2,273	.512	.57	135,300
Water year 1937-38	3,436,870	69,600	1,440	9,416	2.12	28.7[illegible]	6,817,000

*Stage-discharge relation affected by ice; discharge computed on basis of gage heights, weather records, and records for two stations upstream.
†Water-stage recorder not operating; discharge computed on basis of daily gage readings obtained Sept. 19-23, 26, 27 and records for Oct. 18 and 31.

Flathead River near Kalispell, Mont.

Location.- Chain gage, lat. 48°13', long. 114°15', in NE¼ sec. 10, T. 28 N., R. 21 W., at highway bridge, 3 miles east of Kalispell. Zero of gage is at mean sea level (Somers datum).

Records available.- May 1928 to September 1938.

Extremes.- Maximum water-surface elevation observed during year, 2,911.97 feet May 27; minimum, 2,901.13 feet Sept. 29.
1928-38: Maximum water-surface elevation, 2,913.95 feet May 27, 1928; minimum, 2,900.70 feet Feb. 4, 5, 1936.

Remarks.- Records fragmentary but reliable. They were collected for profile study of Flathead River above Flathead Lake.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.66	2.45	1.98	1.33	1.41	1.38	2.33	-	-	7.05	-	-
2	1.64	2.55	-	-	-	-	2.45	10.06	10.78	-	2.79	1.59
3	-	2.49	1.94	1.29	1.39	1.43	2.45	9.78	10.65	6.73	-	1.55
4	1.63	2.27	1.94	-	-	1.55	2.57	9.03	10.53	-	2.59	-
5	1.54	2.21	-	1.43	1.39	-	2.63	8.43	10.59	6.53	2.51	1.51
6	1.46	2.17	1.96	1.63	1.41	1.61	2.71	-	-	6.33	2.45	1.47
7	1.40	-	-	-	1.45	-	2.83	7.48	10.35	6.11	-	1.53
8	-	-	1.96	1.67	1.39	1.69	3.13	-	9.88	5.93	2.41	1.57
9	1.38	2.53	-	-	-	-	3.25	6.88	9.33	5.65	2.38	1.63
10	1.34	-	-	-	1.39	1.67	-	-	9.11	5.47	2.21	1.73
11	1.40	2.43	1.98	1.79	-	-	4.13	6.93	-	5.29	2.18	-
12	1.36	-	-	-	1.35	1.53	4.28	6.88	-	-	2.13	1.61
13	1.32	2.45	2.02	1.45	1.33	-	4.58	7.33	8.33	5.03	-	-
14	1.30	2.51	-	-	-	1.73	4.88	8.28	8.43	4.91	-	1.51
15	1.26	-	-	2.33	1.29	1.97	-	-	8.83	4.73	2.09	1.47
16	-	2.25	2.06	-	-	-	-	8.88	8.78	4.63	2.03	1.41
17	-	2.07	-	2.61	1.25	2.51	7.88	-	9.28	-	1.97	1.33
18	1.34	-	1.98	-	-	-	8.83	9.13	9.28	4.45	-	1.37
19	-	1.95	-	2.23	1.33	2.33	11.33	-	-	4.37	2.19	1.33
20	1.36	1.95	1.94	-	-	-	9.63	9.17	8.75	4.23	2.33	-
21	1.38	-	-	2.11	-	2.19	8.83	9.23	8.69	4.05	-	1.26
22	1.44	1.99	1.94	-	1.33	-	8.63	9.23	8.63	3.91	2.07	1.25
23	1.46	2.01	-	-	-	2.05	8.23	9.23	-	3.81	1.99	1.23
24	-	2.01	3.54	2.03	1.35	-	-	10.37	8.65	-	1.95	-
25	1.48	-	-	1.93	-	2.07	7.63	11.47	8.45	3.65	1.91	1.20
26	1.48	2.05	-	-	1.33	-	7.49	11.63	-	3.53	1.85	-
27	-	2.01	4.54	1.75	1.31	-	-	11.97	7.97	3.41	1.79	1.16
28	1.50	-	3.36	1.59	1.35	2.11	7.33	11.67	-	3.27	-	1.15
29	1.62	1.99	-	1.47	-	2.19	-	11.23	7.48	-	1.75	1.13
30	2.01	1.99	1.42	1.43	-	2.11	8.43	-	7.17	3.03	1.71	1.19
31	2.16	-	1.34	1.41	-	2.03	-	10.97	-	2.93	1.67	-

Note.- Add 2,900.00 feet to obtain elevation above mean sea level (Somers datum).

Flathead River at Demersville, near Kalispell, Mont.

Location.- Wire gage, lat. 48°10', long. 114°16', in NE¼ sec. 28, T. 28 N., R. 21 W., at Demersville, 3 miles south of Kalispell. Zero of gage is at mean sea level (Somers datum).

Records available.- April 1909 to July 1912, April 1928 to September 1938.

Extremes.- Maximum water-surface elevation observed during year, 2,900.10 feet May 28; minimum, 2,882.31 feet Oct. 12.
1909-12, 1928-38: Maximum water-surface elevation observed, 2,904.94 feet June 17, 1933; minimum, 2,881.86 feet Dec. 18-26, 1936.

Remarks.- Records good except thqse below about 2,882.8 feet, which are poor because at this stage the gage pool became separated from river. Records collected for profile study of Flathead River above Flathead Lake. Gage read once or twice daily. After April elevation of water surface was subject to regulation by operation of Kerr Dam below outlet of Flathead Lake.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82.70	82.59	82.57	82.67	82.66	82.72	82.75	92.77	97.39	91.24	89.19	89.19
2	82.62	82.53	82.58	82.66	82.67	82.72	82.74	94.07	97.17	90.97	89.18	89.17
3	82.60	82.55	82.60	82.66	82.67	82.71	82.75	93.61	97.35	90.76	89.20	89.13
4	82.64	82.57	82.62	82.65	82.68	82.71	82.76	92.28	97.53	90.66	89.21	89.11
5	82.52	82.58	82.63	82.63	82.68	82.70	82.77	91.70	97.97	90.57	89.24	89.09
6	82.44	82.57	82.64	82.61	82.68	82.70	82.79	91.05	98.25	90.49	89.26	89.07
7	82.42	82.59	82.64	82.62	82.69	82.69	82.83	90.67	97.52	90.40	89.25	88.99
8	82.40	82.67	82.66	82.60	82.69	82.69	82.89	90.17	96.55	90.32	89.28	88.93
9	82.38	82.68	82.64	82.60	82.68	82.69	82.93	89.96	96.06	90.21	89.30	88.87
10	82.37	82.69	82.66	82.62	82.68	82.71	83.69	89.83	95.27	90.08	89.32	88.81
11	82.35	82.71	82.68	82.60	82.68	82.71	83.99	89.75	94.47	89.94	89.33	88.75
12	82.31	82.70	82.66	82.62	82.68	82.72	84.18	89.82	93.87	89.85	89.34	88.69
13	82.32	82.71	82.64	82.64	82.68	82.72	84.49	89.96	93.69	89.72	89.34	88.63
14	82.33	82.80	82.64	82.64	82.69	82.71	84.84	90.27	94.32	89.62	89.36	88.49
15	82.35	82.75	82.65	82.66	82.69	82.72	85.23	91.15	94.22	89.54	89.36	88.41
16	82.36	82.75	82.66	82.67	82.70	82.73	85.82	92.27	94.10	89.57	89.36	88.33
17	82.37	82.62	82.68	82.66	82.70	82.72	86.08	92.40	94.59	89.55	89.37	88.21
18	82.37	82.42	82.67	82.66	82.70	82.70	87.44	92.56	94.71	89.51	89.37	88.09
19	82.34	82.44	82.67	82.67	82.69	82.70	95.18	92.72	94.29	89.47	89.38	88.05
20	82.35	82.46	82.68	82.67	82.69	82.73	93.87	92.67	93.91	89.45	89.37	87.87
21	82.36	82.54	82.68	82.67	82.70	82.74	91.30	92.53	93.60	89.39	89.36	87.78
22	82.37	82.56	82.67	82.68	82.70	82.74	90.26	92.32	93.69	89.35	89.36	87.68
23	82.37	82.64	82.66	82.68	82.70	82.75	89.81	93.54	93.80	89.29	89.35	87.57
24	82.36	82.74	82.65	82.68	82.71	82.74	89.60	95.62	93.50	89.26	89.34	87.45
25	82.37	82.76	82.65	82.68	82.71	82.73	89.48	96.94	93.10	89.26	89.33	87.34
26	82.36	82.74	82.64	82.67	82.73	82.73	89.43	97.62	92.61	89.25	89.31	87.26
27	82.37	82.72	82.65	82.67	82.73	82.73	89.51	99.58	92.31	89.24	89.29	87.24
28	82.39	82.70	82.67	82.67	82.73	82.72	89.58	100.08	92.19	89.24	89.27	87.22
29	82.45	82.68	82.68	82.68	-	82.72	89.88	100.04	91.88	89.22	89.25	87.21
30	82.51	82.66	82.67	82.67	-	82.73	91.16	100.01	91.57	89.20	89.23	87.18
31	82.57	-	82.66	82.66	-	82.73	-	98.65	-	89.20	89.21	-

Note.- Add 2,800.00 feet to obtain elevation above mean sea level (Somers datum).

Flathead River at Damon ranch, near Kalispell, Mont.

Location.- Staff gage, lat. 48°09', long. 114°08', in NW¼ sec. 32, T. 28 N., R. 20 W., at Damon ranch, 7 miles southeast of Kalispell. Zero of gage is at mean sea level (Somers datum).

Records available.- April 1909 to July 1912, May 1928 to September 1938.

Extremes.- Maximum water-surface elevation observed during year, 2,895.72 feet May 28; minimum, 2,882.00 feet many times during year.
1909-12, 1928-38: Maximum water-surface elevation observed, 2,900.94 feet June 17, 1933; minimum, 2,881.55 feet Jan. 27-31, 1937.

Remarks.- Records good. They are collected for profile study of Flathead River above Flathead Lake. Gage read twice daily. After April elevation of water surface was subject to regulation by operation of Kerr Dam, below outlet of Flathead Lake.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82.17	82.04	82.45	82.42	82.31	82.17	82.47	89.87	94.77	90.12	89.05	89.04
2	82.21	82.11	82.43	82.40	82.31	82.17	82.50	90.77	94.55	89.94	89.07	88.92
3	82.23	82.17	82.41	82.38	82.33	82.15	82.51	90.75	94.61	89.83	89.11	88.84
4	82.19	82.17	82.41	82.36	82.39	82.16	82.58	90.25	94.59	89.83	89.18	88.78
5	82.17	82.21	82.39	82.38	82.43	82.17	82.65	89.80	94.83	89.83	89.20	88.63
6	82.18	82.18	82.37	82.36	82.45	82.18	82.70	89.43	95.19	89.83	89.22	88.58
7	82.18	82.22	82.35	82.36	82.43	82.20	82.72	89.15	94.94	89.81	89.22	88.40
8	82.18	82.22	82.33	82.36	82.43	82.18	82.74	88.94	94.56	89.81	89.24	88.38
9	82.16	82.25	82.31	82.44	82.41	82.16	82.76	88.79	94.30	89.75	89.26	88.30
10	82.15	82.29	82.35	82.44	82.41	82.14	82.90	88.70	93.77	89.59	89.29	88.20
11	82.15	82.29	82.37	82.44	82.39	82.16	83.15	88.73	93.11	89.54	89.30	88.07
12	82.12	82.36	82.42	82.42	82.39	82.18	83.24	88.93	92.92	89.50	89.31	88.00
13	82.10	82.38	82.47	82.42	82.41	82.24	83.41	89.45	92.53	89.47	89.33	87.92
14	82.07	82.40	82.47	82.44	82.39	82.27	83.63	89.68	92.71	89.38	89.37	87.80
15	82.05	82.37	82.49	82.44	82.33	82.27	83.86	89.74	92.56	89.30	89.34	87.73
16	82.15	82.34	82.51	82.42	82.29	82.28	84.28	90.06	92.46	89.26	89.40	87.60
17	82.11	82.32	82.47	82.44	82.25	82.33	84.91	90.38	92.72	89.23	89.33	87.54
18	82.05	82.33	82.47	82.46	82.22	82.49	87.30	90.48	92.62	89.24	89.38	87.53
19	82.07	82.37	82.44	82.48	82.19	82.48	91.11	90.40	92.38	89.26	89.37	87.52
20	82.10	82.40	82.42	82.50	82.21	82.36	89.84	90.15	92.16	89.21	89.37	87.48
21	82.01	82.34	82.44	82.52	82.23	82.36	88.36	90.25	91.97	89.15	89.39	87.44
22	82.00	82.32	82.42	82.54	82.23	82.39	87.80	90.43	91.97	89.14	89.32	87.41
23	82.01	82.41	82.41	82.55	82.23	82.40	87.65	90.97	91.97	89.12	89.27	87.37
24	82.02	82.37	82.42	82.47	82.23	82.38	87.67	92.36	91.77	89.10	89.24	87.34
25	82.01	82.49	82.44	82.42	82.17	82.38	87.66	93.31	91.58	89.06	89.21	87.30
26	82.00	82.45	82.46	82.40	82.16	82.40	87.68	94.41	91.28	89.07	89.17	87.23
27	82.01	82.44	82.48	82.38	82.19	82.40	87.70	95.39	90.99	89.06	89.20	87.20
28	82.06	82.46	82.50	82.36	82.19	82.44	87.71	95.71	90.75	89.06	89.18	87.15
29	82.03	82.46	82.52	82.34	-	82.48	87.98	94.98	90.55	89.05	89.17	87.11
30	82.04	82.46	82.50	82.30	-	82.48	88.59	94.66	90.35	89.03	89.13	87.15
31	82.12	-	82.44	82.30	-	82.48	-	94.91	-	89.05	89.12	-

Note.- Add 2,800.00 feet to obtain elevation above mean sea level (Somers datum).

Flathead River at Therriault Ferry, near Kalispell, Mont.

Location.- Staff gage, lat. 48°08', long. 114°09' in NW¼ sec. 4, T. 27 N., R. 20 W., at Therriault Ferry, 9 miles southeast of Kalispell. Zero of gage is at mean sea level (Somers datum).

Records available.- October 1934 to September 1938.

Extremes.- Maximum water-surface elevation observed during year, 2,893.79 feet June 6; minimum, 2,881.28 feet Jan. 21-23, 1937.

Remarks.- Records good. They are collected for profile study of Flathead River above Flathead Lake. Gage read twice daily. After April elevation of water surface was subject to regulation by operation of Kerr Dam, below outlet of Flathead Lake.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82.15	82.06	82.37	82.39	82.28	82.13	82.42	88.37	93.29	89.78	89.02	89.04
2	82.18	82.07	82.35	82.37	82.29	82.12	82.45	89.13	93.23	89.62	89.05	88.90
3	82.16	82.09	82.35	82.35	82.31	82.13	82.43	89.25	93.33	89.57	89.09	88.78
4	82.15	82.09	82.35	82.33	82.33	82.14	82.45	89.07	93.42	89.54	89.15	88.76
5	82.14	82.09	82.35	82.31	82.35	82.14	82.45	88.87	93.55	89.54	89.19	88.68
6	82.13	82.11	82.35	82.31	82.38	82.14	82.47	88.73	93.72	89.56	89.20	88.59
7	82.12	82.12	82.33	82.29	82.38	82.14	82.50	88.62	93.53	89.56	89.22	88.44
8	82.10	82.15	82.28	82.29	82.37	82.14	82.55	88.43	93.13	89.53	89.23	88.32
9	82.10	82.17	82.24	82.31	82.33	82.16	82.65	88.33	92.91	89.49	89.28	88.29
10	82.08	82.18	82.25	82.30	82.32	82.18	82.78	88.24	92.75	89.40	89.30	88.17
11	82.07	82.22	82.30	82.29	82.30	82.16	82.88	88.19	92.47	89.34	89.33	88.08
12	82.04	82.25	82.34	82.29	82.29	82.14	82.98	88.19	92.16	89.29	89.32	88.02
13	82.02	82.27	82.37	82.28	82.27	82.16	83.11	88.30	91.96	89.25	89.33	e7.91
14	82.00	82.28	82.37	82.30	82.23	82.18	83.27	88.56	91.94	89.15	89.34	87.79
15	82.01	82.30	82.38	82.34	82.22	82.20	83.44	88.74	91.81	89.13	89.36	87.70
16	82.04	82.26	82.38	82.36	82.20	82.23	83.73	88.98	91.67	89.16	89.35	87.66
17	82.06	82.22	82.37	82.37	82.18	82.28	84.16	89.22	91.74	89.14	89.35	87.56
18	82.05	82.21	82.37	82.39	82.18	82.31	85.80	89.30	91.89	89.17	89.37	87.56
19	82.04	82.22	82.35	82.38	82.18	82.34	88.60	89.39	91.56	89.16	89.34	87.51
20	82.03	82.25	82.37	82.39	82.18	82.32	87.96	89.40	91.41	89.12	89.36	87.46
21	81.98	82.28	82.34	82.44	82.20	82.33	87.06	89.28	91.26	89.12	89.37	87.42
22	81.96	82.29	82.30	82.42	82.20	82.34	86.76	89.44	91.22	89.10	89.32	e7.39
23	81.96	82.28	82.27	82.41	82.18	82.32	86.76	89.80	91.18	89.10	89.21	87.36
24	81.98	82.32	82.27	82.38	82.18	82.30	86.84	90.46	91.10	89.06	89.22	e7.34
25	81.98	82.34	82.28	82.36	82.16	82.32	86.90	91.29	90.88	89.00	89.18	87.31
26	81.98	82.36	82.44	82.36	82.14	82.34	86.98	92.10	90.68	89.02	89.20	87.27
27	81.98	82.38	82.36	82.35	82.13	82.34	87.02	92.88	90.50	89.02	89.19	87.22
28	81.98	82.39	82.35	82.31	82.14	82.37	87.06	93.29	90.32	89.00	89.17	87.17
29	81.98	82.39	82.38	82.30	-	82.41	87.18	93.26	90.11	89.00	89.18	87.13
30	82.00	82.39	82.41	82.28	-	82.41	87.65	93.15	89.92	89.00	89.13	87.16
31	82.07	-	82.41	82.28	-	82.38	-	93.25	-	89.00	89.10	-

Note.- Add 2,800.00 feet to obtain elevation above mean sea level (Somers datum).

Flathead Lake at Somers, Mont.

Location.- Water-stage recorder, lat. 48°04', long. 114°13', in NE¼ sec. 26, T. 27 N., R. 21 W., at steamboat dock at Somers. Zero of gage is at mean sea level (Somers datum).

Records available.- April 1922 to September 1938.

Extremes.- Maximum water-surface elevation during year, 2,892.41 feet June 8; minimum, 2,881.88 feet Oct. 30.
1922-38: Maximum water-surface elevation, 2,896.26 feet June 19, 1933; minimum, 2,881.07 feet Dec. 5, 1936.

Remarks.- Records excellent except those for periods of missing gage heights, Jan. 31 to Mar. 11, Mar. 18 to Apr. 22, May 30 to June 3, which were computed on basis of twice-daily gage readings by observer and are good. Since April, elevation of water surface has been subject to regulation by operation of Kerr dam, downstream from outlet.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82.08	81.98	82.33	82.32	82.20	82.06	82.34	86.83	91.74	89.32	89.02	89.02
2	82.08	82.00	82.33	82.32	82.24	82.06	82.35	87.18	91.85	89.21	89.04	88.94
3	82.08	82.02	82.33	82.30	82.22	82.08	82.34	87.52	91.94	89.16	89.08	88.84
4	82.08	82.03	82.33	82.29	82.26	82.06	82.36	87.74	92.03	89.14	89.11	88.76
5	82.08	82.05	82.32	82.27	82.25	82.06	82.36	87.88	92.10	89.16	89.16	88.65
6	82.07	82.07	82.32	82.27	82.25	82.06	82.39	87.93	92.17	89.25	89.19	88.56
7	82.06	82.10	82.30	82.25	82.26	82.08	82.40	87.94	92.29	89.28	89.20	88.42
8	82.05	82.15	82.27	82.25	82.30	82.07	82.41	87.90	92.31	89.28	89.21	88.32
9	82.04	82.11	82.25	82.25	82.30	82.07	82.48	87.85	92.24	89.24	89.23	88.27
10	82.03	82.12	82.25	82.25	82.30	82.09	82.51	87.78	92.08	89.19	89.25	88.17
11	82.02	82.14	82.25	82.24	82.28	82.09	82.57	87.72	91.88	89.14	89.27	88.05
12	82.02	82.18	82.27	82.23	82.22	82.08	82.64	87.67	91.63	89.12	89.29	87.97
13	82.01	82.16	82.28	82.23	82.20	82.08	82.73	87.62	91.39	89.07	89.30	87.88
14	82.02	82.19	82.30	82.22	82.16	82.10	82.86	87.63	91.21	89.02	89.31	87.79
15	82.00	82.23	82.32	82.26	82.15	82.11	82.93	87.70	91.07	88.00	89.32	87.68
16	82.02	82.20	82.33	82.30	82.17	82.13	83.05	87.80	90.92	88.00	89.32	87.58
17	82.02	82.18	82.34	82.32	82.16	82.14	83.25	87.93	90.84	89.02	89.32	87.53
18	82.00	82.19	82.34	82.35	82.16	82.18	83.52	88.03	90.81	89.03	89.34	87.50
19	81.98	82.20	82.32	82.36	82.15	82.18	84.08	88.15	90.74	89.05	89.32	87.48
20	81.97	82.22	82.32	82.39	82.14	82.20	84.71	88.30	90.63	89.01	89.32	87.46
21	81.95	82.23	82.32	82.40	82.10	82.22	85.10	88.36	90.52	89.01	89.34	87.42
22	81.94	82.23	82.27	82.45	82.08	82.25	85.45	88.40	90.43	89.03	89.32	87.38
23	81.93	82.24	82.27	82.41	82.06	82.26	85.73	88.48	90.35	89.03	89.26	87.35
24	81.94	82.27	82.28	82.39	82.06	82.26	85.83	88.65	90.27	88.98	89.21	87.30
25	81.95	82.29	82.28	82.37	82.06	82.27	86.00	89.00	90.16	88.96	89.18	87.27
26	81.93	82.30	82.33	82.36	82.09	82.29	86.16	89.42	90.06	88.96	89.16	87.23
27	81.94	82.31	82.31	82.36	82.06	82.28	86.24	89.95	89.89	88.97	89.17	87.20
28	81.95	82.32	82.32	82.31	82.06	82.28	86.34	90.47	89.74	88.96	89.16	87.16
29	81.94	82.32	82.31	82.29	-	82.30	86.42	90.92	89.58	88.97	89.13	87.10
30	81.93	82.33	82.33	82.28	-	82.32	86.55	91.25	89.44	88.96	89.11	87.07
31	81.98	-	82.33	82.21	-	82.33	-	91.54	-	88.98	89.06	-

Note.- Add 2,800.00 feet to obtain elevation above mean sea level (Somers datum).

Flathead Lake at Polson, Mont.

Location.- Staff-gage and water-stage recorder, lat. 47°42', long. 114°09', in SW¼ sec. 4 T. 22 N., R. 20 W., at south end of lake at Polson. Zero of gage is at mean sea level (Somers datum).

Records available.- August 1908 to September 1926, June 1928 to September 1938.

Extremes.- Maximum water-surface elevation during year, 2,892.27 feet June 6; minimum, 2,881.48 feet Dec. 26.
1908-26, 1928-38: Maximum water-surface elevation, 2,896.26 feet June 19, 1933; minimum, 2,881.12 feet Dec. 13, 1936.

Remarks.- Records execellent except those for Oct. 1 to Nov. 16, Feb. 22 to Mar. 17, which are mean of observer's twice-daily readings, and are good. After April elevation of water surface was subject to regulation by operation of Kerr Dam, below outlet.

Elevation, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82.00	81.89	82.27	82.25	82.20	82.00	82.29	86.66	91.60	89.30	88.91	88.97
2	82.01	81.91	82.25	82.26	82.21	81.99	82.29	87.02	91.74	89.18	88.88	88.92
3	82.07	81.89	82.27	82.26	82.20	82.03	82.30	87.37	91.82	89.15	88.96	88.82
4	82.04	81.93	82.27	82.24	82.20	82.03	82.30	87.59	91.90	89.09	89.01	88.71
5	82.03	81.92	82.26	82.22	82.20	82.01	82.34	87.77	91.99	89.11	89.04	88.62
6	81.97	81.91	82.25	82.21	82.21	81.99	82.34	87.84	92.18	89.21	89.06	88.49
7	81.97	81.89	82.30	82.21	82.22	82.00	82.36	87.85	92.22	89.26	89.11	88.40
8	81.96	81.85	82.26	82.18	82.23	81.97	82.38	87.82	92.10	89.26	89.15	88.27
9	81.95	81.93	82.24	82.17	82.23	81.99	82.38	87.75	92.06	89.22	89.18	88.17
10	81.95	81.97	82.18	82.14	82.22	81.97	82.44	87.68	92.02	89.18	89.23	88.12
11	81.97	82.00	82.20	82.17	82.23	81.95	82.53	87.58	91.82	89.09	89.23	88.04
12	81.99	81.95	82.22	82.16	82.31	81.99	82.59	87.50	91.57	89.05	89.21	87.95
13	81.94	81.95	82.22	82.15	82.21	82.02	82.69	87.46	91.32	89.03	89.21	87.85
14	81.93	82.05	82.22	82.15	82.19	81.97	82.77	87.52	91.11	89.00	89.21	87.76
15	81.89	82.07	82.22	82.17	82.14	82.01	82.86	87.61	91.01	88.96	89.22	87.66
16	81.85	82.15	82.22	82.18	82.11	82.00	82.95	87.70	90.87	88.96	89.23	87.56
17	81.81	82.24	82.22	82.22	82.09	82.05	83.09	87.83	90.78	88.98	89.23	87.52
18	81.79	82.17	82.22	82.21	82.08	82.03	83.33	88.10	90.72	88.97	89.19	87.48
19	81.81	82.13	82.26	82.26	82.08	82.09	83.97	88.21	90.66	89.00	89.24	87.45
20	81.79	82.14	82.25	82.25	82.07	82.15	84.71	88.23	90.57	88.97	89.27	87.42
21	81.83	82.16	82.24	82.22	82.06	82.16	85.14	88.28	90.45	88.97	89.23	87.40
22	81.83	82.17	82.32	82.21	82.07	82.13	85.43	88.35	90.36	88.97	89.27	87.36
23	81.81	82.16	82.24	82.23	82.07	82.13	85.65	88.45	90.28	89.01	89.27	87.32
24	81.79	82.13	82.12	82.25	82.05	82.19	85.83	88.64	90.21	89.04	89.18	87.28
25	81.79	82.09	82.07	82.27	82.03	82.19	85.97	88.92	90.13	89.02	89.13	87.20
26	81.79	82.15	81.92	82.28	82.03	82.17	86.07	89.32	90.03	88.94	89.13	87.18
27	81.79	82.20	82.15	82.27	82.05	82.16	86.19	89.77	89.89	88.91	89.13	87.18
28	81.75	82.25	82.12	82.38	82.01	82.16	86.27	90.22	89.73	88.87	89.12	87.14
29	81.79	82.27	82.21	82.32	-	82.21	86.34	90.68	89.57	88.84	89.12	87.06
30	81.83	82.29	82.17	82.22	-	82.27	86.46	91.11	89.42	88.88	89.08	86.99
31	81.83	-	82.22	82.20	-	82.31	-	91.36	-	88.91	89.04	-

Note.- Add 2,800 feet to obtain elevation above mean sea level (Somers datum).

Flathead River near Polson, Mont.

Location.- Water-stage recorder, lat. 47°39', long. 114°20', in sec. 19, T. 22 N., R. 21 W., at highway bridge at Norrisvale, 12 miles below Polson.

Drainage area.- 7,010 square miles.

Records available.- July 1907 to September 1938.

Average discharge.- 31 years, 11,510 second-feet.

Extremes.- Maximum discharge during year, 48,500 second-feet June 7 (gage height, 13.02 feet); minimum, probably less than 5 second-feet April 13 (gage height, probably less than -2.00 feet), caused by power regulation; minimum daily discharge, 32 second-feet April 12.

1907-38: Maximum discharge, 82,100 second-feet May 29, 30, 1928 (gage height, 17.1 feet); minimum, that of April 13, 1938; minimum daily discharge, that of April 12, 1938.

Remarks.- Records good except those for periods of missing gage heights, Feb. 20 to Mar. 18 (computed on basis of once-daily gage readings by observer), and those for Dec. 18 (interpolated), and those for July 9 (estimated), all of which are fair. Several small diversions from tributaries above Flathead Lake. Flow regulated since April 1938 by Kerr Dam below Flathead Lake.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Nov. 15				Nov. 16 to Sept. 30					
1.8	2,340	-1.8	10	-.2	575	3.0	3,720	8.0	17,800
2.0	2,570	-1.6	34	.4	1,020	4.0	5,340	9.5	26,400
2.3	2,930	-1.3	85	1.0	1,520	5.0	7,240	11.0	35,600
2.6	3,320	-1.0	150	1.5	1,980	6.0	9,610	13.0	48,500
		- .6	325	2.0	2,490	7.0	13,000		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,930	2,690	3,180	3,180	3,060	2,820	3,310	18,300	45,200	28,200	3,310	6,630
2	2,930	2,690	3,180	3,180	3,000	2,820	3,310	19,800	45,900	24,600	2,440	7,450
3	2,930	2,690	3,180	3,180	3,060	2,820	3,310	21,600	46,600	19,800	1,380	8,120
4	3,000	2,750	3,240	3,180	3,060	2,820	3,310	22,800	46,600	17,800	1,380	8,350
5	2,930	2,750	3,240	3,180	3,000	2,820	3,310	24,000	47,200	13,100	1,700	8,350
6	2,870	2,690	3,180	3,120	3,000	2,820	3,440	24,600	47,900	12,200	2,440	9,340
7	2,930	2,630	3,310	3,120	3,060	2,820	3,440	24,600	48,500	13,400	2,490	9,080
8	2,870	2,450	3,180	3,060	3,060	2,820	3,440	24,600	47,900	14,800	2,230	8,830
9	2,870	2,690	2,940	3,060	3,120	2,880	3,440	24,000	47,900	15,800	2,030	8,590
10	2,870	2,810	3,060	3,000	3,060	2,880	3,440	24,000	47,200	15,800	2,490	8,590
11	2,870	2,870	3,060	3,060	3,060	2,940	2,010	23,400	46,600	14,300	2,760	8,350
12	2,870	2,690	3,180	3,060	3,240	2,940	32	22,800	45,200	13,000	2,880	8,120
13	2,750	2,810	3,180	3,000	3,060	2,880	3,170	22,200	43,900	13,000	3,000	8,120
14	2,750	2,930	3,180	3,000	3,120	2,820	4,180	22,800	42,600	11,400	3,060	8,950
15	2,690	2,930	3,120	3,060	3,000	2,820	4,340	23,400	42,000	10,800	3,060	8,230
16	2,630	3,060	3,120	3,060	2,940	2,820	4,660	24,000	41,300	9,730	3,060	7,700
17	2,570	3,240	3,180	3,120	2,940	2,820	5,000	24,600	40,700	8,830	3,120	4,340
18	2,510	3,000	3,180	3,120	2,880	2,820	5,300	26,400	40,700	8,330	3,310	4,340
19	2,570	2,940	3,180	3,180	2,880	2,880	7,450	26,400	40,000	9,130	3,310	4,340
20	2,510	2,940	3,180	3,180	2,940	3,000	9,610	27,000	39,400	8,930	3,880	4,460
21	2,630	3,000	3,180	3,120	2,880	3,000	11,100	27,000	38,700	7,450	3,720	4,500
22	2,630	3,060	3,310	3,120	2,880	3,000	12,200	27,000	38,700	7,240	4,020	5,000
23	2,570	3,000	3,120	3,120	2,880	2,940	13,000	27,600	37,500	6,630	5,320	5,000
24	2,570	2,940	3,000	3,180	2,880	3,060	14,300	28,200	37,500	7,670	6,630	5,000
25	2,510	2,820	2,760	3,240	2,880	3,060	14,800	30,000	36,800	7,670	5,560	5,000
26	2,570	2,940	1,700	3,240	2,880	3,060	15,300	32,500	36,200	7,240	3,060	3,150
27	2,510	3,060	2,490	3,240	2,820	3,000	15,800	35,600	35,600	7,430	3,440	3,710
28	2,400	3,180	2,880	3,440	2,820	3,000	16,300	38,100	34,900	6,830	4,020	5,700
29	2,510	3,180	3,120	3,060	-	3,120	16,800	40,700	32,500	5,830	4,340	6,440
30	2,630	3,240	3,000	3,060	-	3,240	17,300	42,000	30,000	3,870	4,830	6,440
31	2,570	-	3,120	3,180	-	3,310	-	43,900	-	3,440	5,880	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	83,950	3,000	2,400	2,708	0.386	0.44	166,500
November	86,670	3,240	2,450	2,889	.412	.46	171,900
December	94,930	3,310	1,700	3,062	.437	.50	188,300
Calendar year 1937	2,994,140	35,800	1,580	8,203	1.17	15.97	5,938,300
January	97,100	3,440	3,000	3,132	.447	.52	192,600
February	83,460	3,240	2,820	2,981	.425	.44	165,500
March	90,850	3,310	2,820	2,931	.418	.48	180,200
April	226,402	17,300	32	7,547	1.08	1.20	449,100
May	843,900	43,900	18,300	27,220	3.88	4.47	1,674,000
June	1,251,700	48,500	30,000	41,730	5.95	6.64	2,483,000
July	354,380	28,200	3,440	11,430	1.63	1.88	702,900
August	103,850	6,630	1,380	3,350	.478	.55	206,000
September	200,220	9,340	3,150	6,674	.952	1.06	397,100
Water year 1937-38	3,517,412	48,500	32	9,637	1.37	18.64	6,977,100

South Fork of Flathead River near Columbia Falls, Mont.

Location.- Water-stage recorder, lat. 48°22', long. 114°03', in NE¼ sec. 17, T. 30 N., R. 19 W., 2 miles upstream from mouth and 9 miles east of town of Columbia Falls.

Drainage area.- 1,640 square miles.

Records available.- September 1910 to September 1916, April 1923 to September 1938.

Extremes.- Maximum discharge during year, 23,100 second-feet May 27 (gage height, 13.73 feet); minimum, 466 second-feet Sept. 29 (gage height, 1.27 feet).
1910-16, 1923-38: Maximum discharge observed, about 46,200 second-feet June 19, 1916 (gage height, 16.6 feet, former site and datum), from rating curve extended above 20,000 second-feet; minimum discharge, 206 second-feet Dec. 6, 1935, stage-discharge relation affected by ice.

Remarks.- Records good except those for period of ice effect, Nov. 17 to Mar. 6, which were computed on basis of two discharge measurements, gage heights, weather records, and records for Flathead River above and at Columbia Falls and are fair. No diversion or storage above station.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

1.2	435	2.4	1,160	4.5	3,300	12.0	18,100
1.4	525	2.7	1,380	5.0	3,960	14.0	24,000
1.6	630	3.0	1,630	6.0	5,420		
1.8	750	3.5	2,120	8.0	8,930		
2.1	950	4.0	2,670	10.0	13,200		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	545	730	763		915		915	13,000	16,000	4,960	1,160	641
2	570	704	848		1,090		915	14,400	15,800	4,660	1,120	630
3	592	690	880		1,200	900	950	12,100	16,000	4,660	1,090	614
4	674	663	848		1,200		935	9,740	16,000	4,810	1,060	602
5	619	652	782		1,160		1,090	8,180	16,800	4,520	1,060	608
6	586	658	724	950	1,060	950	1,160	7,100	17,300	4,240	985	619
7	560	658	692		985	915	1,260	6,390	14,800	3,820	985	619
8	535	756	848		915	724	1,500	5,740	13,200	3,560	950	630
9	525	985	985		848	674	1,970	5,420	11,900	3,430	950	663
10	516	915	1,020		880	680	2,340	5,420	9,950	3,170	915	668
11	507	848	1,120		950	704	2,500	5,580	8,550	2,980	915	658
12	498	915	1,300		915	730	2,620	5,900	8,000	2,790	880	641
13	489	950	1,230		880	802	2,980	7,280	8,930	2,620	848	614
14	484	915	1,120	1,000	880	915	3,300	8,360	9,740	2,450	880	602
15	480	915	1,060		915	985	3,560	9,120	9,120	2,340	915	586
16	484	915	985			1,160	4,240	10,200	9,120	2,230	880	565
17	512	848	950	1,340		1,300	6,010	11,000	10,200	2,120	848	555
18	507	750	915	1,230		1,260	14,300	10,600	9,950	2,070	848	545
19	507	692	880	1,120		1,160	18,100	9,530	9,320	1,970	985	535
20	516	692	848	1,020		1,090	12,500	8,550	8,930	1,870	1,020	525
21	540	711			950		1,060	9,320	8,360	8,550	1,770	950	516
22	560	737			915		985	8,000	9,320	8,740	1,680	880	507
23	565	770			915	900	950	7,460	11,700	9,120	1,580	815	502
24	565	848			848		950	7,100	15,300	8,740	1,540	802	498
25	570	880			848		915	6,920	18,700	7,820	1,500	770	489
26	560	1,060	1,000		782		915	6,560	21,900	7,280	1,460	744	480
27	560	1,020			796		915	6,390	22,800	6,740	1,420	724	480
28	550	1,020			848		950	6,560	21,900	6,220	1,340	704	471
29	586	950			880	-	985	7,640	20,400	5,900	1,300	685	471
30	630	880			915	-	985	10,200	18,700	5,420	1,230	668	498
31	674	-			756	-	950	-	17,600	-	1,200	652	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	17,066	674	480	551	0.336	0.39	33,850
November	24,717	1,060	652	824	.502	.56	49,030
December	29,798	1,300	692	961	.586	.68	59,100
Calendar year 1937	890,157	16,400	-	2,439	1.49	20.18	1,766,000
January	29,663	1,340	756	957	.584	.67	58,840
February	26,493	1,200	848	946	.577	.60	52,550
March	29,109	1,300	674	939	.573	.66	57,740
April	159,345	18,100	915	5,312	3.24	3.62	316,100
May	360,290	22,800	5,420	11,620	7.09	8.17	714,600
June	314,140	17,300	5,420	10,470	6.38	7.12	623,100
July	81,290	4,960	1,200	2,622	1.60	1.84	161,200
August	27,688	1,160	652	893	.545	.63	54,920
September	17,032	668	471	568	.346	.39	33,780
Water year 1937-38	1,116,631	22,800	471	3,059	1.87	25.33	2,215,000

Stillwater River near Whitefish, Mont.

Location.- Water-stage recorder, lat. 48°19', long. 114°23', in SW¼ sec. 34, T. 30 N., R. 22 W., 600 feet downstream from highway bridge and 7 miles southwest of Whitefish.

Records available.- November 1930 to September 1938.

Extremes.- Maximum discharge during year, 1,280 second-feet May 30 (gage height, 8.67 feet); minimum, 57 second-feet Oct. 20 (gage height, 0.71 foot).
1930-38: Maximum discharge, 2,680 second-feet Apr. 28, 1934 (gage height, 14.47 feet); minimum, 55 second-feet Jan. 20-22, 1937 (stage-discharge relations affected by ice).

Remarks.- Records good except those for period of ice effect, Nov. 26 to Mar. 30, which were computed on basis of three discharge measurements, gage heights, and weather records and are fair. Discharge for period of faulty gage-height record, Apr. 20-23, Aug. 29 to Sept. 6, computed from once-daily readings of gage. Some water stored during high-water periods and released for logging operations during summer. No diversions.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 1 to Sept. 30)

0.7	57	2.5	209	5.8	724
.9	66	3.0	272	6.7	891
1.2	83	3.6	356	7.7	1,080
1.6	116	4.2	448	8.7	1,280
2.0	154	5.0	580		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	82	96	91			102	948	1,220	512	197	116
2	62	82	92	79			104	1,000	1,160	496	192	114
3	60	84	92	85			111	1,100	1,100	496	186	112
4	68	84	91	89			120	1,180	986	496	180	111
5	77	85	92	95			134	1,240	929	496	180	108
6	81	85	92	96	90		144	1,240	948	512	175	107
7	83	85	89	94			170	1,220	929	512	170	110
8	85	87	73	89		105	180	1,140	910	496	164	112
9	87	91	81	91			215	1,060	891	480	164	120
10	87	93	102	96			252	1,020	853	464	159	134
11	87	96	100	90			278	986	834	448	159	134
12	87	97	100	84			299	948	796	432	159	130
13	87	98	97	91			320	929	742	416	154	130
14	86	102	94	96			348	929	670	401	154	130
15	85	106	92	97	90	105	386	948	670	386	154	125
16	84	107	91	96			416	948	652	334	154	125
17	83	107	91	97			480	986	688	348	149	125
18	83	104	92	96			580	1,020	688	327	149	120
19	77	93	92	97			834	1,060	706	320	149	120
20	59	96	91	98			986	1,060	706	278	149	116
21	66	95	90	96			986	1,060	706	215	149	114
22	70	94	91	97			967	1,020	688	221	144	114
23	71	95	90	100		110	948	1,000	652	233	139	112
24	72	95	86	94			929	1,000	634	233	144	111
25	73	96	96	88	105		929	1,020	616	233	144	110
26	75	96	96	102			910	1,080	616	233	139	108
27	76	97	96	101			910	1,120	616	227	139	105
28	78	99	103	94			910	1,160	580	221	139	105
29	79	97	110	90	-		891	1,220	546	215	134	103
30	80	96	112	86	-	100	910	1,260	546	209	120	103
31	81	-	110	80	-	99	-	1,260	-	203	120	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,413	87	59	77.8	4,790
November	2,824	107	82	94.1	5,600
December	2,920	112	73	94.2	5,790
Calendar year 1937	89,720	1,240	55	246	178,000
January	2,875	102	79	92.7	5,700
February	2,640	-	-	94.3	5,240
March	3,314	-	-	107	6,570
April	15,749	986	102	525	31,240
May	33,162	1,260	929	1,070	65,780
June	23,278	1,220	546	776	46,170
July	11,123	512	203	359	22,060
August	4,808	197	120	155	9,540
September	3,484	134	103	116	6,910
Water year 1937-38	108,590	1,260	59	297	215,400

Logan Creek at Tally Lake, near Whitefish, Mont.

Location.- Staff gage, lat. 48°27', long. 114°34', in NW¼ sec. 17, T. 31 N., R. 23 W., about 2½ miles north of Tally Lake and 10 miles west of Whitefish.

Records available.- April 1936 to September 1938. August 1931 to April 1933 and May to September 1934 at site about 2½ miles upstream; records equivalent.

Extremes.- Maximum discharge observed during year, 590 second-feet May 5 (gage height, 3.28 feet); minimum observed, 5.5 second-feet Oct. 1 (gage height, 1.14 feet). 1931-33, 1934, 1936-38: Maximum gage height, 7.22 feet May 28, 29, 1933, former site and datum (discharge not determined); minimum discharge, 0.8 second-foot Sept. 6, 1931.

Remarks.- Records fair except those for August and September, which are poor. Gage read twice daily. Natural storage in Tally Lake.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.5	14	21	24	19	17	25	360	280	102	21	7.8
2	6.0	14	20	24	18	17	25	410	264	98	19	7.4
3	6.5	14	18	23	18	18	27	465	247	96	18	7.4
4	7.8	15	19	22	18	18	29	558	217	96	18	8.6
5	9.4	15	18	20	18	18	30	590	203	102	17	9.4
6	11	15	17	20	18	18	34	558	189	106	15	10
7	12	15	16	20	19	18	36	495	176	104	15	11
8	14	16	16	20	19	18	38	438	162	102	15	14
9	13	16	16	19	18	18	40	410	152	98	14	17
10	12	16	16	19	18	18	43	360	142	94	13	18
11	12	16	16	19	18	17	48	338	137	84	13	18
12	13	17	16	18	18	17	54	338	127	79	12	19
13	13	18	17	18	18	17	60	317	126	72	11	19
14	13	19	18	18	18	17	68	338	123	68	10	18
15	12	19	18	18	18	17	83	338	116	65	9.8	18
16	12	18	18	18	18	18	98	360	116	58	10	18
17	12	18	18	19	18	18	114	360	123	52	9.8	18
18	12	17	19	20	18	18	140	385	127	50	9.4	18
19	12	17	19	20	18	18	184	385	132	44	11	18
20	12	16	19	20	18	19	247	385	132	42	10	17
21	12	16	20	20	18	19	280	360	127	40	9.4	16
22	12	16	20	20	18	20	317	360	123	38	9.0	16
23	12	15	20	20	18	20	317	338	114	35	9.4	15
24	13	16	21	20	18	20	298	338	114	33	9.0	15
25	13	16	21	20	18	21	298	338	114	30	9.0	14
26	13	16	21	20	17	21	317	338	123	29	8.6	14
27	14	16	22	20	16	22	317	338	121	28	8.2	14
28	14	18	23	20	16	23	317	338	123	27	8.2	13
29	14	18	23	20	-	24	338	317	114	26	8.2	12
30	14	19	24	20	-	25	360	317	110	25	7.8	12
31	14	-	24	20	-	25	-	298	-	24	7.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	365.2	14	5.5	11.8	724
November	491	19	14	16.4	974
December	594	24	16	19.2	1,180
Calendar year 1937	20,980.4	515	4.5	57.5	41,620
January	619	24	18	20.0	1,230
February	502	19	16	17.9	996
March	594	25	17	19.2	1,180
April	4,582	360	25	153	9,090
May	11,868	590	298	383	23,540
June	4,474	280	110	149	8,870
July	1,947	106	24	62.8	3,860
August	365.6	21	7.8	11.8	725
September	432.6	19	7.4	14.4	858
Water year 1937-38	26,834.4	590	5.5	73.5	53,230

Whitefish Creek near Kalispell, Mont.

Location.- Water-stage recorder, lat. 48°19', long. 114°16', in SW¼ sec. 34, T. 30 N., R. 21 W., 8 miles north of Kalispell.

Records available.- November to December 1906, July 1928 to September 1938.

Extremes.- Maximum discharge during year, 782 second-feet May 31 (gage height, 3.18 feet); minimum, 5.2 second-feet Oct. 27, 28 (gage height, 0.89 foot).
1906, 1928-38: Maximum discharge, 1,260 second-feet June 3, 1932 (gage height, 4.26 feet); minimum, 4.5 second-feet Oct. 18, 1934 (gage height, 0.83 foot).

Remarks.- Records good except those for periods of ice effect, Dec. 8-13, Dec. 23 to Mar. 12 (computed on basis of one discharge measurement, temperature records, gage heights, and observer's notes), and those below 10 second-feet, all of which are poor. Discharge for periods of missing or faulty gage heights Oct. 5-8, Dec. 14-22, Mar. 13 to Apr. 13, July 5-8, computed on basis of observer's once-daily gage readings. Some regulation at Whitefish Lake. No diversions.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	5.2	81	15	15		67	324	758	435	126	23
2	31	5.2	79	13	15		67	389	709	418	126	22
3	35	5.2	77	13	20	25	67	443	709	406	147	20
4	35	114	77	13	18		72	452	733	406	201	20
5	35	144	72	13	16		77	443	733	410	205	22
6	35	141	72	13	16		79	452	758	251	197	20
7	31	135	69	14	19		89	452	758	244	190	20
8	35	129	63	13	18	40	100	443	758	244	137	20
9	35	129	49	14	18		111	443	733	244	180	19
10	36	126	54	14	13		117	439	733	237	173	19
11	35	117	72	14	10	60	120	431	709	237	173	19
12	35	111	54	16		80	120	427	758	230	170	19
13	33	108	42	19		77	126	427	758	223	166	18
14	36	108	8.7	16		81	129	418	709	215	166	18
15	38	108	8.7	16		81	138	418	685	205	163	33
16	40	108	8.7	19		86	138	422	685	201	160	244
17	40	100	8.7	16		86	144	435	709	194	144	255
18	40	94	6.9	14		86	160	474	685	187	58	244
19	40	91	6.9	16		81	201	482	661	183	42	233
20	19	91	6.9	15	15	77	190	474	661	176	36	226
21	9.6	91	6.9	13		74	180	474	614	170	52	215
22	7.8	89	6.9	16		69	180	482	614	166	67	208
23	6.9	89		12		74	190	500	586	160	67	201
24	6.0	89		10		74	197	522	568	157	67	194
25	6.0	89	6.0	10		74	201	550	550	153	67	183
26	5.6	89		11		79	226	590	540	147	69	176
27	5.6	89		16		84	297	637	518	147	67	170
28	5.2	89	8.7	13		79	305	685	496	144	65	163
29	5.6	86	13	11	-	79	305	733	474	138	65	157
30	5.6	84	15	10	-	74	312	758	452	135	43	150
31	5.6	-	14	12	-	74	-	758	-	132	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	764.5	40	5.2	24.7	1,520
November	2,853.6	144	5.2	95.1	5,660
December	1,011.0	81	-	32.6	2,010
Calendar year 1937	53,945.1	661	5.2	148	107,000
January	430	19	10	13.9	853
February	435	-	-	15.5	863
March	1,954	86	-	63.0	3,880
April	4,725	312	67	158	9,370
May	15,377	758	324	496	30,500
June	19,814	758	452	660	39,300
July	6,995	435	132	226	13,870
August	3,663	205	24	118	7,270
September	3,331	255	18	111	6,610
Water year 1937-38	61,353.1	758	5.2	168	121,700

Ashley Creek near Kalispell, Mont.

Location.- Wire-weight gage and Cippoletti weir, lat. 48°11', long. 114°24', in SE¼ sec. 16, T. 28 N., R. 22 W., 4 miles west of Kalispell.

Records available.- April 1931 to March 1933, April 1934 to September 1938.

Extremes.- Maximum discharge observed during year, 64 second-feet June 1 (gage height, 7.38 feet) no flow at times in October and November.
1931-38: Maximum discharge observed, 285 second-feet Apr. 26, 1934 (gage height, 9.30 feet); no flow at times.

Remarks.- Records poor. Discharge for period of ice effect, Nov. 26 to Mar. 19, computed on basis of three discharge measurements and weather records, that for Sept. 3-12, on basis of records for preceding and following days. Gage read twice daily. Some diversions. Natural storage in Smith Lake.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0					18	40	60	31	14	9.5
2	0	.2					19	40	56	29	13	9.5
3	0	.5					23	46	60	28	12	
4	0	.8					28	49	53	29	12	
5	0	1.6					26	46	46	29	12	
6	0	1.7					27	43	36	28	10	
7	0	1.9					29	43	36	29	9.5	
8	0	2.4				3.0	31	43	40	28	8.2	8.5
9	0	2.2					33	43	37	27	7.4	
10	.2	1.5					33	43	37	28	7.4	
11	.1	1.1					33	40	35	27	8	
12	.3	4.0					33	40	37	26	8.8	
13	.5	3.9					35	37	37	24	9.5	6.4
14	.3	1.3				*4.0	34	34	37	22	9.2	6.5
15	0	.5					34	35	36	21	8.6	7.0
16	0	.5					34	35	37	19	8.8	6.5
17	3.1	.4				5.0	35	36	40	21	9.8	7.2
18	3.6	.1					37	23	40	19	10	11
19	3.5	0		*3.7			37	36	40	18	10	13
20	3.7	0				6.4	34	43	40	17	10	13
21	2.3	0				7.4	37	43	37	17	10	13
22	.9	0	*2.5			7.2	37	43	36	16	10	12
23	.7	0				7.8	37	46	34	16	10	11
24	.5	0				13	33	53	35	14	10	12
25	1.2	0				14	35	53	34	14	10	11
26	2.9					16	37	56	35	16	9.5	11
27	2.0					19	36	60	35	15	9.5	12
28	2.7	1.0				37	37	60	34	16	9.5	11
29	1.6					30	35	60	33	16	9.5	11
30	1.6					25	36	60	32	16	9.5	11
31	0	-				25	-	60	-	16	9.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	31.7	3.7	0	1.02	63
November	29.6	4.0	0	.99	59
December	77.5	-	-	2.5	154
Calendar year 1937	5,015.2	56	0	13.7	9,941.1
January	93.0	-	-	3.0	184
February	56.0	-	-	2.0	111
March	275.8	37	-	8.90	547
April	973	37	18	32.4	1,930
May	1,389	60	23	44.8	2,760
June	1,185	60	32	39.5	2,350
July	672	31	14	21.7	1,330
August	305.5	14	7.4	9.85	606
September	289.6	13	6.4	9.65	574
Water year 1937-38	5,377.7	60	0	14.7	10,668

*Discharge measurement.

Swan River near Big Fork, Mont.

Location.- Water-stage recorder, lat. 48°01', long. 113°59', in NW¼ sec. 14, T. 26 N., R. 19 W., at outlet of Swan Lake, 7 miles southeast of village of Big Fork.

Drainage area.- 647 square miles.

Records available.- April 1922 to September 1938. October 1910 to May 1911 at site 2 miles upstream from Swan Lake.

Average discharge. 12 years (1922-24, 1928-38, revised), 1,019 second-feet.

Extremes.- Maximum discharge during year, 4,350 second-feet May 30 (gage height, 5.26 feet); minimum, 273 second-feet Oct. 17 (gage height, 2.06 feet).
1922-38: Maximum discharge, 8,280 second-feet June 18, 1933 (gage height, 7.00 feet); minimum, 85 second-feet Jan. 28-29, 1930, (date as previously published in error; gage height, 0.04 foot).

Remarks.- Records good. Discharge for periods of missing and faulty gage-height record, Oct. 8-10, Nov. 15, 16, Feb. 14-22, computed on basis of once-daily readings of gage. No diversions above station. Natural storage in Swan Lake.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Jan. 7, Mar. 27 to May 28)

2.0	266	3.2	1,120	4.8	3,450
2.2	349	3.6	1,570	5.3	4,450
2.5	533	4.0	2,110		
2.8	757	4.4	2,730		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	308	365	452	427	308	317	492	1,830	4,050	1,830	583	398
2	312	365	434	403	308	321	478	2,250	3,850	1,760	562	392
3	317	360	415	387	308	326	471	2,560	3,750	1,700	555	387
4	321	354	416	376	312	326	471	2,560	3,650	1,700	540	376
5	321	354	409	349	335	331	485	2,400	3,650	1,640	533	371
6	321	354	409	349	365	335	512	2,180	3,650	1,510	512	376
7	317	360	403	349	365	331	533	1,970	3,750	1,450	498	371
8	308	376	398	344	376	331	583	1,830	3,650	1,400	478	376
9	308	381	354	349	371	331	635	1,640	3,450	1,330	485	392
10	303	376	344	349	360	331	688	1,510	3,260	1,260	471	398
11	299	371	360	360	365	335	734	1,450	2,900	1,200	458	398
12	299	376	381	360	371	335	765	1,400	2,480	1,150	446	398
13	292	387	427	354	354	340	812	1,360	2,320	1,090	440	392
14	288	398	464	371	340	354	870	1,420	2,250	1,060	452	387
15	284	403	478	387	331	371	912	1,510	2,250	1,000	464	376
16	288	392	498	398	331	398	970	1,570	2,180	970	464	376
17	292	409	498	403	321	427	1,060	1,760	2,250	940	458	371
18	292	398	492	415	321	458	1,310	1,900	2,320	903	452	371
19	296	387	485	427	331	464	1,900	1,970	2,400	870	478	360
20	303	381	478	421	331	458	2,480	1,970	2,320	844	492	360
21	303	381	478	416	331	452	2,640	1,900	2,320	836	485	349
22	303	392	471	415	321	452	2,400	1,830	2,250	796	464	349
23	303	403	452	409	321	434	2,180	1,900	2,320	781	458	344
24	308	409	421	403	321	434	2,040	2,110	2,480	749	452	340
25	312	415	387	392	317	434	1,900	2,480	2,560	711	440	336
26	317	427	387	387	317	434	1,830	2,990	2,480	703	434	340
27	308	446	398	376	317	440	1,760	3,550	2,320	688	434	331
28	317	464	409	365	312	458	1,700	3,950	2,180	672	427	326
29	335	464	421	360	-	485	1,640	4,250	2,040	642	409	331
30	335	458	427	340	-	498	1,700	4,350	1,970	628	398	335
31	344	-	434	317	-	498	-	4,250	-	605	398	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	9,554	344	284	308	0.476	0.55	18,950
November	11,806	464	354	394	.609	.68	23,420
December	13,279	498	344	428	.662	.76	26,340
Calendar year 1937	274,564	3,300	252	752	1.16	15.78	544,600
January	11,757	427	317	379	.586	.68	23,320
February	9,361	376	308	334	.516	.54	18,570
March	12,239	498	317	395	.611	.70	24,280
April	36,951	2,640	471	1,232	1.90	2.12	73,290
May	70,600	4,350	1,360	2,277	3.52	4.06	140,000
June	83,300	4,050	1,970	2,777	4.29	4.79	165,200
July	33,418	1,830	605	1,078	1.67	1.92	66,280
August	14,620	583	398	472	.730	.84	29,000
September	11,006	398	326	367	.567	.63	21,850
Water year 1937-38	317,891	4,350	284	871	1.35	18.27	630,500

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Priest Lake at outlet, near Coolin, Idaho

Location.- Staff gage, lat. 48°29'30", long. 116°54', in W½ sec. 5, T. 59 N., R. 4 W., 400 feet north of lake outlet and 2 miles northwest of Coolin. Zero of gage 2,435.06 feet (Coast and Geodetic Survey datum) or 2,437.99 feet (Geological Survey datum), above mean sea level.

Drainage area.- 572 square miles.

Records available.- April 1928 to September 1938. June 1911 to September 1913 (fragmentary gage-height records at Coolin) published as part of records for Priest River at outlet of Priest Lake, at Coolin.

Extremes.- Maximum gage height observed during year, 5.40 feet May 30, 31; minimum, 0.18 foot Sept. 29, 30.
1928-38: Maximum gage height observed, 5.94 feet May 23, 1932; minimum, -0.16 foot Nov. 23-25, Dec. 4-6, 1936.

Remarks.- Records good.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.28	0.48	1.74	1.64	1.54	1.20	1.54	4.54	5.32	3.04	1.19	0.48
2	.28	.49	1.74	1.60	1.54	1.19	1.54	4.66	5.20	2.98	1.15	.46
3	.30	.49	1.72	1.60	1.52	1.19	1.56	4.72	5.16	2.86	1.10	.42
4	.34	.49	1.70	1.60	1.52	1.18	1.58	4.80	5.14	2.78	1.06	.40
5	.38	.49	1.68	1.58	1.54	1.17	1.60	4.82	5.12	2.70	1.02	.38
6	.38	.49	1.66	1.54	1.54	1.16	1.62	4.70	5.10	2.64	.93	.38
7	.37	.49	1.64	1.52	1.54	1.15	1.64	4.52	5.08	2.60	.92	.38
8	.37	.50	1.62	1.50	1.54	1.15	1.68	4.42	4.98	2.52	.90	.38
9	.37	.58	1.60	1.46	1.50	1.15	1.72	4.40	4.92	2.44	.88	.38
10	.36	.60	1.56	1.42	1.52	1.15	1.77	4.32	4.86	2.32	.84	.38
11	.36	.66	1.60	1.42	1.50	1.16	1.80	4.26	4.74	2.36	.82	.38
12	.36	.74	1.64	1.42	1.50	1.17	1.86	4.18	4.56	2.22	.77	.36
13	.34	.82	1.60	1.42	1.46	1.17	1.90	4.18	4.48	2.18	.72	.36
14	.32	.98	1.61	1.48	1.44	1.20	1.98	4.18	4.34	2.10	.72	.34
15	.32	1.16	1.58	1.68	1.44	1.28	2.04	4.18	4.26	2.02	.72	.32
16	.34	1.18	1.61	1.66	1.40	1.35	2.16	4.18	4.12	2.00	.70	.32
17	.38	1.20	1.62	1.72	1.38	1.41	2.24	4.18	4.08	1.94	.68	.31
18	.42	1.22	1.58	1.72	1.36	1.46	2.56	4.18	4.02	1.92	.66	.30
19	.38	1.23	1.59	1.72	1.34	1.50	2.86	4.20	3.96	1.82	.64	.30
20	.40	1.24	1.52	1.70	1.32	1.52	2.95	4.22	3.86	1.78	.63	.30
21	.40	1.28	1.52	1.68	1.32	1.50	3.30	4.22	3.74	1.72	.62	.28
22	.40	1.28	1.50	1.70	1.28	1.52	3.45	4.43	3.70	1.66	.60	.28
23	.38	1.38	1.42	1.70	1.28	1.54	3.56	4.44	3.66	1.60	.60	.28
24	.38	1.43	1.40	1.66	1.26	1.55	3.64	4.64	3.62	1.56	.58	.26
25	.39	1.58	1.44	1.66	1.24	1.56	3.68	4.89	3.56	1.52	.58	.24
26	.40	1.70	1.44	1.64	1.23	1.58	3.74	5.08	3.50	1.46	.54	.22
27	.40	1.68	1.48	1.62	1.22	1.58	3.94	5.38	3.46	1.38	.52	.20
28	.39	1.74	1.48	1.64	1.21	1.58	3.96	5.38	3.36	1.31	.51	.20
29	.40	1.78	1.50	1.62	-	1.58	4.26	5.39	3.26	1.24	.52	.18
30	.44	1.74	1.52	1.56	-	1.56	4.44	5.40	3.16	1.28	.50	.18
31	.48	-	1.58	1.50	-	1.56	-	5.40	-	1.22	.48	-

Priest River at outlet of Priest Lake, near Coolin, Idaho

Location.- Water-stage recorder, lat. 48°29', long. 116°54', in SW¼ sec. 5, T. 59 N., R. 4 W., at southwest end of Priest Lake, 2 miles northwest of Coolin. Zero of gage is 2,433.06 feet (Coast and Geodetic Survey datum) or 2,437.99 feet (Geological Survey datum) above mean sea level.

Drainage area.- 572 square miles.

Records available.- June 1911 to September 1918 (fragmentary), May 1919 to September 1938.

Average discharge.- 24 years (1913-18, 1919-38), 1,080 second-feet.

Extremes.- Maximum discharge during year, 5,780 second-feet May 29 to June 1; maximum gage height, 4.78 feet May 30; minimum discharge, 206 second-feet Sept. 29 (gage height, -0.02 foot).

1911-38: Maximum discharge, 7,290 second-feet May 30, 1917 (gage height, 6.83 feet); minimum, 118 second-feet Nov. 25, 1936 (gage height, +0.32 foot).

Remarks.- Records good. No diversions above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	263	328	1,060	925	895	608	858	4,030	5,780	2,300	660	298
2	270	328	1,050	925	895	615	850	4,370	5,600	2,230	627	294
3	270	328	1,050	918	902	608	850	4,540	5,420	2,100	621	288
4	280	325	1,030	910	895	602	850	4,540	5,420	2,040	602	280
5	277	325	1,020	902	888	595	858	4,540	5,420	1,980	583	270
6	277	325	1,000	888	902	589	872	4,370	5,420	1,920	565	266
7	277	321	996	880	850	589	888	4,280	5,240	1,860	536	266
8	277	328	964	865	835	583	910	4,200	5,060	1,740	524	266
9	277	361	940	850	820	583	948	4,120	4,880	1,680	508	270
10	277	365	948	850	820	583	988	4,030	4,710	1,630	492	266
11	274	392	964	835	798	577	1,030	3,860	4,540	1,520	475	263
12	274	434	964	835	783	577	1,070	3,780	4,280	1,450	460	256
13	270	460	956	835	776	608	1,120	3,780	4,120	1,400	444	256
14	266	571	948	880	748	627	1,160	3,780	4,030	1,330	434	253
15	266	621	932	964	734	653	1,210	3,780	3,940	1,280	424	250
16	274	660	932	1,000	720	713	1,300	3,780	3,780	1,240	415	250
17	284	686	932	1,020	707	748	1,430	3,860	3,700	1,190	401	246
18	284	680	925	1,020	700	776	1,580	3,860	3,620	1,140	396	246
19	288	686	910	1,010	686	805	2,040	3,860	3,460	1,100	401	243
20	294	707	895	1,000	673	812	2,360	3,780	3,300	1,060	387	240
21	288	713	872	1,000	666	805	2,560	3,860	3,220	1,010	374	237
22	288	727	858	996	660	812	2,830	4,030	3,140	980	370	237
23	288	776	835	988	653	820	2,770	4,200	3,070	940	361	233
24	291	828	835	972	640	835	2,840	4,540	3,070	918	353	224
25	294	895	835	940	634	842	2,920	4,880	2,920	872	349	221
26	291	964	828	940	621	842	3,000	5,240	2,840	835	336	218
27	302	1,010	850	925	615	842	3,220	5,420	2,770	798	332	215
28	309	1,060	858	925	608	842	3,380	5,600	2,630	776	325	212
29	321	1,060	880	932	-	850	3,540	5,780	2,490	748	317	209
30	325	1,060	902	895	-	850	3,780	5,780	2,420	720	309	212
31	328	-	925	880	-	850	-	5,780	-	868	302	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	8,844	328	263	285	0.498	0.57	17,540
November	18,324	1,060	321	611	1.07	1.19	36,350
December	28,894	1,060	828	932	1.63	1.88	57,310
Calendar year 1937	303,883	3,140	172	833	1.46	19.75	602,700
January	28,705	1,020	835	926	1.62	1.87	56,940
February	21,124	902	608	754	1.32	1.38	41,900
March	22,041	850	577	711	1.24	1.43	43,720
April	53,912	3,780	850	1,797	3.14	3.50	106,900
May	136,250	5,780	3,780	4,395	7.68	8.85	270,200
June	120,290	5,780	2,420	4,010	7.01	7.82	238,600
July	41,473	2,300	686	1,338	2.34	2.70	82,260
August	13,683	660	302	441	.771	.89	27,140
September	7,485	298	209	250	.437	.49	14,850
Water year 1937-38	501,025	5,780	209	1,373	2.40	32.57	993,700

Priest River near Priest River, Idaho

Location.- Water-stage recorder, lat. 48°13', long. 116°55', in NE¼ SE¼ sec. 11, T. 56 N., R. 5 W., 500 feet downstream from Saddler Creek, a quarter of a mile downstream from Lower West Branch, 2½ miles north of town of Priest River, and 3½ miles upstream from mouth.

Drainage area.- 902 square miles.

Records available.- October 1930 to September 1938. June 1903 to April 1905, November 1910 to April 1911, May to December 1923, and February 1929 to September 1930 at site 3 miles downstream.

Extremes.- Maximum discharge during year, 6,960 second-feet May 28-30; maximum gage height, 6.93 feet May 29; minimum daily discharge, 340 second-feet Sept. 28-30. 1903-5, 1910-11, 1923, 1929-38: Maximum discharge, 8,890 second-feet May 23, 1932 (gage height, 8.03 feet); minimum discharge recorded, 184 second-feet Jan. 7, 1937 (gage height, 0.54 foot).

Remarks.- Records good. Discharge for days of ice effect, Jan. 31, Feb. 1, and period of log jam, Aug. 9 to Sept. 30, computed on basis of two discharge measurements, weather records, and record for station near Coolin. No diversions above station. Some regulation on tributary.

Rating table, water year 1937-38 except days of ice effect and period of log jam (gage height, in feet, and discharge, in second-feet)

0.90	309	3.00	1,830	5.10	4,260
1.20	462	3.30	2,130	5.40	4,680
1.50	638	3.60	2,450	5.70	5,100
1.80	834	3.90	2,780	6.00	5,550
2.10	1,050	4.20	3,130	6.30	6,000
2.40	1,290	4.50	3,490	6.60	6,480
2.70	1,550	4.80	3,870	6.90	6,960

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	393	462	1,590	1,930	1,420	998	1,750	6,000	6,800	2,720	800	430
2	403	462	1,510	1,800	1,420	1,070	1,780	6,160	6,640	2,620	760	425
3	424	457	1,470	1,680	1,410	1,150	1,800	6,160	6,480	2,500	740	410
4	462	457	1,430	1,600	1,390	1,160	1,880	6,000	6,320	2,400	727	410
5	457	457	1,400	1,520	1,370	1,150	1,980	6,000	6,320	2,340	708	400
6	419	462	1,370	1,460	1,380	1,180	2,080	5,700	6,320	2,230	682	395
7	408	468	1,350	1,410	1,370	1,190	2,130	5,550	6,160	2,130	657	400
8	403	524	1,270	1,360	1,350	1,190	2,180	5,400	6,000	2,080	651	400
9	403	626	1,190	1,320	1,300	1,190	2,340	5,250	5,850	1,980	650	395
10	398	644	1,230	1,300	1,300	1,190	2,450	4,960	5,550	1,880	640	395
11	393	663	1,340	1,230	1,280	1,200	2,560	4,960	5,250	1,790	625	390
12	393	820	1,370	1,240	1,270	1,230	2,670	4,820	4,960	1,690	600	380
13	388	911	1,350	1,250	1,230	1,570	2,720	4,820	4,820	1,640	590	380
14	388	1,060	1,360	1,430	1,190	1,880	2,780	4,820	4,680	1,570	580	375
15	382	1,280	1,380	2,840	1,160	2,340	2,840	4,820	4,540	1,510	570	372
16	403	1,320	1,440	2,840	1,150	2,890	3,010	4,820	4,400	1,470	560	375
17	440	1,150	1,530	2,500	1,120	2,780	3,490	4,820	4,400	1,420	545	370
18	440	1,070	1,540	2,260	1,120	2,560	4,130	4,820	4,130	1,360	540	370
19	419	1,010	1,450	2,130	1,080	2,450	4,820	4,820	4,060	1,310	550	370
20	413	998	1,380	1,980	1,070	2,230	4,960	4,820	3,940	1,280	530	365
21	413	1,020	1,350	1,880	1,070	2,030	4,820	4,820	3,800	1,240	515	365
22	413	1,030	1,310	1,930	1,060	1,930	4,680	4,820	3,740	1,190	510	365
23	408	1,310	1,200	1,830	1,040	1,930	4,680	5,250	3,610	1,140	500	360
24	408	1,530	1,210	1,680	1,030	1,930	4,680	5,550	3,550	1,100	490	350
25	408	1,760	1,230	1,640	1,010	1,880	4,680	6,000	3,490	1,060	490	350
26	403	2,080	1,260	1,560	998	1,880	4,820	6,480	3,370	1,020	480	345
27	419	1,930	1,260	1,510	991	1,880	5,100	6,800	3,250	976	470	345
28	435	1,830	1,310	1,530	983	1,980	5,250	6,960	3,130	947	460	340
29	451	1,720	1,680	1,490	-	1,930	5,400	6,960	3,010	904	450	340
30	457	1,640	2,560	1,420	-	1,820	5,700	6,960	2,840	869	445	340
31	462	-	2,180	1,400	-	1,790	-	6,800	-	834	435	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	12,906	462	382	416	0.461	0.53	25,600
November	31,151	2,080	457	1,038	1.15	1.28	61,790
December	44,500	2,560	1,190	1,435	1.59	1.83	88,260
Calendar year 1937	440,225	3,940	191	1,206	1.34	18.14	873,200
January	52,970	2,840	1,230	1,709	1.89	2.18	105,100
February	33,562	1,420	983	1,199	1.33	1.38	66,570
March	53,578	2,890	998	1,728	1.92	2.21	106,300
April	104,160	5,700	1,750	3,472	3.85	4.30	206,600
May	172,920	6,960	4,820	5,578	6.18	7.12	343,000
June	141,410	6,800	2,840	4,714	5.23	5.84	280,500
July	49,200	2,720	834	1,587	1.76	2.03	97,590
August	17,950	800	435	579	.642	.74	35,600
September	11,307	430	340	377	.418	.47	22,430
Water year 1937-38	725,614	6,960	340	1,988	2.20	29.91	1,439,000

Salmon River near Waneta, British Columbia

Location.- Staff gage, lat. 49°01'30", long. 117°22'30", three-quarters of a mile upstream from mouth, 15 miles upstream from Waneta.

Records available.- March 1936 to September 1938.

Extremes.- Maximum discharge observed during year, 9,060 second-feet May 26 (gage height, 14.55 feet); minimum observed, 108 second-feet Sept. 23 (gage height, 2.33 feet). 1936-38: Maximum discharge observed, that of May 26, 1938; minimum observed, 78 second-feet Feb. 19, 1937 (discharge measurement during period of ice effect).

Remarks.- Records good except those for period of ice effect, Jan. 28 to Feb. 2, which were computed on basis of one discharge measurement, gage heights, and weather records and are fair. Discharge for June 11, July 1, 22, Sept. 16 interpolated. Gage read twice daily. Complete record furnished by Dominion Water and Power Bureau, Canada. Some discharge measurements made by Geological Survey.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	166	287	481	574	289	302	634	5,800	5,260	1,200	239	128
2	244	274	452	518	326	357	644	5,230	5,040	1,150	239	127
3	201	261	446	392	329	368	661	4,480	5,200	1,040	234	124
4	204	252	414	318	338	366	690	3,760	5,020	924	227	121
5	191	242	420	300	335	368	764	3,210	5,140	865	217	133
6	180	247	410	404	335	368	924	2,990	5,230	883	208	143
7	180	237	398	398	326	377	996	2,770	4,610	836	202	158
8	178	279	326	380	302	395	1,140	2,460	4,480	821	206	147
9	172	410	256	363	308	398	1,250	2,590	3,380	857	202	147
10	170	423	352	349	302	417	1,290	2,650	2,750	735	191	143
11	170	442	423	256	297	436	1,360	2,850	2,750	677	181	133
12	164	560	423	340	302	449	1,430	3,070	2,750	616	177	126
13	160	580	401	354	287	501	1,510	3,720	3,180	550	175	121
14	156	610	380	398	289	711	1,650	3,840	3,310	547	175	124
15	152	587	380	614	252	804	1,850	4,030	2,910	517	179	121
16	176	560	392	600	259	892	2,000	4,130	2,460	488	177	118
17	215	521	389	449	264	868	2,950	3,940	2,850	468	177	115
18	324	494	349	430	284	852	5,260	3,580	2,550	443	229	114
19	252	449	335	417	292	820	4,550	3,470	2,350	418	224	111
20	224	436	321	407	295	729	3,690	3,690	2,460	394	191	110
21	252	410	289	404	302	733	3,310	4,260	2,590	377	171	110
22	235	392	289	398	297	704	3,070	5,580	2,670	351	167	110
23	230	374	271	386	297	690	3,120	6,680	2,610	329	165	108
24	201	672	219	366	287	658	3,010	7,600	2,390	326	161	115
25	197	672	346	368	276	644	3,220	8,260	2,190	306	150	140
26	197	748	295	282	279	641	3,650	8,840	1,850	290	145	128
27	237	736	295	279	279	607	3,810	7,960	1,680	290	142	122
28	329	690	324	335	287	690	3,910	7,310	1,580	279	136	118
29	335	564	442	310	-	682	4,610	6,820	1,420	266	132	114
30	310	508	682	199	-	654	5,260	7,540	1,260	253	130	115
31	305	-	641	271	-	668	-	5,920	-	246	130	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	6,707	335	152	216	13,300
November	13,917	748	237	464	27,600
December	11,841	682	219	382	23,500
Calendar year 1937	250,503	4,620	78	686	498,000
January	11,859	614	199	383	23,500
February	8,315	338	252	297	16,500
March	18,149	892	302	585	36,000
April	72,213	5,260	634	2,410	143,000
May	149,030	8,840	2,460	4,810	296,000
June	93,920	5,260	1,260	3,130	186,000
July	17,729	1,200	246	572	35,200
August	5,679	239	130	183	11,300
September	3,744	158	108	125	7,430
Water year 1937-38	413,103	8,840	108	1,130	819,000

Sheep Creek near Northport, Wash.

Location.- Water-stage recorder, lat. 48°56'40", long. 117°46'40", in NE¼NE¼ sec. 25, T. 40 N., R. 39 E., at county highway bridge, 1 mile upstream from mouth and 1½ miles north of Northport. Zero of gage is 1,300 feet above mean sea level (subject to correction for general adjustment of 1929).

Drainage area.- 225 square miles.

Records available.- June 1929 to September 1938.

Extremes.- Maximum discharge during year, 2,080 second-feet May 2 (gage height, 27.26 feet, during period of backwater); minimum, 21 second-feet Sept. 19-24 (gage height, 22.64 feet).

1929-38: Maximum discharge, 2,450 second-feet Apr. 29, 1933 (gage height, 27.46 feet); minimum, probably less than 8 second-feet sometime during period Dec. 25, 1929 to Apr. 7, 1930.

Remarks.- Records good. Flow partly regulated by flash dam 6½ miles upstream. No diversion.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

22.6	18	23.5	140	25.0	695	27.0	2,000
22.8	34	24.0	273	25.5	965	27.5	2,400
23.0	56	24.5	460	26.0	1,280		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	30	128	98	84	74	286	1,960	1,060	142	42	26
2	30	30	122	101	84	86	296	1,920	909	160	42	25
3	30	30	116	101	87	96	316	1,660	854	158	42	24
4	33	30	112	98	87	101	360	1,460	827	149	41	25
5	31	30	109	99	84	103	435	1,240	774	140	39	26
6	30	30	105	115	86	105	504	1,080	747	134	38	27
7	30	30	103	116	82	112	569	995	695	128	38	29
8	29	32	98	101	78	118	645	965	640	126	38	29
9	29	33	87	96	76	124	721	965	588	122	37	29
10	29	34	98	94	76	134	747	965	513	118	36	28
11	29	37	91	92	74	144	800	965	426	112	35	27
12	29	42	55	91	74	153	882	995	386	105	34	25
13	29	48	57	91	74	179	909	1,080	390	98	35	24
14	28	55	80	92	75	235	909	1,240	382	92	36	24
15	28	75	84	107	64	303	937	1,240	367	87	36	24
16	31	91	84	112	61	445	965	1,240	348	82	35	23
17	32	99	84	109	69	414	1,080	1,280	334	78	34	22
18	32	80	84	105	72	378	1,350	1,210	324	74	34	22
19	31	68	80	103	74	348	1,660	1,080	303	70	34	22
20	31	64	78	101	72	324	1,560	1,060	280	66	33	21
21	30	60	76	101	74	306	1,350	1,080	263	64	32	21
22	30	57	76	101	72	290	1,240	1,240	251	60	31	21
23	30	66	74	98	70	280	1,210	1,460	241	57	30	21
24	30	84	74	86	69	267	1,210	1,660	257	54	30	22
25	30	122	65	94	68	267	1,210	1,770	267	51	30	22
26	30	153	68	81	68	270	1,320	1,740	235	51	29	24
27	30	162	68	81	68	270	1,420	1,630	218	50	29	24
28	30	158	70	81	70	283	1,420	1,420	212	48	29	24
29	29	147	70	80	-	286	1,490	1,280	202	46	28	24
30	30	136	62	76	-	280	1,700	1,240	171	44	26	24
31	30	-	79	80	-	280	-	1,180	-	43	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	930	33	28	30.0	.133	.15	1,840
November	2,113	162	30	70.4	.313	.35	4,190
December	2,637	128	55	85.1	.378	.44	5,230
Calendar year 1937	54,997	940	-	151	.671	9.08	109,100
January	2,981	116	76	96.2	.428	.49	5,910
February	2,092	87	61	74.7	.332	.35	4,150
March	7,055	445	74	228	1.01	1.16	13,990
April	29,501	1,700	286	983	4.37	4.88	58,510
May	40,300	1,960	965	1,300	5.78	6.66	79,930
June	13,464	1,060	171	449	2.00	2.23	26,710
July	2,809	160	43	90.6	.403	.46	5,570
August	1,059	42	26	34.2	.152	.18	2,100
September	729	29	21	24.3	.108	.12	1,450
Water year 1937-38	105,670	1,960	21	290	1.29	17.47	209,600

Kettle River near Ferry, Wash.

(International gaging station)

Location.- Water-stage recorder, lat. 48°58'40", long. 118°46'10", in lot 7, sec. 10, T. 40 N., R. 32 E., 1¼ miles south of international boundary and Ferry and 3 miles upstream from Toroda Creek. Zero of gage is 1,840.00 feet above mean sea level (subject to correction for general adjustment of 1929).
Drainage area.- 2,220 square miles.
Records available.- August 1928 to September 1938.
Average discharge.- 10 years, 1,275 second-feet.
Extremes.- Maximum discharge during year, 12,200 second-feet May 26 (gage height, 17.66 feet); minimum, 60 second-feet Dec. 23 (gage height, 9.10 feet).
1928-38: Maximum discharge, 14,000 second-feet June 17, 1933 (gage height, 18.40 feet); minimum, 14 second-feet (discharge measurement) Jan. 23, 1930, or may have been less sometime during period Jan. 18-23, 1930.
Remarks.- Records excellent except those for October to December, which are fair, and those for periods of ice effect, which are poor. Many small diversions for irrigation above station. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Rating tables, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-31)

Oct. 1-31		Dec. 18 to Sept. 30				Nov. 1 to Dec. 17	
9.1	60	11.0	940	14.0	4,800	9.4	105
9.3	90	11.5	1,370	15.0	6,600	9.6	140
9.5	135	12.0	1,940	16.0	8,500	9.8	195
10.0	330	12.5	2,550	18.0	13,000	10.0	270
10.5	590	13.0	3,250				

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	176	262	186	294	162	203	578	8,700	6,600	1,470	235	122
2	195	236	120	243	184	223	596	8,500	6,220	1,320	231	115
3	203	220	142	192	195	243	632	7,740	6,220	1,420	223	110
4	207	206	152	*140	203	256	692	6,790	6,030	1,320	223	115
5	203	206	150	*160	199	256	755	6,030	5,850	1,270	211	122
6	184	195	140	*170	199	260	868	5,310	5,850	1,180	203	128
7	173	192	134	*160	199	268	996	4,970	5,490	1,140	192	141
8	165	183	*120	*170	192	272	1,180	4,970	5,490	1,100	184	153
9	159	189	*110	*180	195	281	1,420	4,970	4,800	1,060	180	162
10	150	209	*110	211	199	290	1,760	4,970	4,160	1,000	169	162
11	147	230	136	192	192	312	2,000	5,140	3,780	900	169	162
12	147	254	209	180	184	321	2,240	5,490	3,700	825	162	153
13	141	266	258	199	184	339	2,360	6,790	3,850	762	159	144
14	141	274	262	207	184	390	2,620	6,980	3,850	706	162	138
15	135	250	254	227	*170	450	2,810	6,790	3,550	644	169	132
16	141	226	238	231	*120	502	3,320	6,790	3,250	602	169	128
17	141	234	226	231	*120	530	4,320	6,410	3,480	566	176	122
18	162	250	264	227	165	536	5,490	5,850	3,480	524	188	118
19	227	250	264	227	184	542	5,670	5,490	3,020	486	184	112
20	239	250	260	223	199	524	5,140	6,030	2,880	460	203	108
21	235	230	247	223	199	492	4,640	6,790	2,740	435	247	106
22	243	230	219	215	199	497	4,640	7,740	2,680	410	223	104
23	294	258	98	172	199	502	4,800	8,900	2,550	385	199	102
24	290	266	*90	136	199	508	5,140	10,200	2,480	366	188	108
25	277	274	*90	184	196	502	5,310	11,100	2,950	334	162	108
26	264	292	*120	199	192	514	6,030	11,500	2,620	326	156	106
27	251	306	130	207	181	536	6,410	11,300	2,300	316	150	106
28	239	284	176	*200	185	572	6,410	10,600	2,120	290	144	110
29	227	262	247	*180	-	584	7,170	9,730	1,880	277	130	115
30	231	254	312	*130	-	578	7,930	8,700	1,640	260	128	118
31	268	-	326	*120	-	572	-	7,360	-	231	125	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	6,255	294	135	202	12,410
November	7,240	306	183	241	14,360
December	5,790	326	90	187	11,480
Calendar year 1937	397,297	8,900	55	1,088	788,000
January	6,030	294	120	195	11,960
February	5,179	203	120	185	10,270
March	12,855	584	203	415	25,500
April	103,927	7,930	578	3,464	206,100
May	228,630	11,500	4,970	7,375	453,500
June	115,510	6,600	1,640	3,850	229,100
July	22,385	1,470	231	722	44,400
August	5,644	247	125	182	11,190
September	3,730	162	102	124	7,400
Water year 1937-38	523,175	11,500	90	1,433	1,038,000

*Stage-discharge relation affected by ice; discharge computed on basis of gage heights and weather records.

Kettle River near Laurier, Wash.

(International gaging station)

Location.- Water-stage recorder, lat. 48°50'50", long. 118°13'00", in SW¼ sec. 11, T. 40 N., R. 36 E., 500 feet downstream from Deep Creek, 1½ miles southeast of Laurier, and 12 miles upstream from Boulder Creek.

Drainage area.- 3,800 square miles.

Records available.- September 1929 to September 1938.

Extremes.- Maximum discharge, 21,700 second-feet May 27 (gage height, 13.82 feet); minimum, 243 second-feet Sept. 23, 24 (gage height, 2.76 feet).
1929-38: Maximum discharge, 23,800 second-feet June 17, 1933 (gage height, 14.48 feet); minimum occurred sometime during winter of 1929-30.
Maximum stage known, about 22 feet sometime in May or June 1894.

Remarks.- Records excellent except those for period of ice effect, Dec. 29, 1936, to Mar 8, 1937 (computed on basis of two discharge measurements, gage heights, and weather records), which are poor, those for periods of ice effect, Dec. 7-11, 25-28, 1937, Jan. 4-9, 24-31, Feb. 15-18, 1938 (computed on basis of gage heights and weather records), and those for periods of missing gage heights, Apr. 16-22, 24, 26-28, May 3-15, 1938 (computed on basis of records for station near Ferry), which are fair. North Fork regulated by storage at Grand Forks, British Columbia. Many small diversions for irrigation and domestic supply. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Revisions.- Revised figures of discharge for period June to September 1937 are here given and supersede those published in Water-Supply Paper 832.

Discharge, in second-feet, 1936-38

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	283	245	132	160	110	150	330	4,060	9,890	4,770	920	345
2	283	237	157	150	120	160	340	4,840	12,000	4,440	955	331
3	288	229	181	150	120	160	345	6,600	14,000	4,120	920	326
4	278	245	163	140	130	180	350	8,600	14,200	3,720	871	318
5	274	241	166	140	130	190	355	9,890	11,200	3,340	808	350
6	274	249	169	130	130	200	413	9,230	9,720	3,040	780	336
7	265	233	175	130	120	220	787	7,800	9,260	2,820	726	326
8	278	200	175	130	120	210	731	7,400	9,490	2,420	678	326
9	278	213	172	130	120	214	686	7,400	9,720	1,800	636	326
10	274	245	160	130	130	253	680	7,400	8,820	1,700	624	322
11	265	225	166	140	130	261	710	7,400	8,390	1,850	600	322
12	261	233	169	140	140	265	801	6,800	8,390	1,850	624	313
13	257	237	172	140	140	278	906	6,600	7,970	1,800	606	300
14	261	237	175	140	140	283	1,520	7,200	7,550	1,800	558	300
15	257	229	175	140	150	278	1,890	8,200	7,130	1,960	520	295
16	261	200	175	140	150	278	1,740	8,400	6,920	2,240	495	287
17	253	194	175	130	140	278	1,690	8,200	7,340	2,060	455	283
18	265	194	175	120	130	310	1,690	7,800	7,760	1,900	440	271
19	265	200	178	120	120	315	1,740	8,400	8,180	1,750	415	267
20	283	200	181	120	120	310	1,840	9,020	9,260	1,650	400	263
21	270	194	184	120	120	301	1,940	8,600	8,600	1,600	390	263
22	261	178	187	120	130	292	2,060	8,810	8,820	1,500	380	263
23	261	169	194	120	130	296	2,060	9,450	9,720	1,360	375	259
24	261	166	197	120	130	296	2,000	9,230	10,700	1,280	380	255
25	257	166	197	120	130	292	1,940	10,300	9,040	1,230	380	251
26	253	178	197	130	140	292	1,940	11,800	7,760	1,150	370	255
27	249	184	194	130	140	288	2,290	13,400	6,920	1,070	375	255
28	249	169	190	130	150	292	3,120	13,100	6,300	1,070	375	259
29	245	149	170	120	-	292	3,730	12,000	5,700	1,030	365	267
30	249	136	130	120	-	301	3,730	9,890	5,120	990	350	267
31	253	-	140	110	-	315	-	9,020	-	955	350	-

Discharge, in second-feet, of Kettle River near Laurier, Wash., 1936-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	287	520	726	714	495	552	1,700	16,000	13,000	3,420	606	331
2	291	515	636	732	480	618	1,700	16,600	11,900	3,120	556	331
3	304	465	600	678	505	636	1,750	16,000	11,600	2,960	529	320
4	304	395	535	620	520	636	1,800	14,900	11,600	2,890	496	320
5	318	360	520	620	552	642	2,080	13,300	11,400	2,750	490	320
6	318	350	552	620	570	654	2,680	11,900	11,400	2,610	468	304
7	304	355	580	620	552	672	2,610	10,600	11,200	2,480	458	314
8	308	380	470	630	540	714	2,890	9,700	10,400	2,360	430	326
9	304	405	460	660	525	726	3,420	9,400	10,200	2,300	424	336
10	300	440	460	660	530	768	3,960	9,500	8,390	2,240	424	342
11	291	495	460	600	525	906	4,440	9,600	7,550	2,060	402	342
12	295	535	445	618	530	990	4,940	10,000	7,340	1,850	392	342
13	295	564	505	612	510	955	5,500	11,100	7,550	1,600	392	336
14	291	612	624	612	535	1,110	6,100	12,000	7,760	1,230	392	320
15	283	660	666	654	510	1,410	6,300	12,300	7,550	1,160	380	314
16	291	648	666	666	470	1,940	6,710	12,400	6,920	1,120	386	298
17	291	624	666	678	440	2,240	8,300	12,200	6,710	1,050	386	292
18	283	618	630	672	470	1,960	9,600	11,400	6,920	1,120	408	288
19	308	612	570	648	495	1,900	10,600	10,400	6,300	1,120	424	270
20	331	570	576	624	505	1,800	10,700	10,700	5,900	1,080	419	276
21	360	570	606	630	525	1,700	9,900	11,900	5,900	1,020	424	265
22	360	564	576	624	558	1,600	9,600	13,200	5,700	945	452	265
23	360	588	520	570	576	1,550	9,490	15,400	5,500	910	474	254
24	400	618	435	530	570	1,550	9,950	17,800	5,120	847	441	260
25	405	678	380	490	564	1,500	10,200	19,900	5,900	798	424	270
26	405	750	330	510	430	1,500	11,100	21,100	5,700	764	408	260
27	390	794	340	520	430	1,500	12,200	21,400	4,940	746	397	265
28	390	815	370	530	450	1,600	12,700	20,200	4,600	740	370	265
29	380	768	480	530	-	1,650	13,000	18,400	4,280	680	353	270
30	390	738	666	510	-	1,700	14,600	17,500	3,800	650	342	276
31	505	-	696	500	-	1,700	-	15,200	-	617	336	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October 1936	8,211	288	245	265	16,290
November	6,175	249	136	206	12,260
December	5,371	197	130	173	10,650
Calendar year 1936	843,251	18,700	130	2,304	1,673,000
January 1937	4,060	160	110	131	8,050
February	3,660	150	110	131	7,260
March	8,050	315	150	260	15,970
April	44,354	3,730	330	1,478	87,970
May	266,840	13,400	4,060	8,608	529,300
June	265,870	14,200	5,120	8,862	527,300
July	64,265	4,770	955	2,073	127,500
August	17,121	955	350	552	33,960
September	8,801	350	251	293	17,460
Water year 1936-37	702,778	14,200	110	1,925	1,394,000
October 1937	10,342	505	283	334	20,510
November	17,006	815	350	567	33,730
December	16,746	726	330	540	33,220
Calendar year 1937	720,709	14,200	110	1,975	1,430,000
January 1938	18,882	732	490	609	37,450
February	14,362	576	430	513	28,490
March	39,379	2,240	552	1,270	78,110
April	210,520	14,600	1,700	7,017	417,600
May	432,000	21,400	9,400	13,940	856,900
June	233,030	13,000	3,800	7,768	462,200
July	49,237	3,420	617	1,588	97,660
August	13,283	606	336	428	26,350
September	8,966	342	254	299	17,780
Water year 1937-38	1,063,753	21,400	254	2,914	2,110,000

Myers Creek near Myncaster, British Columbia

(International gaging station)

Location.- Water-stage recorder and 4-foot Cippoletti weir, lat. 49°00'00", long. 119° 01'15", 50 feet north of international boundary, a quarter of a mile south of Myncaster, and 4½ miles downstream from Mary Ann Creek.

Drainage area.- 80 square miles.

Records available.- October 1929 to September 1938 in water-supply papers of Geological Survey. May 1923 to September 1929 in bulletins of Dominion Water and Power Bureau (Canada).

Extremes.- Maximum discharge recorded during year, 19 second-feet June 24 (gage height, 2.44 feet); minimum recorded, 0.8 second-foot Sept. 3, 4.
1923-38: Maximum discharge recorded, 99 second-feet June 14, 1923; no flow July 16-18, 25, 1926.

Remarks.- Records good. Discharge computed by weir formula. Diversions above station for irrigation. No record during winter. This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.1	2.3							-	10.6	2.6	1.0
2	3.5	2.3							-	13.7	2.6	.9
3	2.6	2.3							-	15.0	2.6	1.0
4	2.4	2.2							-	13.1	2.5	1.6
5	2.2	2.2							-	11.9	2.4	2.3
6	2.0	2.2							-	10.6	2.2	2.3
7	2.0	2.2							-	9.7	2.1	2.1
8	1.9	2.5							-	9.2	2.3	2.1
9	1.9	2.6							-	8.6	2.2	2.0
10	1.9	2.8							-	7.9	2.0	1.9
11	1.9	3.2							-	7.4	1.8	1.8
12	1.9	3.9							-	7.0	1.7	1.8
13	1.9	3.6							-	6.6	2.0	1.7
14	1.9	3.6							-	6.6	2.5	1.6
15	1.9	3.6							-	6.6	2.6	1.5
16	2.1	3.6							-	5.9	2.2	1.4
17	2.2	3.5							-	5.4	2.1	1.3
18	2.1	3.5							-	5.0	2.4	1.3
19	2.1	3.5							-	4.7	2.2	1.3
20	2.2	3.5							-	4.4	2.1	1.1
21	2.3	3.5							-	4.1	1.9	1.1
22	2.3	3.7							15.6	4.0	1.8	1.2
23	2.3	5.1							15.6	3.6	1.7	1.2
24	2.3	5.0							16.7	3.5	1.7	1.9
25	2.2	5.0							15.4	3.6	1.5	2.6
26	2.2	4.6							13.9	3.5	1.4	2.2
27	2.2	4.4							13.7	3.2	1.3	1.9
28	2.3	4.4							13.1	2.9	1.2	1.9
29	2.2	*4.4							11.9	2.6	1.1	1.8
30	2.2	*4.4							10.8	2.4	1.1	1.9
31	2.3	-							-	2.5	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	68.5	3.5	1.9	2.2	136
November	103.6	5.1	2.2	3.5	205
December	-	-	-	-	-
Calendar year					
January					
February					
March					
April					
May					
June 22-30	126.7	16.7	-	14.1	251
July	205.8	15.0	2.4	6.6	408
August	60.9	2.6	1.1	2.0	121
September	49.7	2.6	.9	1.7	99
Water year					

*Gage height missing; discharge estimated.

Colville River at Meyers Falls, Wash.

Location.- Staff gage, lat. 48°36', long. 118°04', in sec. 29, T. 36 N., R. 38 E., 500 feet downstream from Stevens County Light & Power Co.'s plant at foot of Meyers Falls, half a mile south of town of Meyers Falls, and about 5 miles upstream from mouth. Prior to May 13 at site 200 feet upstream at datum 5 feet higher.

Records available.- October 1922 to September 1938.

Average discharge.- 16 years, 238 second-feet.

Extremes.- Maximum discharge observed during year, 2,720 second-feet Apr. 20: minimum, 49 second-feet Aug. 7.
1922-38: Maximum discharge observed, that of Apr. 20, 1938; minimum, 0.5 second-foot Aug. 15, 1930.

Remarks.- Records good except those for periods of ice effect, Dec. 23, 24, Jan. 3-12, Jan. 29 to Feb. 4, Feb. 15-21 (computed on basis of gage heights and weather records), and those for period of shifting control, Apr. 18 to May 13, which are fair. Several ditches divert water for irrigation above station. Slight regulation by small reservoir above falls. Gage-height record and many discharge measurements furnished by Washington Water Power Co. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	77	244	435	310	350	1,400	1,760	578	192	95	77
2	84	84	230	412	290	370	1,340	1,640	578	192	95	80
3	75	80	190	370	290	390	1,340	1,580	578	192	83	80
4	75	87	202	350	310	458	1,340	1,520	537	192	86	80
5	80	79	179	390	390	480	1,340	1,460	516	192	94	80
6	79	78	190	410	370	480	1,400	1,400	496	192	83	77
7	72	84	179	410	390	530	1,460	1,400	476	192	51	86
8	82	87	179	390	390	605	1,460	1,340	455	168	83	88
9	80	90	140	370	370	630	1,520	1,340	414	180	70	95
10	68	101	88	330	370	680	1,580	1,280	414	160	95	96
11	79	132	140	290	390	730	1,580	1,230	373	150	80	98
12	82	124	140	260	370	730	1,640	1,230	352	150	76	92
13	80	149	168	244	350	780	1,700	1,130	352	133	80	89
14	82	168	179	277	312	930	1,700	1,110	332	160	78	94
15	78	190	202	312	310	980	1,760	1,060	312	125	80	92
16	70	202	190	480	310	1,080	1,820	1,010	292	115	84	89
17	83	190	202	555	310	1,280	1,880	1,010	312	125	83	80
18	80	190	202	555	310	1,400	2,130	960	292	101	86	88
19	79	179	202	555	310	1,920	2,600	910	292	117	94	92
20	84	168	230	530	310	2,180	2,480	910	292	125	89	77
21	77	158	230	580	310	2,240	2,240	860	273	125	95	78
22	79	168	190	555	312	2,300	2,130	810	273	109	96	77
23	84	179	170	580	331	2,120	2,120	810	273	83	94	77
24	83	215	140	580	350	2,000	2,060	810	312	98	94	77
25	77	244	124	555	331	1,820	2,000	760	273	101	80	83
26	79	277	132	530	331	1,700	1,940	710	273	95	83	80
27	79	277	158	505	331	1,580	1,880	710	237	90	80	83
28	82	294	179	480	331	1,520	1,820	710	237	100	83	92
29	84	277	215	460	-	1,460	1,760	664	220	100	80	83
30	93	277	312	410	-	1,520	1,760	620	237	95	78	83
31	83	-	412	330	-	1,460	-	620	-	89	77	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,469	93	68	79.6	4,900
November	4,905	294	77	164	9,730
December	5,938	412	88	192	11,780
Calendar year 1937	64,558	703	39	177	128,000
January	13,490	580	244	435	26,760
February	9,389	390	290	335	18,620
March	36,603	2,300	350	1,181	72,600
April	53,280	2,600	1,340	1,776	105,700
May	33,364	1,760	620	1,076	66,180
June	10,851	578	220	362	21,520
July	4,241	192	83	137	8,410
August	2,605	96	51	84.0	5,170
September	2,543	98	77	84.8	5,040
Water year 1937-38	179,678	2,600	51	492	356,400

Coeur d'Alene River near Cataldo, Idaho

Location.- Water-stage recorder, lat. 47°34', long. 116°18', in sec. 26, T. 49 N., R. 1 E., 1⅝ miles upstream from Cataldo and 3 miles downstream from South Fork of Coeur d'Alene River. Zero of gage is 2,100.00 feet above mean sea level.

Drainage area.- 1,220 square miles.

Records available.- April 1911 to December 1912, July 1920 to September 1938.

Average discharge.- 19 years, 2,460 second-feet.

Extremes.- Maximum discharge during year, 46,300 second-feet Apr. 18, 19 (gage height, 55.15 feet); minimum, 180 second-feet Oct. 26; minimum gage height, 37.77 feet Oct. 14. 1911-12, 1920-38: Maximum discharge, 55,300 second-feet Dec. 22 or 23, 1933 (gage height, 56.9 feet, from high-water mark); minimum, 122 second-feet Dec. 4, 1929; minimum gage height, 37.03 feet Sept. 6, 1931.

Remarks.- Records good. No appreciable diversion or regulation above station. Gage-height record and results of nine discharge measurements furnished by Washington Water Power Co.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	333	316	2,960	3,830	1,860	1,580	3,200	12,000	3,320	1,020	488	306
2	360	280	2,520	3,820	1,810	1,860	2,960	10,700	3,200	1,020	476	306
3	422	240	2,210	2,850	1,680	2,210	3,200	8,570	3,080	1,010	470	300
4	422	255	1,860	2,360	1,580	2,520	3,700	7,260	2,960	982	464	295
5	394	285	1,680	2,210	1,450	2,630	4,110	6,050	2,850	966	446	300
6	360	265	1,500	2,110	1,500	2,580	4,550	5,350	2,740	934	434	311
7	344	285	1,400	1,910	1,400	2,520	5,020	4,700	2,580	910	434	328
8	316	488	1,270	1,720	1,360	2,520	5,690	4,400	2,410	886	428	394
9	311	1,230	1,070	1,630	1,230	2,580	6,640	4,250	2,260	870	422	500
10	322	1,500	1,150	1,540	1,270	2,580	6,840	4,400	2,110	835	416	458
11	295	1,190	1,540	1,500	1,320	2,520	6,840	4,700	1,910	814	399	410
12	270	1,070	4,700	1,400	1,360	2,680	9,030	5,180	1,760	793	388	377
13	255	1,150	2,740	1,360	1,320	3,200	7,050	6,050	1,720	779	399	355
14	245	1,540	2,900	1,630	1,270	5,020	7,680	6,240	1,680	751	416	338
15	235	1,910	2,900	3,700	1,230	5,690	8,340	6,240	1,630	730	422	328
16	240	1,860	3,020	5,690	1,090	7,050	8,570	6,240	1,680	723	416	322
17	300	1,630	3,320	5,520	1,090	8,120	13,800	6,050	1,680	695	399	311
18	300	1,400	3,970	4,860	1,090	6,840	34,800	5,690	1,760	681	422	306
19	255	1,190	3,830	4,110	1,100	5,870	34,800	5,180	1,630	646	470	300
20	240	1,150	3,320	3,700	1,070	5,020	19,500	5,020	1,500	632	452	295
21	230	1,150	2,960	3,320	1,070	4,250	13,600	5,020	1,360	625	422	290
22	225	1,150	2,680	3,200	1,050	3,700	11,500	5,350	1,360	597	399	290
23	215	1,230	2,410	3,080	1,030	3,570	10,500	5,520	1,320	584	388	285
24	250	1,760	2,310	2,800	1,010	3,570	10,500	6,050	1,320	572	372	285
25	220	2,410	2,010	2,580	1,010	3,320	10,200	6,240	1,320	560	366	285
26	182	3,830	1,910	2,360	1,060	3,320	10,700	5,870	1,230	554	360	280
27	182	4,250	1,810	2,210	1,150	3,440	10,500	5,520	1,150	542	350	280
28	196	4,400	1,910	2,160	1,320	4,110	10,200	5,020	1,110	536	338	280
29	245	2,960	2,260	2,110	-	4,250	10,500	4,550	1,090	530	328	280
30	260	3,570	4,110	1,720	-	3,970	11,500	4,110	1,050	512	316	306
31	280	-	4,550	1,860	-	3,440	-	3,700	-	500	311	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	8,704	422	182	281	0.230	0.26	17,260
November	45,944	4,400	240	1,531	1.25	1.40	91,130
December	78,780	4,700	1,070	2,541	2.08	2.40	156,300
Calendar year 1937	757,617	16,600	182	2,076	1.70	23.08	1,503,000
January	84,350	5,690	1,360	2,721	2.23	2.57	167,300
February	35,780	1,860	1,010	1,278	1.05	1.09	70,970
March	116,530	8,120	1,580	3,759	3.08	3.55	231,100
April	306,020	34,800	2,960	10,200	8.36	9.33	607,000
May	181,220	12,000	3,700	5,846	4.79	5.52	359,400
June	56,770	3,320	1,050	1,892	1.55	1.73	112,600
July	22,789	1,020	500	735	.602	.69	45,200
August	12,611	488	311	407	.334	.39	25,010
September	9,701	500	280	323	.265	.30	19,240
Water year 1937-38	959,199	34,800	182	2,628	2.15	29.23	1,903,000

Coeur d'Alene Lake at Coeur d'Alene, Idaho

Location.- Water-stage recorder, 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. Zero of gage is 2,100.00 feet above mean sea level.

Drainage area.- 3,750 square miles.

Records available.- February 1905 to September 1938. April 1903 to February 1905 at site at St. Joe Boom Co.'s gage at mouth of St. Joe River.

Extremes.- Maximum gage height during year, 34.05 feet Apr. 22; minimum, 27.32 feet Feb. 26, 27.
1903-38: Maximum gage height, 39.05 feet Dec. 25, 1933; minimum, 19.9 feet Oct. 10-12, 1904, Sept. 24, 25, 1905, and Oct. 14 to Nov. 3, 1906.
Maximum stage known prior to 1903, 37.6 feet May 31, 1894, from high-water marks.

Remarks.- Records excellent. Washington Water Power Co. stores considerable water in lake. Stage regulated by operation of Taintor gates and bear-trap dam at Post Falls. Gage-height record furnished by Washington Water Power Co. Add 2,100.00 feet to gage heights to refer them to originally accepted elevation (2,157.404 feet) of U. S. Geological Survey benchmark in southeast corner of Merriam Building, in Coeur d'Alene (see Water-Supply Paper 672).

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24.11	23.70	25.49	25.47	24.38	23.43	26.27	32.42	28.37	26.46	26.13	25.15
2	24.10	23.66	25.52	25.46	24.31	23.59	26.10	32.47	28.20	26.48	26.10	25.10
3	24.12	23.60	25.54	25.34	24.24	23.76	25.96	32.46	28.00	26.52	26.04	25.04
4	24.14	23.54	25.56	25.16	24.13	23.96	25.86	32.30	27.81	26.53	26.01	25.02
5	24.16	23.49	25.56	24.96	24.03	24.14	25.81	32.03	27.63	26.51	25.99	24.93
6	24.16	23.44	25.54	24.79	23.99	24.30	25.81	31.67	27.44	26.49	25.94	24.86
7	24.16	23.41	25.50	24.64	23.92	24.41	25.87	31.26	27.26	26.48	25.91	24.80
8	24.15	23.44	25.48	24.52	23.88	24.48	25.96	30.85	27.08	26.47	25.86	24.78
9	24.14	23.44	25.44	24.46	23.87	24.54	26.13	30.43	26.86	26.44	25.81	24.79
10	24.14	23.51	25.47	24.39	23.95	24.59	26.33	30.08	26.63	26.42	25.79	24.79
11	24.13	23.55	25.57	24.33	24.00	24.63	26.55	29.80	26.41	26.40	25.77	24.77
12	24.13	23.62	25.65	24.36	24.08	24.72	26.76	29.58	26.30	26.38	25.72	24.73
13	24.12	23.67	25.68	24.40	24.02	24.89	26.95	29.39	26.29	26.38	25.68	24.72
14	24.13	23.76	25.67	24.44	24.01	25.24	27.14	29.31	26.29	26.39	25.66	24.69
15	24.13	23.86	25.61	24.73	23.96	25.68	27.35	29.28	26.32	26.41	25.65	24.66
16	24.16	23.97	25.57	25.14	23.90	26.19	27.58	29.27	26.41	26.42	25.63	24.62
17	24.16	24.04	25.56	25.46	23.83	26.76	27.91	29.23	26.48	26.43	25.61	24.60
18	24.16	24.08	25.57	25.67	23.75	27.24	28.81	29.17	26.48	26.44	25.60	24.59
19	24.15	24.12	25.59	25.76	23.68	27.47	30.73	29.08	26.43	26.43	25.59	24.56
20	24.14	24.19	25.54	25.75	23.62	27.54	32.81	28.96	26.37	26.40	25.59	24.52
21	24.12	24.26	25.45	25.69	23.57	27.51	33.84	28.82	26.32	26.38	25.60	24.49
22	24.09	24.31	25.30	25.66	23.51	27.40	34.01	28.69	26.33	26.38	25.58	24.45
23	24.07	24.40	25.16	25.66	23.45	27.24	33.82	28.62	26.35	26.36	25.53	24.41
24	24.05	24.51	25.12	25.59	23.41	27.09	33.55	28.58	26.36	26.29	25.50	24.38
25	24.01	24.71	25.00	25.46	23.36	26.97	33.30	28.60	26.35	26.23	25.47	24.35
26	23.97	24.94	24.95	25.32	23.33	26.83	33.09	28.65	26.34	26.28	25.42	24.31
27	23.92	25.29	24.91	25.15	23.33	26.70	32.88	28.70	26.32	26.21	25.40	24.24
28	23.87	25.47	24.83	25.00	23.35	26.62	32.71	28.73	26.32	26.21	25.37	24.21
29	23.83	25.57	24.81	24.85	-	26.58	32.54	28.73	26.36	26.19	25.32	24.18
30	23.78	25.52	25.07	24.68	-	26.51	32.42	28.67	26.44	26.17	25.27	24.15
31	23.75	-	25.35	24.49	-	26.40	-	28.54	-	26.15	25.21	-

Spokane River at Post Falls, Idaho

Location.- Water-stage recorder, lat. 47°42', long. 116°58', in sec. 4, T. 50 N., R. 5 W., 1,500 feet downstream from power plant of Washington Water Power Co., 3,300 feet downstream from intake of Spokane Valley Farms Co.'s canal, and 1 mile west of village of Post Falls. Zero of gage is 2,000 feet above mean sea level.
Drainage area.- 3,880 square miles.
Records available.- January 1913 to September 1938.
Average discharge.- River alone, 25 years (1913-38), 6,060 second-feet; river and Spokane Valley Farms Co.'s canal, 25 years (1913-38), 6,140 second-feet.
Extremes.- Maximum discharge during year, 33,500 second-feet Apr. 22 (gage height, 77.39 feet); minimum, 422 second-feet Oct. 14 (gage height, 65.32 feet).
1913-38: Maximum discharge, 50,100 second-feet Dec. 25, 1933; minimum, 422 second-feet Nov. 26, 1935, Oct. 14, 1937; minimum gage height, 65.32 feet Oct. 14, 1937.
Remarks.- Records good. Discharge for Oct. 11, 12 interpolated. Spokane Valley Farms Co.'s canal diverts 3,300 feet above station for irrigation. (See records for Spokane Valley Farms Co.'s canal at Post Falls.) Flow partly regulated by storage and release of water at Coeur d'Alene Lake. Table of monthly discharge corrected for diversion. Gage-height record and results of six discharge measurements furnished by Washington Water Power Co.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 18 to September 30)

65.30	410	68.10	2,980	71.00	8,980	74.50	21,050
65.70	655	68.50	3,640	71.50	10,270	75.00	23,100
66.10	920	68.90	4,370	72.00	11,700	75.50	25,200
66.50	1,225	69.30	5,160	72.50	13,270	76.00	27,300
66.90	1,560	69.70	6,000	73.00	15,060	76.50	29,500
67.30	1,940	70.10	6,870	73.50	17,000	77.00	31,700
67.70	2,410	70.50	7,780	74.00	19,000	77.50	34,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,030	1,600	4,860	8,980	6,430	4,090	10,800	27,300	15,100	1,260	885	1,300
2	871	1,600	3,380	8,980	6,210	4,760	10,300	27,300	14,300	1,380	941	1,300
3	792	1,650	3,220	8,730	6,210	5,580	10,000	27,300	14,000	1,560	941	1,340
4	694	1,600	2,900	8,490	6,000	6,000	9,740	26,900	13,600	2,100	948	1,300
5	688	1,600	2,900	7,780	5,160	6,210	9,740	26,000	12,900	2,340	955	1,300
6	707	1,600	2,900	7,090	4,760	6,650	9,740	25,200	12,600	2,160	941	1,220
7	726	1,600	2,480	6,210	4,280	6,870	8,850	23,900	12,300	2,160	948	1,190
8	720	1,650	2,100	5,260	3,730	6,870	10,000	22,700	11,700	2,160	955	1,140
9	720	1,650	2,100	4,760	2,680	7,090	10,300	21,500	11,400	2,160	983	1,060
10	700	1,650	2,100	4,760	2,760	7,090	10,800	20,200	10,800	1,840	976	962
11	670	1,520	3,430	3,580	3,220	7,090	10,000	19,400	8,490	1,650	906	906
12	640	1,430	5,590	2,830	4,280	7,320	11,700	18,600	6,430	1,300	934	920
13	610	1,260	6,650	3,560	4,760	7,550	12,000	18,200	5,160	990	906	920
14	603	1,210	7,090	4,000	4,760	8,490	12,600	17,800	4,660	878	850	899
15	610	1,190	7,090	5,790	4,660	9,230	12,900	17,400	3,470	844	955	1,000
16	603	1,220	7,320	8,420	4,660	10,500	13,600	17,400	3,300	857	899	1,040
17	596	1,340	7,780	8,980	4,560	11,700	14,300	17,400	4,660	844	792	1,040
18	720	1,380	7,780	9,480	4,460	12,900	16,600	17,000	6,210	899	662	998
19	792	1,340	7,780	9,480	4,370	13,300	21,900	17,000	5,790	955	610	934
20	892	1,090	7,780	9,740	4,280	13,600	28,600	16,600	5,480	969	616	1,090
21	941	1,020	7,550	9,480	4,280	13,600	32,600	16,200	4,280	1,010	616	1,190
22	1,040	1,000	7,550	9,480	4,180	13,300	33,500	15,800	3,730	1,110	700	1,190
23	1,200	1,100	6,210	9,480	4,090	12,900	32,600	15,800	3,730	1,180	941	1,160
24	1,260	1,220	5,790	9,230	4,090	12,600	31,700	15,400	3,730	1,170	983	1,030
25	1,340	1,300	5,790	8,980	4,090	12,300	30,800	15,400	3,730	1,170	1,060	1,080
26	1,430	1,650	5,580	8,730	4,000	12,000	29,900	15,800	3,730	1,130	1,040	1,190
27	1,600	3,090	5,580	8,010	4,000	11,700	29,100	15,800	3,140	990	1,010	1,170
28	1,600	6,430	6,210	7,780	4,000	11,400	28,600	15,800	2,340	871	1,050	1,180
29	1,600	7,780	7,320	7,550	-	11,400	28,200	15,800	1,370	878	1,160	1,220
30	1,560	7,090	8,250	7,320	-	11,400	27,300	15,800	1,190	778	1,170	1,300
31	1,560	-	8,730	6,650	-	11,100	-	15,400	-	785	1,220	-

Month	Observed				Diversion through Spokane Valley Farms Co.'s canal (acre-feet)	Adjusted for diversion			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	1,600	596	952	58,540	0	58,540	952		
November	7,780	1,000	2,029	120,700	0	120,700	2,029		
December	8,730	2,100	5,542	340,700	0	340,700	5,542		
Calendar year 1937	23,100	596	4,799	3,474,390	63,720	3,538,110	4,887	1.26	17.10
January	9,740	2,830	7,406	455,400	0	455,400	7,406		
February	6,430	2,680	4,463	247,900	0	247,900	4,463		
March	13,600	4,090	9,567	588,300	0	588,300	9,567		
April	33,500	8,850	18,630	1,108,000	934	1,108,934	18,640		
May	27,300	15,400	19,290	1,186,000	11,090	1,197,090	19,470		
June	15,100	1,190	7,111	423,100	15,750	438,850	7,375		
July	2,340	778	1,303	80,090	16,810	96,900	1,576		
August	1,220	610	921	56,630	16,260	72,890	1,185		
September	1,340	899	1,119	66,580	7,750	74,330	1,249		
Water year 1937-38	33,500	596	6,537	4,731,940	68,594	4,800,534	6,632	1.71	23.20

Note.- Monthly figures showing discharge in second-feet per square mile and run-off in inches are not published, owing to regulation. The yearly figures represent more nearly the natural flow.

Spokane River at Spokane, Wash.

Location.- Water-stage recorder, lat. 47°39'30", long. 117°26'50", in sec. 13, T. 25 N., R. 42 E., at Cochran Street, Spokane, half a mile upstream from Latah Creek. Zero of gage is about 1,700.00 feet above mean sea level (subject to correction for general adjustment of 1929).
Drainage area.- 4,350 square miles.
Records available.- April 1891 to September 1938.
Average discharge.- 47 years, 6,916 second-feet (based on records adjusted for storage in Coeur d'Alene Lake).
Extremes.- Maximum discharge during year, 32,700 second-feet Apr. 22 (gage height, 26.86 feet); minimum, 762 second-feet (regulated) Oct. 18 (gage height, 17.08 feet); minimum daily discharge, 1,070 second-feet (regulated) Oct. 16.
1891-1938: Maximum discharge, 49,000 second-feet May 31, 1894; minimum, 268 second-feet (regulated) Dec. 28, 1935 (gage height, 16.37 feet); minimum daily discharge, 1,040 second-feet (regulated) Nov. 28, 1935.
Remarks.- Records excellent. Water for irrigation diverted above station by Spokane Valley Farms Co. Flow partly regulated by storage and release of water at Coeur d'Alene Lake and by pondage at Spokane. Storage capacity in Coeur d'Alene Lake between elevations 2,117 and 2,135 feet, 770,000 acre-feet. Gage-height record collected in cooperation with Washington Water Power Co., which furnished many discharge measurements.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

17.5	1,200	20.0	5,450	24.0	18,620
18.0	1,830	21.0	8,010	26.0	28,180
18.5	2,550	22.0	11,040		
19.0	3,400	23.0	14,540		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,740	2,240	5,600	9,080	6,780	4,440	11,300	*27,700	15,300	2,270	1,490	1,800
2	1,550	2,170	3,710	*9,120	6,640	4,910	11,000	27,700	15,300	2,250	1,510	1,770
3	*1,510	2,160	3,600	8,880	6,580	5,760	*10,700	27,700	14,500	*2,340	1,600	1,860
4	1,460	2,140	3,260	8,550	6,410	5,960	10,400	27,200	14,200	2,700	1,550	*1,860
5	1,270	2,160	*3,260	8,030	5,920	6,320	10,200	26,700	*13,800	3,040	1,560	*1,820
6	1,330	2,150	3,200	7,370	*5,640	*6,640	10,400	25,700	13,400	2,810	1,580	1,800
7	1,330	*2,130	3,080	6,710	5,360	6,800	10,000	24,300	13,100	2,780	*1,540	1,790
8	1,330	2,150	2,580	5,890	4,460	6,970	10,600	23,300	12,400	2,750	1,580	1,730
9	1,410	2,140	2,560	*5,200	3,960	6,980	11,000	21,800	12,000	2,770	1,590	1,650
10	*1,320	2,140	2,580	5,110	3,270	7,100	*11,500	20,900	11,700	*2,600	,570	1,590
11	1,200	2,120	3,110	4,480	3,770	7,170	11,000	20,000	10,200	2,540	1,580	*1,540
12	1,200	1,940	*4,990	3,490	4,450	7,320	12,700	19,100	*7,840	2,090	1,540	1,560
13	1,250	1,920	6,390	3,710	*5,610	*7,480	12,800	18,600	6,540	2,070	1,520	1,550
14	1,230	*1,720	6,660	4,400	5,060	8,390	13,400	18,200	5,660	1,840	*1,490	1,540
15	1,180	1,740	7,070	5,370	5,050	9,090	13,800	*18,200	5,120	1,610	1,540	1,510
16	1,070	1,740	7,180	*8,050	5,000	10,200	14,500	18,200	4,200	1,630	1,640	1,610
17	*1,150	1,770	7,570	8,820	4,910	11,400	*15,300	17,700	5,160	*1,630	1,530	1,640
18	1,270	1,930	7,780	9,370	4,790	12,600	16,900	17,700	6,980	1,610	1,420	*1,560
19	1,210	1,850	*7,800	9,620	4,760	13,100	21,400	17,300	*6,540	1,610	1,380	1,550
20	1,400	1,780	7,910	9,730	*4,740	*13,500	27,200	17,300	6,310	1,620	1,290	1,560
21	1,390	*1,560	7,830	9,650	4,620	13,600	31,200	16,900	5,500	1,620	*1,310	1,650
22	1,390	1,570	7,680	9,570	4,610	13,500	32,200	*16,500	4,650	1,630	1,280	1,690
23	1,600	1,600	6,700	*9,610	4,560	13,200	32,200	16,500	4,550	1,790	1,310	1,680
24	*1,690	1,710	6,030	9,930	4,480	12,900	*31,200	16,100	4,580	*1,800	1,560	1,600
25	1,770	1,750	5,830	9,350	4,490	12,500	30,200	16,100	4,530	1,760	1,630	*1,570
26	1,830	1,810	*5,820	9,010	4,450	12,300	29,700	16,100	*4,470	1,740	1,670	1,670
27	1,970	2,430	5,800	8,300	*4,370	*12,000	29,200	16,500	4,160	1,750	1,560	1,660
28	2,090	*5,590	6,150	8,100	4,410	11,800	28,700	16,100	3,470	1,550	*1,630	1,700
29	2,080	7,090	7,200	7,780	-	11,800	28,200	*16,500	2,700	1,540	1,680	1,690
30	2,100	7,030	8,090	*7,590	-	11,700	27,700	16,100	2,050	1,550	1,710	1,770
31	*2,000	-	8,560	7,110	-	11,600	-	16,100	-	*1,440	1,700	-

Month	Observed				Gain or loss in storage in Coeur d'Alene Lake (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	2,100	1,070	1,494	91,870	-10,620	81,250	1,321	0.304	0.35
November	7,090	1,560	2,408	143,300	+48,360	191,700	3,222	.741	.83
December	8,560	2,560	5,664	348,300	-4,710	343,600	5,588	1.28	1.48
Calendar year 1937	22,100	1,070	5,115	3,703,000	+88,120	3,791,000	5,237	1.20	16.35
January	9,930	3,490	7,645	470,000	-23,430	446,600	7,263	1.67	1.92
February	6,780	3,270	4,954	275,100	-31,120	244,000	4,393	1.01	1.05
March	13,600	4,440	9,646	593,100	+84,600	677,700	11,020	2.53	2.92
April	32,200	10,000	18,890	1,124,000	+293,900	1,418,000	23,830	5.48	6.11
May	27,700	16,100	19,830	1,219,000	-203,800	1,015,000	16,510	3.80	4.38
June	15,300	2,060	8,030	477,800	-88,860	388,900	6,536	1.50	1.67
July	3,040	1,440	2,024	124,400	-8,790	115,600	1,880	.432	.50
August	1,710	1,280	1,534	94,290	-26,280	68,010	1,106	.254	.29
September	1,860	1,510	1,666	99,110	-28,970	70,140	1,179	.271	.30
Water year 1937-38	32,200	1,070	6,990	5,060,000	+280	5,060,000	6,990	1.61	21.80

*Sunday.

Spokane River below Little Falls, near Long Lake, Wash.

Location.- Water-stage recorder, lat. 47°50', long. 117°56', in NW¼ sec. 19, T. 27 N., R. 39 E., 1½ miles below Little Falls power plant of Washington Water Power Co., 4 miles downstream from Chamokane Creek, and 5 miles downstream from Long Lake. Zero of gage is 1,200.00 feet above mean sea level (subject to correction for general adjustment of 1929).

Drainage area.- 6,380 square miles.

Records available.- October 1912 to September 1938.

Average discharge.- 26 years, 7,724 second-feet (based on records corrected for storage in Coeur d'Alene and Long Lakes).

Extremes.- Maximum discharge during year, 35,300 second-feet Apr. 22 (gage height, 89.29 feet); minimum not determined (water below intakes because of regulation); minimum daily discharge, 860 second-feet Sept. 5.

1912-38: Maximum discharge, 48,000 second-feet Dec. 26, 1933 (gage height, 93.10 feet); minimum discharge observed, 169 second-feet (regulated), Sept. 30, 1931 (discharge measurement); minimum daily discharge, 442 second-feet Aug. 1, 1937.

Remarks.- Records excellent. Discharge determined from record of plant output Dec. 1, 2, Jan. 23-30, Feb. 5, 6. Water diverted for irrigation above station. Flow affected considerably by power regulation and by storage in Coeur d'Alene Lake. Capacity of Coeur d'Alene Lake between elevations 2,117 and 2,135 feet, 770,000 acre-feet. Capacity of Long Lake between elevations 1,512 and 1,531 feet, 79,600 acre-feet. Gage-height record collected in cooperation with Washington Water Power Co., which furnished many discharge measurements.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

74.0	1,110	77.0	4,010	80.0	9,050	85.0	21,800
75.0	1,520	78.0	5,490	81.0	11,200	87.0	27,900
76.0	2,790	79.0	7,150	83.0	16,100	89.0	34,300

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,910	3,050	3,680	12,200	7,320	7,120	13,400	*28,300	16,500	3,180	2,390	2,670
2	1,610	3,380	4,330	*10,600	7,780	7,400	13,900	26,700	16,200	3,590	2,570	2,790
3	*900	3,190	4,590	10,400	8,420	14,200	*12,800	25,400	16,100	*2,190	2,550	2,340
4	2,000	2,870	4,460	10,700	7,430	10,500	12,900	28,100	15,600	3,720	2,630	*1,320
5	2,010	3,120	*4,120	9,030	8,690	10,100	12,100	26,500	*14,600	3,860	2,220	860
6	1,930	2,470	4,560	8,030	*7,480	*10,300	11,800	26,100	14,200	3,070	1,850	2,280
7	2,040	*1,280	4,440	8,660	7,050	10,300	12,200	25,500	14,000	3,770	*1,520	2,510
8	2,110	2,390	3,410	6,930	5,800	10,200	12,400	*25,200	13,500	3,580	2,150	2,400
9	1,970	2,350	3,440	*6,100	5,300	9,910	12,400	23,100	12,900	3,940	2,240	2,320
10	*1,020	2,380	4,000	6,480	3,480	9,860	*13,300	22,800	12,200	*3,110	2,300	1,950
11	2,270	2,320	3,720	5,630	5,910	10,100	13,500	20,500	12,500	3,290	2,450	*1,130
12	2,290	3,150	*2,800	5,080	6,400	9,870	13,900	19,500	*8,920	3,670	2,060	2,680
13	1,930	2,870	12,000	4,340	*6,880	*11,300	14,300	20,000	6,980	2,730	2,060	2,360
14	2,050	*1,780	7,200	6,710	6,520	12,100	14,900	19,800	6,010	2,800	*1,110	2,640
15	2,800	2,830	8,480	7,280	6,630	13,500	15,400	*19,300	6,190	2,580	2,050	2,790
16	2,190	3,100	8,060	*12,600	6,840	14,500	15,500	19,500	6,280	2,610	2,180	2,590
17	*1,040	3,020	7,900	15,100	6,810	18,100	*16,600	19,400	5,940	*1,850	2,150	2,040
18	1,830	2,300	8,350	13,300	6,460	19,300	20,800	18,600	7,840	2,640	2,370	*1,160
19	2,810	1,770	*8,850	12,000	6,520	18,500	27,700	18,800	*5,980	2,720	2,770	2,580
20	2,400	1,980	9,110	11,800	*5,940	*19,300	30,500	18,400	7,220	2,660	2,440	2,580
21	2,890	*1,670	8,330	11,900	6,500	17,700	32,400	17,800	7,490	2,530	*1,370	2,670
22	2,860	3,070	8,240	11,700	5,740	17,900	33,300	*18,000	6,190	2,490	2,370	2,830
23	2,180	3,400	8,620	*13,400	5,850	16,000	32,400	17,800	4,850	2,180	2,550	2,570
24	*1,340	3,490	6,520	13,300	6,770	17,300	*31,700	17,000	5,380	*1,280	2,630	2,310
25	2,470	2,560	6,290	11,900	6,370	16,600	30,100	16,800	5,390	2,240	2,560	*1,470
26	3,210	2,930	*6,810	10,700	6,420	15,200	28,700	17,700	*5,370	2,420	2,720	2,630
27	2,950	3,520	7,240	9,860	*6,430	*15,400	28,900	18,000	5,070	2,540	2,240	2,790
28	2,580	*4,240	7,920	9,450	6,130	14,600	28,800	16,900	4,670	2,630	*1,750	2,740
29	2,650	5,590	7,950	9,990	-	15,000	28,800	*17,000	4,150	2,670	2,420	2,690
30	2,680	8,660	9,990	*9,410	-	14,600	28,000	17,300	3,080	2,370	2,640	2,680
31	*2,120	-	12,600	7,790	-	13,900	-	17,100	-	*1,600	2,760	-

Month	Observed				Gain or loss in storage in Coeur d'Alene and Long Lakes (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	3,210	900	2,163	133,000	-13,670	119,300	1,940	0.304	0.35
November	8,680	1,280	3,025	180,000	+50,760	230,800	3,879	.608	.68
December	12,600	2,800	6,710	412,600	-1,160	411,400	6,691	1.05	1.21
Calendar year 1937	23,700	442	6,121	4,431,000	+91,020	4,522,000	6,246	.979	13.26
January	15,100	4,340	9,753	599,700	-26,730	573,000	9,319	1.46	1.68
February	8,690	3,480	6,567	364,700	-29,470	335,200	6,036	.946	.99
March	19,300	7,120	13,570	834,400	+74,050	908,400	14,770	2.32	2.68
April	33,300	11,800	20,440	1,216,000	+289,300	1,505,000	25,290	3.96	4.42
May	28,700	16,800	20,900	1,285,000	-195,200	1,090,000	17,730	2.78	3.20
June	16,500	3,020	9,041	538,000	-79,360	458,600	7,707	1.21	1.35
July	3,940	1,280	2,787	171,400	-9,790	161,600	2,628	.412	.48
August	2,770	1,110	2,260	139,000	-31,480	107,500	1,748	.274	.32
September	2,830	860	2,312	137,600	-28,520	109,100	1,833	.287	.32
Water year 1937-38	33,300	860	8,304	6,011,000	-1,270	6,010,000	8,301	1.30	17.68

*Sunday.

St. Joe River at Calder, Idaho

Location.- Water-stage recorder, lat. 47°16', long. 116°11', in sec. 3, T. 45 N., R. 2 E., 150 feet southwest of Chicago, Milwaukee & St. Paul Railway station at Calder. Zero of gage is about 2,100 feet above mean sea level.

Drainage area.- 1,080 square miles.

Records available.- July 1920 to September 1938. April 1911 to September 1912, at site 2½ miles downstream.

Average discharge.- 19 years, 2,330 second-feet.

Extremes.- Maximum discharge during year, 46,000 second-feet Apr. 18 (gage height, 93.1 feet, from high-water mark) from rating curve extended above 17,000 second-feet; minimum, 281 second-feet Dec. 8 (gage height, 78.90 feet).

1911-12, 1920-38: Maximum discharge, 53,000 second-feet Dec. 23, 1933, computed on basis of slope between gages downstream; maximum gage height, that of April 18, 1938; minimum discharge, 96 second-feet Dec. 5, 1928 (gage height, 78.43 feet).

Remarks.- Records good except those for Dec. 27 to Jan. 4, which are poor. Discharge for periods of missing gage-height record, Dec. 27 to Jan. 24, Apr. 19-25, computed on basis of weather records, records for nearby streams, and gage heights from Washington Water Power Co.'s gage at St. Joe. No diversions above gage. Operation of splash dam at Marble Creek causes some diurnal fluctuation during log-driving season. Gage-height record and results of seven discharge measurements furnished by Washington Water Power Co.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	335	372	711	1,500	978	1,230	1,650	13,400	6,700	1,740	723	412
2	386	335	606	1,000	978	1,430	1,700	11,700	6,700	1,700	711	408
3	454	320	765	800	915	1,520	1,980	9,800	6,480	1,600	729	404
4	412	316	681	700	795	1,600	2,130	8,140	6,270	1,740	795	400
5	372	316	579	650	825	1,600	2,350	7,150	6,060	1,600	687	396
6	355	355	535	600	825	1,520	2,880	6,270	5,860	1,520	628	408
7	400	352	510	560	795	1,520	3,200	5,660	5,470	1,430	612	416
8	382	458	365	540	795	1,430	3,780	5,470	5,100	1,390	596	540
9	332	795	358	520	717	1,520	4,170	5,470	4,500	1,390	596	765
10	332	562	557	500	795	1,520	4,090	5,860	4,010	1,310	584	515
11	329	444	1,390	500	825	1,560	4,410	6,480	3,700	1,190	562	449
12	326	505	2,130	500	825	1,780	4,750	7,390	3,560	1,150	557	428
13	320	525	1,880	550	795	2,400	5,280	8,670	3,480	1,080	645	408
14	320	657	1,520	900	765	3,200	5,860	9,220	3,410	1,040	795	400
15	316	795	1,390	2,000	735	3,200	5,860	9,220	3,200	1,120	645	390
16	335	651	1,390	2,000	584	4,090	7,150	9,510	3,410	1,120	540	386
17	458	535	1,470	1,800	687	4,170	17,100	9,220	3,270	1,120	525	382
18	408	467	1,430	1,500	675	3,270	39,400	8,400	3,270	1,080	540	400
19	345	420	1,270	1,300	741	2,700	30,000	7,630	3,000	1,040	640	393
20	339	449	1,120	1,200	711	2,300	19,000	7,150	2,760	973	584	362
21	339	584	1,010	1,100	711	2,030	14,000	7,390	2,640	945	525	362
22	332	634	945	1,200	681	1,780	11,000	7,880	2,700	915	500	355
23	326	699	825	1,300	669	1,740	10,000	8,670	2,580	885	485	345
24	320	1,010	795	1,100	669	1,700	9,500	9,800	2,520	855	480	345
25	320	1,150	765	1,010	681	1,650	9,500	10,700	2,460	855	472	345
26	320	1,650	795	915	753	1,700	9,800	10,700	2,300	825	500	345
27	313	1,190	750	915	855	1,880	9,510	10,400	2,130	855	495	342
28	310	1,470	800	945	1,010	2,240	9,510	10,100	2,030	795	444	342
29	379	1,190	900	915	-	2,180	10,400	9,220	1,930	855	428	365
30	386	945	1,500	765	-	1,980	12,400	8,140	1,830	765	424	408
31	379	-	1,800	978	-	1,780	-	7,390	-	729	420	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	10,980	458	310	354	0.328	0.38	21,780
November	20,151	1,650	316	672	.622	.69	39,970
December	31,542	2,130	358	1,017	.942	1.09	62,560
Calendar year 1937	595,092	11,700	200	1,630	1.51	20.48	1,180,000
January	30,763	2,000	500	992	.919	1.06	61,020
February	21,790	1,010	584	778	.720	.75	43,220
March	64,220	4,170	1,230	2,072	1.92	2.21	127,400
April	273,360	39,400	1,650	9,112	8.44	9.42	542,200
May	262,200	13,400	5,470	8,458	7.83	9.03	520,100
June	113,330	6,700	1,830	3,778	3.50	3.90	224,800
July	35,617	1,740	729	1,149	1.06	1.22	70,650
August	17,867	795	420	576	.533	.61	35,440
September	12,216	765	342	407	.377	.42	24,230
Water year 1937-38	894,036	39,400	310	2,449	2.27	30.78	1,773,000

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St. Maries River at Lotus, Idaho

Location.- Staff gage, lat. 47°14', long. 116°37', in sec. 20, T. 45 N., R. 2 W., just downstream from Lotus. Zero of gage is approximately 2,160 feet above mean sea level.
Drainage area.- 420 square miles.
Records available.- July 1911 to October 1912, July 1920 to September 1938.
Average discharge.- 18 years (1920-38), 505 second-feet.
Extremes.- Maximum discharge observed during year, 7,980 second-feet Apr. 18; maximum gage height, about 10.0 feet Dec. 30, from high-water mark during ice and log jam; minimum discharge, 38 second-feet Sept. 5, 6 (gage height, 3.37 feet).
1911-12, 1920-38: Maximum discharge observed, 23,800 second-feet Dec. 22, 23, 1933 (gage height, 12.1 feet); minimum discharge, 16 second-feet (estimated) Nov. 21, 1929; minimum gage height, 2.71 feet, Nov. 20, 1929.
Remarks.- Records good except those for periods of ice effect, Dec. 7-9, 27-30, Jan. 4-7, 31, Feb. 1, which were computed on basis of one discharge measurement, weather records, and records for stations on nearby streams and are poor. Result of discharge measurement shown for Dec. 9. Gage read once daily. No diversions above gage. Gage-height record and results of seven discharge measurements furnished by Washington Water Power Co.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 18 to Sept. 30)

3.40	41	5.20	1,150	7.30	4,800
3.60	89	5.50	1,500	7.60	5,560
3.80	156	5.80	1,900	7.90	6,370
4.00	242	6.10	2,360	8.20	7,230
4.30	403	6.40	2,880	8.50	8,140
4.60	607	6.70	3,460		
4.90	856	7.00	4,100		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	98	281	1,070	350	662	847	1,560	434	134	61	48
2	52	84	242	743	403	884	838	1,500	391	131	61	43
3	68	79	206	453	466	1,090	812	1,440	362	131	59	41
4	84	68	189	400	480	1,320	884	1,260	334	131	56	39
5	101	63	181	250	466	1,380	1,070	987	313	127	54	38
6	79	68	176	250	480	1,380	1,320	865	302	131	54	39
7	68	76	160	260	416	1,320	1,380	786	291	124	52	45
8	63	98	140	271	416	1,260	1,440	735	276	117	50	86
9	56	368	119	281	403	1,200	1,560	669	271	111	50	266
10	54	181	252	271	422	1,150	1,630	623	266	111	50	164
11	52	134	847	276	416	1,320	1,760	760	257	104	50	76
12	52	149	1,150	271	416	1,700	1,760	874	242	101	48	63
13	52	206	821	441	368	2,280	1,760	856	220	95	48	54
14	52	257	600	534	428	2,700	1,760	847	202	92	56	54
15	52	281	480	1,830	357	3,260	1,700	830	197	86	66	52
16	73	247	556	1,630	291	3,670	1,700	803	206	84	68	52
17	79	189	821	1,150	302	3,070	3,160	786	262	79	59	50
18	92	176	1,560	939	357	2,120	7,980	777	266	76	61	48
19	73	127	1,440	847	357	1,980	5,180	726	271	73	73	48
20	68	131	563	654	318	1,560	3,360	646	242	73	73	48
21	68	193	466	486	291	1,260	2,700	615	224	73	63	48
22	68	189	357	1,090	302	1,040	2,120	607	206	71	54	48
23	63	164	329	977	281	911	1,830	600	185	68	52	45
24	63	233	257	803	291	996	1,760	592	185	68	48	45
25	63	380	215	654	276	1,080	1,830	578	197	66	50	43
26	63	1,090	224	428	357	1,150	1,830	578	189	66	50	43
27	61	480	250	453	441	1,700	1,760	549	172	63	50	43
28	61	1,380	600	480	549	1,700	1,500	527	152	63	48	43
29	66	710	1,000	473	-	1,440	1,440	527	142	76	45	43
30	79	486	1,500	238	-	1,110	1,380	500	138	89	43	50
31	92	-	1,900	250	-	893	-	460	-	66	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	2,062	101	45	66.5	0.158	0.18	4,090
November	8,385	1,380	63	280	.667	.74	16,630
December	17,882	1,900	119	577	1.37	1.58	35,470
Calendar year 1937	163,291	6,370	30	447	1.06	14.45	323,900
January	19,153	1,830	238	618	1.47	1.70	37,990
February	10,700	549	276	382	.910	.95	21,220
March	48,586	3,670	662	1,567	3.73	4.30	96,370
April	60,051	7,980	812	2,002	4.77	5.32	119,100
May	24,463	1,560	460	789	1.88	2.17	48,520
June	7,395	434	138	246	.586	.65	14,670
July	2,880	134	63	92.9	.221	.25	5,710
August	1,693	73	41	54.6	.130	.15	3,360
September	1,805	266	38	60.2	.143	.16	3,580
Water year 1937-38	205,055	7,980	38	562	1.34	18.15	406,700

Hayden Lake at Hayden Lake, Idaho

Location.- Staff gage, lat. 47°46', long. 116°45', in sec. 18, T. 51 N., R. 3 W., at Avondale and Hayden Lake pumping plants, a quarter of a mile north of Bozanta Tavern. Zero of gage is 2,200.00 feet above mean sea level (U. S. Coast and Geodetic Survey datum).

Records available.- May 1920 to September 1938.

Extremes.- Maximum water-surface elevation observed during year, 2,232.20 feet May 2, 3, 5, 6; minimum, 2,223.22 feet Nov. 6-8.
1920-38: Maximum water-surface elevation, 2,240.41 feet Apr. 30 to May 18, 1921; minimum, 2,219.38 feet Dec. 16, 1931.

Remarks.- Records good. Gage read once daily. Water is pumped from lake for irrigation and for domestic supply. No observations Nov. 25, Dec. 26, May 1, 4, because of wind.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23.66	23.30	23.73	25.12	27.21	27.59	30.06	-	31.42	29.82	27.75	25.82
2	23.66	23.28	23.74	25.19	27.24	27.64	30.07	32.20	31.36	29.78	27.68	25.77
3	23.66	23.27	23.75	25.25	27.26	27.71	30.09	32.20	31.29	29.71	27.59	25.72
4	23.66	23.25	23.75	25.30	27.26	27.79	30.13	-	31.23	29.64	27.51	25.65
5	23.64	23.24	23.75	25.34	27.30	27.86	30.15	32.20	31.16	29.57	27.43	25.58
6	23.62	23.22	23.75	25.37	27.34	27.92	30.18	32.20	31.10	29.51	27.35	25.52
7	23.60	23.22	23.74	25.39	27.40	27.98	30.22	32.18	31.03	29.45	27.28	25.46
8	23.58	23.22	23.73	25.40	27.40	28.04	30.25	32.15	30.97	29.39	27.20	25.42
9	23.56	23.27	23.72	25.42	27.40	28.09	30.28	32.15	30.90	29.32	27.14	25.36
10	23.54	23.29	23.74	25.45	27.42	28.14	30.37	32.12	30.83	29.37	27.08	25.32
11	23.53	23.28	23.81	25.46	27.42	28.20	30.49	32.11	30.75	29.21	27.01	25.28
12	23.51	23.30	23.84	25.46	27.44	28.27	30.59	32.10	30.69	29.13	26.94	25.24
13	23.50	23.32	23.85	25.48	27.50	28.36	30.65	32.08	30.62	29.05	26.86	25.21
14	23.48	23.36	23.87	25.58	27.54	28.50	30.72	32.07	30.55	28.97	26.80	25.18
15	23.46	23.42	23.90	25.70	27.54	28.73	30.77	32.06	30.47	28.92	26.75	26.15
16	23.45	23.43	23.96	25.98	27.54	28.93	30.85	32.04	30.44	28.87	26.70	25.13
17	23.46	23.43	24.00	26.26	27.54	29.17	31.01	32.02	30.41	28.84	26.64	25.11
18	23.46	23.41	24.08	26.50	27.53	29.35	31.19	32.00	30.45	28.75	26.57	25.08
19	23.46	23.40	24.14	26.60	27.52	29.55	31.57	31.97	30.42	28.69	26.50	25.03
20	23.45	23.42	24.19	26.69	27.52	29.63	31.69	31.96	30.39	28.62	26.44	25.02
21	23.42	23.42	24.24	26.77	27.54	29.71	31.79	31.91	30.36	28.56	26.38	24.98
22	23.40	23.41	24.27	26.85	27.55	29.75	31.86	31.90	30.32	28.49	26.32	24.95
23	23.39	23.43	24.28	26.92	27.55	29.81	31.91	31.87	30.26	28.42	26.27	24.92
24	23.38	23.45	24.32	26.98	27.55	29.84	31.96	31.85	30.21	28.34	26.22	24.87
25	23.36	-	24.34	27.00	27.55	29.88	31.99	31.81	30.15	28.25	26.18	24.82
26	23.34	23.50	-	27.04	27.55	29.89	32.04	31.77	30.09	28.20	26.14	24.78
27	23.33	23.60	24.50	27.09	27.55	29.91	32.08	31.73	30.03	28.13	26.07	24.75
28	23.32	23.67	24.58	27.10	27.57	29.94	32.10	31.69	29.97	28.06	26.02	24.73
29	23.32	23.69	24.64	27.11	-	29.97	32.14	31.63	29.92	28.00	25.97	24.70
30	23.32	23.72	24.80	27.14	-	30.01	32.16	31.57	29.87	27.91	25.91	24.70
31	23.31	-	24.98	27.16	-	30.03	-	31.49	-	27.83	25.87	-

Spokane Valley Farms Co.'s canal at Post Falls, Idaho

Location.- Water-stage recorder, lat. 47°43', long. 116°57', in sec. 3, T. 50 N., R. 5 W., 300 feet below head gate and half a mile northwest of village of Post Falls. Prior to 1938 staff gage in NE¼ sec. 4, 1,200 feet below head gates, at different datum.

Records available.- May 1911 to September 1917, September 1919 to September 1938.

Extremes.- Maximum discharge recorded during year, 301 second-feet June 11 (gage height, 5.56 feet, present datum; no flow Oct. 1 to Apr. 12, Apr. 19-22.
1911-17, 1919-38: Maximum discharge observed, 304 second-feet May 28, 1936; maximum gage height, 5.06 feet Aug. 9, 1935, former datum; no flow during nonirrigation season.

Remarks.- Records good. Discharge for Apr. 12-19 computed on basis of twice-daily observations on temporary staff gage 25 feet below recorder site. Canal diverts water for irrigation from Spokane River in SE¼ sec. 3, T. 50 N., R. 5 W. Gage-height record furnished by Spokane Valley Farms Co. Results of five discharge measurements furnished by Washington Water Power Co.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	54	256	274	256	239
2							0	79	256	283	256	223
3							0	91	256	283	256	223
4							0	91	256	274	256	223
5							0	91	265	283	256	223
6							0	88	265	283	265	223
7							0	88	265	283	265	223
8							0	85	256	283	256	223
9							0	108	256	274	256	223
10							0	142	256	274	265	223
11							0	150	265	274	265	223
12							17	150	265	274	265	223
13							26	164	265	274	265	231
14							26	183	265	274	265	231
15							26	199	265	274	265	231
16							26	211	265	274	265	91
17							26	215	256	274	265	14
18							26	215	256	274	265	14
19							9	215	265	274	265	14
20							0	223	265	274	265	14
21							0	223	265	274	265	14
22							15	223	265	274	265	14
23							32	247	265	274	274	14
24							31	256	265	274	274	14
25							29	265	265	274	274	14
26							28	256	274	274	274	39
27							28	256	274	265	274	63
28							28	256	274	265	265	68
29							44	256	283	256	265	68
30							54	256	292	256	265	68
31							-	256	-	256	265	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1937	32,126	298	0	88.0	63,720
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	471	54	0	15.7	934
May	5,592	265	54	180	11,090
June	7,941	292	256	265	15,750
July	8,476	283	256	273	16,810
August	8,197	274	256	264	16,260
September	3,908	239	14	130	7,750
Water year 1937-38	34,585	292	0	94.8	68,590

Okanogan River at Okanagan Falls, British Columbia

(International gaging station)

Location.- Water-stage recorder, lat. 49°21', long. 119°35', 400 feet downstream from falls at village of Okanagan Falls and 800 feet downstream from Dog Lake.

Drainage area.- 2,550 square miles.

Records available.- October 1930 to September 1938 in water-supply papers of Geological Survey. March 1915 to September 1930 in bulletins of Dominion Water and Power Bureau (Canada).

Average discharge.- 23 years, 466 second-feet.

Extremes.- Maximum discharge during year, 1,270 second-feet May 28 (gage height, 2.76 feet); minimum, 144 second-feet Aug. 10 (gage height, 1.05 feet).
1915-38: Maximum discharge observed, 2,680 second-feet June 10, 1923; minimum discharge, 4.6 second-feet Mar. 14, 1931.

Remarks.- Records good except those for periods of missing or faulty gage heights, which are fair. Diversions above station for irrigation. Flow regulated by control dam at outlet of Okanagan Lake. This station is one of the international gaging stations maintained by Canada under agreement with the United States.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.0	132	2.5	922
1.5	307	3.0	1,620
2.0	533		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	248	291	492	660	*664	602	572	891	1,070	402	179	172
2	259	287	482	660	653	602	583	912	1,040	398	169	189
3	271	287	492	660	653	595	583	922	1,030	402	165	182
4	267	291	508	653	*651	595	583	934	1,030	398	175	205
5	267	295	533	653	*648	602	583	922	1,020	389	175	212
6	267	291	550	653	*646	602	583	912	1,010	385	179	197
7	263	287	555	653	*643	602	578	901	971	381	182	201
8	267	311	555	653	640	602	583	901	946	385	179	201
9	271	327	550	653	647	602	608	901	922	364	169	197
10	271	331	550	660	647	589	589	912	891	364	165	193
11	275	376	533	668	668	589	589	922	880	360	169	182
12	275	381	567	668	653	595	589	946	849	355	169	186
13	279	403	572	653	653	602	595	959	849	355	179	189
14	279	403	583	660	653	589	595	995	818	355	182	197
15	279	394	602	653	653	595	602	995	800	355	186	193
16	283	385	608	660	640	602	615	1,020	746	335	186	201
17	283	389	627	668	621	602	621	1,040	683	331	186	205
18	279	389	640	668	*620	589	634	1,030	647	319	182	201
19	271	398	627	676	*619	615	640	1,020	627	307	189	189
20	283	416	634	653	*618	615	653	1,010	621	299	189	189
21	291	425	640	668	*617	615	653	1,030	621	291	205	193
22	291	430	653	676	*616	608	676	1,070	589	291	182	*189
23	287	444	647	676	*615	602	683	1,100	561	287	182	*201
24	295	444	653	676	615	602	698	1,120	544	263	179	*205
25	299	448	676	676	608	602	706	1,170	508	244	172	205
26	295	458	676	676	608	589	713	1,210	492	220	169	205
27	279	482	668	676	602	578	737	1,220	472	216	175	205
28	291	502	668	698	602	589	764	1,240	453	212	175	205
29	299	497	668	683	-	602	791	1,210	434	208	175	205
30	295	497	683	676	-	583	849	1,150	420	201	175	205
31	291	-	676	*670	-	578	-	1,110	-	186	172	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	8,650	299	248	279	17,200
November	11,559	502	287	385	22,900
December	18,568	683	482	599	36,800
Calendar year 1937	166,584	1,040	96	456	330,000
January	20,636	698	653	666	40,900
February	17,773	668	602	634	35,300
March	18,534	615	578	598	36,800
April	19,248	849	572	642	38,200
May	31,675	1,240	891	1,020	62,800
June	22,544	1,070	420	751	44,700
July	9,858	402	186	318	19,600
August	5,515	205	165	178	10,900
September	5,899	212	172	197	11,700
Water year 1937-38	190,459	1,240	165	522	378,000

*Gage height missing or faulty; discharge computed on basis of records for station at Penticton.

Osoyoos Lake near Oroville, Wash.

(International gaging station)

Location.- Water-stage recorder, lat. 48°59'15", long. 119°27'15", in lot 1, sec. 8, T. 40 N., R. 27 E., on west shore, 1 mile south of international boundary and 3 miles north of Oroville. Gage datum is at mean sea level (subject to correction for general adjustment of 1929).

Drainage area.- 3,250 square miles.

Records available.- July 1928 to September 1938.

Extremes.- Maximum water-surface elevation during year, 916.32 feet May 29; minimum, 912.51 feet Sept. 3.
1928-38: Maximum water-surface elevation recorded, 917.23 feet Apr. 28, 1934; minimum recorded, 911.21 feet Oct. 14, 1929.

Remarks.- Records excellent. Diversion in Canada for irrigation. Okanogan River is subject to natural regulation in several lakes and to artificial regulation, as an aid to navigation, in Okanagan Lake. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13.87	13.77	13.93	14.36	14.19	14.12	14.06	15.32	16.04	13.96	12.94	12.52
2	13.86	13.78	13.92	14.36	14.19	14.12	14.15	15.37	15.91	13.93	12.91	12.52
3	13.84	13.79	13.92	14.35	14.20	14.13	14.05	15.41	15.78	13.89	12.86	12.52
4	13.83	13.80	13.91	14.34	14.20	14.13	14.06	15.46	15.66	13.88	12.83	12.59
5	13.81	13.81	13.92	14.34	14.20	14.12	14.07	15.47	15.55	13.84	12.81	12.60
6	13.80	13.82	13.93	14.33	14.23	14.12	14.06	15.44	15.45	13.82	12.79	12.60
7	13.79	13.83	13.95	14.33	14.23	14.11	14.05	15.40	15.32	13.80	12.76	12.66
8	13.78	13.86	13.95	14.32	14.22	14.10	14.06	15.36	15.25	13.76	12.72	12.70
9	13.77	13.99	13.95	14.32	14.22	14.10	14.09	15.34	15.16	13.72	12.68	12.73
10	13.77	13.93	13.98	14.32	14.23	14.09	14.09	15.31	15.06	13.66	12.66	12.77
11	13.77	13.99	13.99	14.30	14.24	14.09	14.11	15.30	15.01	13.61	12.65	12.81
12	13.76	14.02	14.03	14.28	14.25	14.08	14.13	15.29	14.95	13.57	12.61	12.86
13	13.76	14.09	14.05	14.25	14.25	14.08	14.16	15.28	14.89	13.54	12.60	12.90
14	13.75	14.09	14.08	14.26	14.27	14.07	14.18	15.30	14.80	13.53	12.60	12.95
15	13.75	14.06	14.10	14.27	14.26	14.08	14.21	15.32	14.74	13.53	12.60	12.99
16	13.74	14.02	14.14	14.26	14.24	14.10	14.25	15.35	14.70	13.50	12.59	13.02
17	13.74	14.01	14.17	14.25	14.23	14.11	14.31	15.38	14.67	13.49	12.59	13.07
18	13.73	13.95	14.19	14.24	14.22	14.11	14.40	15.39	14.59	13.46	12.59	13.12
19	13.72	13.92	14.21	14.24	14.20	14.12	14.48	15.38	14.55	13.42	12.58	13.14
20	13.72	13.91	14.23	14.23	14.20	14.12	14.55	15.36	14.51	13.39	12.58	13.18
21	13.72	13.89	14.27	14.22	14.20	14.11	14.60	15.37	14.45	13.35	12.58	13.21
22	13.72	13.88	14.30	14.22	14.19	14.10	14.67	15.38	14.38	13.34	12.56	13.24
23	13.72	13.90	14.31	14.21	14.17	14.11	14.73	15.40	14.34	13.32	12.54	13.27
24	13.73	13.89	14.32	14.20	14.16	14.11	14.79	15.46	14.32	13.26	12.54	13.30
25	13.74	13.91	14.32	14.19	14.15	14.11	14.85	15.56	14.31	13.20	12.53	13.34
26	13.75	13.90	14.33	14.19	14.15	14.10	14.92	15.72	14.28	13.18	12.52	13.37
27	13.75	13.92	14.33	14.18	14.14	14.09	14.99	16.00	14.23	13.15	12.53	13.39
28	13.76	13.94	14.34	14.18	14.13	14.09	15.05	16.20	14.17	13.13	12.53	13.41
29	13.75	13.94	14.36	14.19	-	14.10	15.14	16.29	14.11	13.09	12.52	13.41
30	13.75	13.93	14.36	14.18	-	14.08	15.23	16.28	14.03	13.04	12.52	13.41
31	13.76	-	14.36	14.19	-	14.07	-	16.18	-	12.99	12.52	-

Note.- Add 900 feet to obtain elevation above mean sea level.

Okanogan River near Tonasket, Wash.

(International gaging station)

Location.- Water-stage recorder, lat. 48°38'00", long. 119°27'50", in lot 3, sec. 8, T. 36 N., R. 27 E., 1,000 feet upstream from Chewiliken Creek and 5½ miles south of Tonasket.

Drainage area.- 7,250 square miles.

Records available.- April 1929 to September 1938.

Extremes.- Maximum discharge during water year 1936-37, 15,100 second-feet June 5 (gage height, 14.16 feet); minimum, probably less than 450 second-feet sometime during period of ice effect.

Maximum discharge during water year 1937-38, 20,400 second-feet May 28 (gage height, 16.51 feet); minimum, 486 second-feet Sept. 3 (gage height, 3.96 feet).

1929-38: Maximum discharge, 25,400 second-feet Apr. 27, 1934 (gage height, 18.3 feet); minimum, 126 second-feet Sept. 5, 1931 (gage height, 3.43 feet).

Remarks.- Records excellent except those for period of ice effect, Dec. 31, 1936, to Mar. 9, 1937 (computed on basis of two discharge measurements, gage heights, and weather records), those for period of missing gage heights, Dec. 6-14, 1937 (computed on basis of weather records), and those for periods of ice effect, Dec. 23-28, 1937, Jan. 29 to Feb. 2, Feb. 16-18, 1938 (computed on basis of gage height and weather records), all of which are poor. Many diversions for irrigation above station. Flow subject to natural regulation in several lakes, and, as an aid to navigation, to artificial regulation in Okanagan Lake. Operation of power plant on Similkameen River affects low-water flow slightly. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Revision.- Revised figures of discharge for water year 1936-37 supersede those published in Water-Supply Paper 832.

Rating tables, water years 1936-37, 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1, 1936 to June 4, 1937

4.0	380
4.5	610
5.0	870
6.0	1,540
7.0	2,360

Note.- Same as following table above 7.0 feet.

June 5, 1937, to Sept. 30, 1938

3.9	465	9.0	4,950
4.4	670	10.0	6,600
5.0	940	12.0	10,400
6.0	1,450	14.0	14,700
7.0	2,360	16.5	20,400
8.0	3,550		

Discharge, in second-feet, 1936-38

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	785	900	810	550	480	560	960	1,610	10,000	7,500	1,280	760
2	785	840	785	450	510	560	990	1,680	11,400	7,140	1,260	738
3	785	900	760	490	530	580	1,020	1,900	13,200	6,600	1,260	738
4	840	840	760	520	540	600	1,020	2,830	14,500	6,080	1,330	738
5	760	810	810	540	530	620	1,050	4,360	14,900	5,580	1,300	805
6	760	870	810	510	520	670	1,080	4,650	14,000	5,260	1,180	782
7	735	900	810	480	500	660	1,050	4,360	13,600	4,800	1,080	805
8	735	930	910	480	470	640	1,050	4,360	13,600	4,500	1,030	872
9	735	840	785	490	450	630	1,050	4,360	14,000	4,220	1,060	872
10	735	870	810	490	480	655	1,050	4,500	14,000	3,940	1,060	828
11	735	810	840	500	490	660	1,120	4,650	13,800	3,810	1,030	828
12	735	840	870	500	500	685	1,160	4,500	14,300	3,550	1,030	828
13	735	930	870	500	510	660	1,220	4,500	14,000	3,310	962	760
14	735	930	810	510	520	660	1,260	4,950	13,200	3,310	962	738
15	785	930	870	520	540	685	1,300	6,600	12,300	3,190	940	692
16	900	960	900	500	560	685	1,300	7,140	12,500	3,070	940	760
17	870	930	810	500	580	685	1,360	7,140	12,300	2,990	918	715
18	960	960	810	500	570	685	1,400	6,780	12,900	2,710	918	670
19	990	900	810	510	550	685	1,400	7,320	12,500	2,530	850	670
20	960	930	810	510	540	710	1,380	7,880	11,700	2,250	760	648
21	960	960	840	510	550	710	1,400	7,500	11,200	2,200	760	670
22	930	990	840	510	560	710	1,400	7,500	11,000	2,090	805	648
23	930	990	900	510	580	735	1,400	8,070	11,200	1,940	692	648
24	930	990	930	520	580	760	1,440	8,070	10,800	1,850	738	648
25	930	930	930	520	570	785	1,440	8,640	9,800	1,720	828	670
26	870	930	900	520	570	810	1,400	10,000	9,020	1,640	828	670
27	930	840	870	520	560	810	1,440	11,200	8,450	1,560	805	670
28	870	840	840	520	560	840	1,470	11,700	8,260	1,480	805	670
29	900	810	840	500	-	870	1,540	11,700	8,070	1,420	782	692
30	900	760	760	480	-	900	1,610	10,800	8,070	1,360	760	692
31	900	-	660	460	-	930	-	9,800	-	1,330	760	-

Discharge, in second-feet, of Okanogan River near Tonasket, Wash., 1936-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	782	1,800	1,600	1,480	1,280	1,300	1,760	9,400	16,200	4,360	1,010	496
2	872	1,600	1,480	1,480	1,290	1,330	1,760	9,800	14,700	4,080	1,010	493
3	872	1,480	1,420	1,450	1,300	1,360	1,760	9,600	13,800	4,500	962	500
4	872	1,420	1,420	1,420	1,390	1,390	1,760	9,210	13,400	4,650	918	560
5	872	1,390	1,480	1,360	1,420	1,390	1,800	8,640	13,200	4,220	895	560
6	850	1,330	1,520	1,330	1,450	1,390	1,850	8,070	13,400	3,810	850	648
7	918	1,280	1,500	1,330	1,420	1,420	1,850	7,690	13,400	3,680	828	738
8	962	1,260	1,480	1,300	1,420	1,390	1,900	7,500	13,200	3,550	782	715
9	962	1,260	1,460	1,330	1,390	1,390	1,940	7,690	12,900	3,310	760	670
10	940	1,390	1,360	1,330	1,390	1,390	2,040	7,880	11,200	3,310	760	648
11	962	1,560	1,300	1,390	1,390	1,390	2,250	8,260	9,800	2,950	738	625
12	940	1,480	1,320	1,390	1,420	1,420	2,360	8,260	9,210	2,590	715	602
13	940	1,450	1,420	1,390	1,390	1,560	2,530	8,830	9,020	2,360	715	580
14	962	1,480	1,440	1,390	1,420	1,560	2,710	10,000	9,020	2,090	670	580
15	962	1,480	1,420	1,420	1,330	1,600	2,890	10,200	8,640	1,940	670	560
16	962	1,480	1,420	1,420	1,280	2,090	3,070	10,400	8,070	1,800	692	602
17	940	1,450	1,420	1,390	1,200	1,990	3,310	10,800	7,880	1,720	715	580
18	940	1,520	1,420	1,450	1,250	1,940	3,550	10,800	7,500	1,640	692	580
19	985	1,600	1,420	1,480	1,300	1,940	4,800	10,200	6,960	1,680	670	540
20	985	1,560	1,420	1,450	1,360	1,900	5,580	10,000	6,960	1,720	670	520
21	1,010	1,480	1,420	1,450	1,360	1,900	5,260	10,800	6,960	1,600	648	520
22	985	1,480	1,390	1,390	1,330	1,850	5,260	12,100	7,320	1,520	648	520
23	1,060	1,520	1,360	1,420	1,330	1,800	5,420	13,600	7,320	1,420	602	520
24	1,080	1,520	1,320	1,420	1,330	1,800	5,580	15,100	6,960	1,360	580	520
25	1,060	1,520	1,260	1,420	1,330	1,850	5,910	16,500	7,140	1,300	560	520
26	1,060	1,520	1,280	1,420	1,300	1,850	6,080	18,300	6,600	1,260	540	520
27	1,060	1,520	1,300	1,420	1,300	1,850	6,780	19,700	5,910	1,200	560	540
28	1,060	1,680	1,320	1,390	1,300	1,850	7,320	20,400	5,260	1,180	560	560
29	1,060	1,680	1,360	1,350	-	1,850	7,690	20,200	4,950	1,130	560	602
30	2,650	1,680	1,520	1,280	-	1,850	8,450	19,400	4,650	1,080	540	602
31	2,250	-	1,600	1,280	-	1,800	-	18,300	-	1,050	520	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October 1936	26,100	990	735	842	51,790
November	26,860	990	760	895	53,280
December	25,660	930	660	828	50,900
Calendar year 1936	812,788	11,600	450	2,221	1,612,000
January 1937	15,620	550	450	504	30,980
February	14,900	580	450	532	29,550
March	21,835	930	560	704	43,310
April	37,740	1,610	960	1,25[illegible]	74,860
May	201,050	11,700	1,610	6,48[illegible]	398,800
June	358,570	14,900	8,070	11,95[illegible]	711,200
July	104,830	7,500	1,330	3,38[illegible]	207,900
August	29,713	1,330	692	95[illegible]	58,930
September	21,925	872	648	73[illegible]	43,490
Water year 1936-37	884,813	14,900	450	2,42[illegible]	1,755,000
October 1937	32,815	2,650	782	1,05[illegible]	65,090
November	44,870	1,800	1,260	1,49[illegible]	89,000
December	45,850	1,600	1,260	1,41[illegible]	86,980
Calendar year 1937	927,718	14,900	450	2,54[illegible]	1,840,000
January 1938	43,220	1,480	1,280	1,39[illegible]	85,730
February	37,670	1,450	1,200	1,34[illegible]	74,720
March	51,390	2,090	1,300	1,65[illegible]	101,900
April	115,220	8,450	1,760	3,84[illegible]	228,500
May	367,630	20,400	7,500	11,86[illegible]	729,200
June	281,530	16,200	4,650	9,38[illegible]	558,400
July	74,040	4,650	1,030	2,38[illegible]	146,900
August	22,040	1,010	520	71[illegible]	43,720
September	17,221	738	493	57[illegible]	34,160
Water year 1937-38	1,131,496	20,400	493	3,10[illegible]	2,244,000

Similkameen River near Nighthawk, Wash.

(International gaging station)

Location.- Water-stage recorder, lat. 48°59'10", long. 119°37'00", in NW¼ sec. 7, T. 40 N., R. 26 E., about 1½ miles downstream from Nighthawk.

Drainage area.- 3,420 square miles.

Records available.- September 1928 to September 1938. May 1911 to September 1928 (mean monthly discharge, including that of Oroville-Tonasket Irrigation District canal) at site near Oroville; records equivalent.

Average discharge.- 27 years, 2,138 second-feet.

Extremes.- Maximum discharge during year, 21,900 second-feet May 27 (gage height, 13.60 feet); minimum, 318 second-feet Jan. 29 (gage height, 2.87 feet).
1928-38: Maximum discharge, 27,200 second-feet Apr. 26, 1934 (gage height, 14.96 feet); minimum, 120 second-feet Jan. 6, 1930 (gage height, 2.05 feet).

Remarks.- Records excellent except those below 700 second-feet during October, which are good. Some regulation at high stages caused by natural diversion into Palmer Lake. Small diversions for irrigation above station. This station is one of the international gaging stations maintained by the United States under agreement with Canada.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1-29				Oct. 30 to Sept. 30					
3.1	448	4.5	1,380	3.0	361	5.0	1,870	11.0	13,400
3.5	660	5.0	1,870	3.5	620	6.0	3,010	13.0	19,800
4.0	970	5.5	2,400	4.0	960	7.0	4,440		
				4.5	1,380	9.0	8,200		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	534	1,240	873	831	402	532	698	9,070	13,700	3,690	852	407
2	534	1,120	796	810	426	549	692	8,840	12,800	3,690	824	402
3	534	1,020	775	747	494	578	698	8,200	12,300	4,290	803	390
4	529	976	866	680	549	602	728	7,800	12,300	3,990	782	431
5	529	960	838	662	578	608	761	7,200	12,300	3,540	740	538
6	524	912	810	662	608	608	761	6,600	12,800	3,270	710	662
7	518	859	796	638	608	602	775	6,400	12,600	3,140	686	656
8	518	838	782	674	578	602	803	6,600	12,600	2,940	668	602
9	513	944	674	680	560	602	873	6,800	11,200	2,820	650	578
10	513	1,240	608	674	566	614	976	7,000	9,310	2,640	632	554
11	508	1,120	644	698	584	626	1,080	7,200	8,200	2,460	626	544
12	502	1,040	789	704	578	638	1,200	7,400	8,000	2,290	602	516
13	497	1,020	824	710	572	662	1,290	8,840	8,200	2,180	590	494
14	487	960	803	722	549	692	1,380	9,070	8,000	2,020	590	472
15	482	810	768	734	510	668	1,570	9,310	7,600	1,920	596	461
16	477	775	747	740	456	754	1,670	9,550	7,200	1,820	626	445
17	487	866	754	722	416	761	1,820	9,800	7,000	1,720	608	431
18	502	928	740	692	488	754	2,350	9,550	6,600	1,670	590	416
19	529	920	728	644	544	754	3,760	9,070	6,210	1,570	578	402
20	539	880	722	620	578	740	3,540	9,550	6,400	1,470	572	398
21	539	845	698	584	566	728	3,400	10,900	6,600	1,420	554	390
22	610	866	656	578	554	698	3,400	12,600	6,800	1,340	532	386
23	666	880	650	590	544	716	3,620	14,600	6,600	1,240	522	377
24	638	880	560	590	538	710	3,760	16,400	6,600	1,200	510	386
25	605	888	421	578	538	710	3,990	18,700	6,400	1,120	494	394
26	600	866	377	578	544	710	4,590	20,900	5,450	1,080	472	402
27	588	1,080	369	566	538	710	5,260	21,600	4,910	1,040	461	402
28	578	1,080	450	578	527	710	5,830	20,900	4,590	1,010	445	402
29	1,880	1,080	602	464	-	728	6,800	19,400	4,290	968	431	394
30	2,120	992	803	390	-	716	8,000	18,000	3,990	912	421	386
31	1,520	-	824	402	-	698	-	15,500	-	873	416	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	20,600	2,120	477	665	0.194	0.22	40,860
November	28,885	1,240	775	963	.282	.31	57,290
December	21,747	873	369	702	.205	.24	43,130
Calendar year 1937	762,143	15,500	200	2,088	.611	8.29	1,512,000
January	19,942	831	390	643	.188	.22	39,550
February	14,993	608	402	535	.156	.16	29,740
March	20,780	761	532	670	.196	.23	41,220
April	76,075	8,000	692	2,536	.742	.83	150,900
May	353,350	21,600	6,400	11,400	3.33	3.84	700,900
June	251,550	13,700	3,990	8,385	2.45	2.73	498,900
July	65,333	4,290	873	2,108	.616	.71	129,600
August	18,583	852	416	599	.175	.20	36,860
September	13,718	662	377	457	.134	.15	27,210
Water year 1937-38	905,556	21,600	369	2,481	.725	9.84	1,796,000

Methow River at Twisp, Wash.

Location.- Water-stage recorder, lat. 48°21'40", long. 120°06'50", in sec. 17, T. 33 N., R. 22 E., at highway bridge at Twisp, a quarter of a mile downstream from Twisp River.

Drainage area.- 1,330 square miles.

Records available.- June 1919 to September 1929, October 1933 to September 1938.

Average discharge.- 15 years, 1,202 second-feet.

Extremes.- Maximum discharge during year, 13,300 second-feet May 27 (gage height, 9.15 feet); minimum, 185 second-feet Sept. 3 (gage height, 1.56 feet).
1919-29, 1933-38: Maximum discharge observed, 15,200 second-feet Apr. 24, 25, 1934; maximum gage height observed, 10.4 feet June 5, 1921; minimum discharge observed, 134 second-feet Sept. 4, 5, 1926, Sept. 9, 10, 1929 (gage height, 1.42 feet), but may have been less sometime during period of ice effect, Jan. 6 to Mar. 4, 1937.

Remarks.- Records excellent. Water diverted above station for irrigation by two canals of Methow Valley Irrigation District and by Risley ditch and many other ditches.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.5	169	3.5	1,340	6.0	5,020
2.0	329	4.0	1,850	7.0	7,460
2.5	580	4.5	2,480	8.0	10,100
3.0	930	5.0	3,180	9.2	13,300

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	337	689	439	419	322	325	616	5,940	7,460	2,750	481	195
2	349	647	449	410	337	333	628	5,360	6,940	2,750	459	195
3	345	616	459	374	337	349	668	4,700	7,200	2,680	434	192
4	345	592	439	392	333	357	710	4,180	7,460	2,420	405	222
5	345	568	444	392	333	361	759	3,640	8,240	2,220	392	268
6	341	544	*440	369	337	365	829	3,400	9,020	2,090	365	292
7	333	514	*437	361	325	369	890	3,260	9,020	2,030	357	299
8	337	568	*434	369	310	374	994	3,330	9,020	2,030	349	278
9	353	654	*431	374	333	382	1,090	3,560	6,680	1,970	337	268
10	353	616	*428	382	337	405	1,250	3,560	5,240	1,740	325	254
11	353	634	424	382	329	424	1,300	3,640	4,800	1,580	303	247
12	345	598	429	376	329	454	1,340	3,990	5,020	1,480	288	238
13	337	598	424	369	337	481	1,340	4,910	5,470	1,380	288	231
14	337	604	434	374	337	526	1,430	5,020	5,580	1,300	288	231
15	333	586	429	374	333	580	1,480	5,240	5,130	1,250	268	222
16	329	586	424	365	310	598	1,580	5,580	4,800	1,210	265	216
17	337	580	419	361	292	598	1,850	5,820	4,480	1,130	282	219
18	341	574	414	361	329	622	2,820	5,130	4,080	1,090	282	216
19	337	562	418	345	325	628	3,100	4,910	4,080	1,050	288	213
20	333	562	405	341	318	592	2,890	5,580	4,700	970	268	207
21	333	538	410	345	314	568	2,820	6,680	5,940	914	254	204
22	333	556	382	357	310	580	2,820	8,240	6,430	858	251	201
23	333	556	345	341	310	574	2,890	10,400	6,300	808	244	201
24	337	538	357	341	307	550	2,960	11,700	6,300	759	235	219
25	345	562	378	333	307	544	2,960	12,500	5,470	731	225	225
26	345	550	382	345	307	550	3,260	12,800	4,480	675	222	225
27	353	544	374	345	307	574	3,400	12,800	3,900	654	216	231
28	427	532	387	349	310	592	3,560	11,700	3,480	610	210	235
29	930	492	400	329	-	592	4,080	11,200	3,330	562	204	231
30	829	470	414	299	-	592	5,240	9,560	3,100	538	198	228
31	752	-	414	322	-	598	-	7,980	-	514	195	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	12,137	930	329	392	24,070
November	17,230	689	470	574	34,180
December	12,864	459	345	415	25,520
Calendar year 1937	441,175	10,900	140	1,209	875,000
January	11,198	419	299	361	22,210
February	9,015	337	292	322	17,880
March	15,437	628	325	498	30,620
April	61,554	5,240	616	2,052	122,100
May	206,310	12,800	3,260	6,655	409,200
June	173,150	9,020	3,100	5,772	343,400
July	42,743	2,750	514	1,379	84,780
August	9,218	481	195	297	18,280
September	6,903	299	192	230	13,690
Water year 1937-38	577,759	12,800	192	1,583	1,146,000

*Gage heights missing; discharge interpolated.

Stehekin River at Stehekin, Wash.

Location.- Water-stage recorder, lat. 48°19'50", long. 120°41'40", in SE¼ sec. 26, T. 33 N., R. 17 E., 1,200 feet upstream from Boulder Creek and 2 miles upstream from Lake Chelan and Stehekin. Flow of Boulder Creek included in records of discharge.

Drainage area.- 372 square miles.

Records available.- October 1910 to October 1915, January 1927 to September 1938.

Average discharge.- 16 years, 1,366 second-feet.

Extremes.- Maximum discharge during year, 9,150 second-feet June 22, 24 (gage height, 25.58 feet); minimum, 222 second-feet Dec. 28 (gage height, 19.05 feet).
1910-15, 1927-38: Maximum discharge, 12,900 second-feet June 2, 1936 (gage height, 27.18 feet), from rating curve extended above 8,500 second-feet; minimum, 56 second-feet Jan. 12, 1930.

Remarks.- Records good. At very high stages a small part of flow is diverted above station by natural sloughs; quantity diverted included in records of daily discharge. Gage-height record collected in cooperation with Washington Water Power Co., which furnished many discharge measurements.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 24 to Jan. 13)

Oct. 1 to Nov. 23; Apr. 18 to Sept. 30						Jan. 14 to Apr. 17			
19.0	195	20.5	970	23.0	4,200	19.0	223	20.5	970
19.3	300	21.0	1,410	24.0	5,670	19.3	329	21.0	1,410
19.6	445	21.5	1,970	25.0	7,380	19.6	467	21.5	1,970
20.0	650	22.0	2,630	26.0	10,030	20.0	667	22.0	2,630

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	327	734	540	530	306	270	437	4,360	4,200	3,400	1,090	740
2	292	634	535	485	306	280	447	3,480	4,680	2,780	963	858
3	284	585	520	450	299	284	477	2,860	4,840	2,560	893	893
4	264	535	495	425	295	291	512	2,420	5,340	2,560	949	858
5	253	495	480	420	291	302	542	2,160	6,060	2,630	956	662
6	246	465	465	400	288	314	557	1,970	6,650	3,000	921	606
7	242	445	455	395	284	318	597	1,970	7,050	3,080	824	540
8	250	845	435	395	280	329	642	2,160	8,250	3,320	740	490
9	250	746	425	385	280	342	738	2,280	4,200	2,700	746	480
10	250	656	440	465	280	354	788	2,420	3,320	2,280	782	495
11	246	612	430	465	274	371	806	2,490	3,480	2,220	782	520
12	250	570	410	445	270	408	837	3,080	4,200	2,160	710	545
13	242	590	395	435	270	437	886	3,560	4,840	2,280	710	580
14	239	570	405	432	270	492	949	3,400	4,360	2,700	704	595
15	250	545	400	412	265	512	1,020	3,640	4,040	2,780	722	617
16	376	515	400	403	256	512	1,170	3,800	4,040	2,780	764	639
17	390	500	405	394	253	497	2,390	3,720	3,480	2,700	794	644
18	288	480	390	389	253	522	4,660	3,160	3,400	2,420	806	634
19	260	470	385	380	249	502	3,320	3,320	4,040	2,350	746	656
20	752	460	380	367	249	482	2,700	4,040	5,170	2,420	704	606
21	704	450	380	367	249	452	2,350	4,840	7,050	2,420	698	570
22	550	465	375	380	249	447	2,280	6,250	7,880	2,350	622	575
23	505	455	322	363	246	437	2,280	7,460	7,880	2,050	590	545
24	465	455	360	354	243	427	2,280	7,880	7,670	1,790	590	662
25	400	545	360	350	243	422	2,280	8,090	5,870	1,680	639	555
26	375	560	322	346	243	437	2,490	7,670	5,000	1,620	698	500
27	1,300	600	375	337	246	452	2,560	7,460	4,520	1,620	758	490
28	3,950	692	260	337	260	472	2,760	6,850	4,520	1,510	716	475
29	1,890	595	475	321	-	452	3,480	6,850	4,680	1,360	650	490
30	1,130	575	565	318	-	442	4,360	5,510	4,200	1,220	622	500
31	865	-	565	314	-	437	-	4,520	-	1,130	644	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	18,085	3,950	239	583	1.57	1.81	35,870
November	16,844	845	445	561	1.51	1.68	33,410
December	13,149	565	260	424	1.14	1.31	26,080
Calendar year 1937	445,521	7,460	94	1,221	3.28	44.58	883,700
January	12,259	530	314	395	1.06	1.22	24,320
February	7,495	306	243	268	.720	.75	14,870
March	12,696	522	270	410	1.10	1.27	25,180
April	51,635	4,680	437	1,721	4.63	5.17	102,400
May	153,670	8,090	1,970	4,312	11.6	13.37	265,100
June	152,910	7,880	3,520	5,097	13.7	15.29	303,300
July	71,850	3,400	1,150	2,318	6.23	7.18	142,500
August	23,533	1,090	590	759	2.04	2.35	46,680
September	18,020	893	475	601	1.62	1.81	35,740
Water year 1937-38	532,146	8,090	239	1,458	3.92	53.21	1,055,000

Peak discharge.- Oct. 28 (12:45 p.m.) 7,050 sec.-ft.; Apr. 18 (5-6 a.m.) 5,340 sec.-ft.; May 24 (11-12 p.m.) 8,720 sec.-ft.; June 7 (10:15-11 p.m.) 7,880 sec.-ft.; June 22 (12:40 a.m.); June 24 (12:50 a.m.) 9,150 sec.-ft.

Lake Chelan at Chelan, Wash.

Location.- Water-stage recorder, lat. 47°50'00", long. 120°03'40", in lot 3, sec. 15, T. 27 N., R. 22 E., 2 miles west of Chelan. Zero of gage is at mean sea level (general adjustment of 1912).

Drainage area.- 950 square miles.

Records available.- September 1897 to December 1899, January to June 1905, December 1910 to September 1938.

Extremes.- Maximum water-surface elevation during year, 1,100.00 feet July 1, 8; minimum, 1,087.10 feet Mar. 11.
1897-99, 1905, 1910-38: Maximum water-surface elevation, that of July 19, 1937, and July 1 and 8, 1938; minimum, 1,076.78 feet Jan. 27, 28, Dec. 2, 3, 1898.

Remarks.- Records excellent. Level of lake regulated during tourist season, under stipulation of Federal Power Commission, for power and for scenic effect. Gage-height record collected in cooperation with Washington Water Power Co.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	94.69	92.03	90.11	88.84	87.79	87.22	87.30	91.42	97.82	99.92	99.70	97.32
2	94.59	91.98	90.04	88.84	87.75	87.20	87.30	91.73	98.10	99.85	99.68	97.26
3	94.46	91.92	90.01	88.82	87.71	*87.19	87.31	91.98	98.14	99.66	99.57	97.20
4	94.37	91.83	89.95	88.77	87.69	*87.20	87.32	92.19	98.22	99.76	99.50	97.20
5	94.26	91.73	89.91	88.72	87.67	*87.18	87.36	92.37	98.36	99.85	99.48	97.09
6	94.15	91.63	89.87	88.65	87.68	*87.18	87.35	92.52	98.51	99.92	99.42	96.98
7	94.04	91.52	89.81	88.58	87.66	*87.18	87.36	92.66	98.64	99.92	99.34	96.89
8	93.93	91.50	89.73	88.53	87.61	87.16	87.39	92.85	98.72	99.97	99.24	96.79
9	93.80	91.43	89.64	88.49	87.56	87.14	87.46	93.01	98.55	99.88	99.16	96.70
10	93.69	91.35	89.61	88.46	87.55	87.13	87.49	93.22	98.37	99.81	99.09	96.59
11	93.60	91.31	89.58	88.40	87.53	87.12	87.54	93.40	98.26	99.79	99.03	96.48
12	93.50	91.23	89.54	88.37	87.51	87.14	87.57	93.62	98.23	99.78	98.94	96.41
13	93.40	91.14	89.53	88.32	87.50	87.16	87.64	93.87	98.30	99.80	98.87	96.31
14	93.27	91.08	89.51	88.32	87.56	87.18	87.69	94.14	98.28	99.88	98.78	96.22
15	93.15	91.01	89.45	88.30	87.53	87.20	87.77	94.43	98.30	99.98	98.71	96.15
16	93.08	90.96	89.40	88.28	87.48	87.23	87.89	94.75	98.43	99.90	98.64	96.06
17	93.00	90.88	89.38	88.28	87.45	87.22	88.04	95.02	98.53	99.89	98.57	96.00
18	92.86	90.76	89.30	88.24	87.44	87.26	88.40	95.07	98.59	99.91	98.51	95.93
19	92.72	90.69	89.23	88.22	87.40	87.32	88.69	95.26	98.76	99.86	98.42	95.84
20	92.61	90.67	89.18	88.19	87.40	87.33	88.90	95.42	99.10	99.85	98.32	95.75
21	92.55	90.58	89.09	88.17	87.39	87.34	89.11	95.64	99.35	99.88	98.26	95.68
22	92.46	90.53	89.02	88.17	87.35	87.32	89.31	96.02	99.61	99.93	98.14	95.61
23	92.39	90.48	88.92	88.15	87.34	87.35	89.48	96.45	99.64	99.91	98.04	95.52
24	*92.30	90.41	88.85	88.12	87.30	87.36	89.67	96.75	99.65	99.83	97.96	95.48
25	*92.20	90.42	88.80	88.06	87.28	87.35	89.86	96.93	99.56	99.79	97.86	95.39
26	92.11	90.32	88.84	87.99	87.25	87.34	90.05	97.07	99.48	99.80	97.76	95.27
27	92.06	90.24	88.85	87.96	87.24	87.38	90.23	97.19	99.44	99.80	97.71	95.16
28	92.15	90.21	88.87	87.93	87.23	87.38	90.44	97.27	99.39	99.80	97.65	95.05
29	92.21	90.21	88.87	87.87	-	87.33	90.69	97.43	99.54	99.79	97.59	94.95
30	92.18	90.17	88.86	87.84	-	87.30	91.01	97.55	99.82	99.77	97.49	94.88
31	92.11	-	88.85	87.82	-	87.30	-	97.58	-	99.72	97.40	-

*Gage height from long-distance indicator at power house.
Note.- Add 1,000 feet to obtain elevation above mean sea level.

Chelan River at Chelan, Wash.

Location.- Water-stage recorder, lat. 47°48'40", long. 119°59'20", in NE¼ sec. 30, T. 27 N., R. 23 E., half a mile upstream from mouth and 2 miles southeast of Chelan. Zero of gage is at mean sea level (subject to correction for general adjustment of 1929).

Drainage area.- 950 square miles.

Records available.- October 1903 to September 1938.

Average discharge.- 35 years, 2,061 second-feet.

Extremes.- Maximum daily discharge during year, 11,900 second-feet (regulated) June 23; minimum daily discharge, 404 second-feet (regulated) Apr. 17.

1903-38: Maximum daily discharge, 12,800 second-feet June 3, 1936; no flow part of day Jan. 30, 1917, when lake outlet was blocked with ice, and at times during winter owing to artificial regulation.

Remarks.- Records excellent. Unmeasured quantity diverted for irrigation above station is small in proportion to total run-off. Washington Water Power Co. diverts water at Chelan for power and irrigation; quantity diverted included in records of daily discharge. Flow regulated by operation of power plant. Records of river flow collected in cooperation with Washington Water Power Co. Records of diversion furnished by Washington Water Power Co.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,160	2,130	1,490	742	1,100	1,050	943	*469	1,260	7,380	2,210	2,070
2	2,160	2,170	1,320	*758	1,410	870	751	733	5,020	5,950	2,250	2,060
3	*2,130	2,170	1,560	1,430	960	772	*665	927	6,280	*2,460	2,250	2,190
4	2,030	2,170	1,620	1,640	940	892	897	680	6,290	1,750	2,250	*2,070
5	2,100	2,170	*1,150	1,560	708	870	839	868	*6,220	2,420	2,120	2,140
6	2,140	2,170	1,540	1,520	*686	*468	889	768	7,740	3,500	2,220	2,180
7	2,160	*2,150	1,710	1,570	1,030	1,070	769	834	9,730	3,930	*2,000	2,230
8	2,160	2,120	1,950	1,220	1,110	1,030	865	*554	10,500	4,440	2,000	2,230
9	2,160	2,170	2,030	*772	1,020	986	777	886	9,370	5,010	2,180	2,120
10	*2,080	2,160	2,100	1,480	1,060	884	*465	890	7,950	*3,640	2,240	2,230
11	1,800	2,160	1,980	1,590	976	878	865	845	6,610	3,110	2,180	*2,070
12	2,160	2,170	*869	1,370	964	824	677	891	*6,360	2,870	2,220	1,960
13	2,160	2,160	1,090	1,350	*430	*470	671	737	6,740	2,460	2,180	2,220
14	2,090	*2,160	1,350	1,240	1,200	884	657	681	6,490	2,040	*1,960	2,060
15	2,160	2,160	1,430	1,030	1,040	940	662	*514	4,430	2,800	1,960	2,040
16	1,980	2,160	1,390	*464	1,080	952	571	1,180	3,640	4,950	2,220	2,080
17	*2,160	2,160	1,530	1,150	882	984	*404	2,280	3,570	*3,570	2,220	2,240
18	2,080	2,130	1,540	1,040	1,100	906	835	3,040	2,780	3,370	2,180	*2,240
19	2,160	2,000	*860	998	870	870	685	2,930	*1,910	3,100	2,190	2,030
20	2,160	2,020	1,670	976	*468	*558	845	2,890	2,400	2,530	2,200	2,050
21	2,160	*2,140	1,700	1,010	864	1,030	843	2,380	3,740	2,560	*2,150	2,060
22	2,160	2,150	1,860	921	858	932	675	*2,230	9,220	2,900	2,060	2,060
23	2,160	2,160	1,900	*460	844	977	661	4,900	11,900	3,550	2,130	2,010
24	*2,150	2,160	1,570	1,370	864	907	*627	7,880	11,800	*2,810	2,200	2,170
25	2,160	2,150	626	1,530	814	889	841	9,090	10,500	2,470	2,230	*2,220
26	2,150	2,160	*988	1,150	714	865	843	9,280	*8,930	2,350	2,050	2,210
27	2,160	2,050	1,540	1,050	*460	*467	867	9,360	7,230	2,140	2,220	2,210
28	2,070	*659	1,460	916	1,030	1,060	765	8,540	5,380	2,220	*1,690	2,120
29	2,170	1,540	1,460	957	-	877	855	*7,390	2,760	2,230	2,120	2,220
30	2,170	1,460	1,610	*1,000	-	897	677	6,940	2,040	2,260	2,230	2,000
31	*2,170	-	1,020	1,530	-	845	-	5,660	-	*2,220	2,040	-

Month	Observed				Gain or loss in storage in Lake Chelan (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	2,170	1,800	2,125	130,700	-86,540	44,160	718	0.756	0.87
November	2,170	659	2,050	122,000	-63,180	58,820	989	1.04	1.16
December	2,100	626	1,475	90,710	-42,860	47,850	778	.819	.94
Calendar year 1937	10,000	1	1,612	1,167,000	+151,700	1,319,000	1,822	1.92	26.02
January	1,640	460	1,155	71,000	-32,170	38,830	632	.665	.77
February	1,410	430	906	50,340	-18,860	31,460	566	.596	.62
March	1,070	467	868	53,360	+1,920	55,280	899	.946	1.09
April	943	404	746	44,400	+118,900	163,300	2,744	2.89	3.22
May	9,360	469	3,137	192,900	+214,200	407,100	6,621	6.97	8.04
June	11,900	1,260	6,293	374,500	+73,480	448,000	7,529	7.93	8.85
July	7,380	1,750	3,193	196,300	-5,250	191,000	3,106	3.27	3.77
August	2,250	1,690	2,140	131,600	-74,790	56,810	924	.973	1.12
September	2,240	1,960	2,126	126,500	-81,540	44,960	756	.796	.89
Water year 1937-38	11,900	404	2,188	1,584,000	+3,290	1,588,000	2,193	2.31	31.34

*Sunday.

Railroad Creek at Lucerne, Wash.

Location.- Water-stage recorder, lat. 48°11'40", long. 120°35'50", in sec. 9, T. 31 N., R. 18 E., half a mile upstream from mouth and half a mile southwest of Lucerne.

Drainage area.- 64 square miles.

Records available.- December 1910 to June 1913, January 1927 to September 1938.

Average discharge.- 11 years (1927-38), 197 second-feet.

Extremes.- Maximum discharge during year, 1,700 second-feet June 23 (gage height, 4.82 feet); minimum, 31 second-feet Feb. 16, 26 (gage height, 2.68 feet).
1910-13, 1927-38: Maximum discharge, 1,910 second-feet June 8, 1927 (gage height, 5.3 feet); minimum not determined, occurred during period Jan. 15-25, 1930, when stage-discharge relation was affected by ice.

Remarks.- Records good except those for periods of ice effect, Dec. 23-25, Dec. 27 to Jan. 6, Jan. 18-22, Jan. 30 to Feb. 3, which were computed on basis of gage heights and weather records and are fair. No diversion or regulation. Water-stage recorder inspected by employees of Washington Water Power Co. Results of many discharge measurements furnished by Washington Water Power Co.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet
(Shifting-control method used Aug. 1 to Sept. 30)

2.6	23	3.0	88	3.5	291	4.5	1,240
2.8	44	3.2	156	4.0	660	4.9	1,820

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	126	61	48	37	37	50	545	670	478	193	*92
2	55	113	66	46	38	37	52	471	710	411	176	*89
3	54	100	61	45	40	38	55	434	760	385	164	*85
4	50	91	59	45	41	37	57	392	848	378	152	*82
5	46	88	59	45	40	41	61	352	990	372	156	*79
6	44	80	57	46	40	41	63	330	1,110	378	156	*76
7	43	76	57	48	40	41	68	324	1,160	398	152	*73
8	42	116	55	48	38	40	78	335	1,060	418	145	70
9	42	119	54	48	38	40	91	340	700	404	134	63
10	43	107	54	63	38	41	100	346	464	346	126	57
11	43	97	59	68	38	42	104	359	528	340	126	54
12	43	88	55	61	38	43	110	426	606	340	123	52
13	43	86	54	59	37	48	113	478	740	340	119	52
14	43	86	52	59	37	55	123	464	720	372	116	54
15	43	80	52	57	37	54	134	471	670	398	113	54
16	46	76	52	55	36	55	156	486	633	378	110	57
17	63	76	50	52	36	52	247	478	545	378	113	59
18	59	70	50	48	36	54	434	441	503	366	119	63
19	54	68	48	45	35	54	392	434	570	346	119	61
20	76	68	48	40	35	52	346	478	771	346	113	66
21	145	68	48	41	35	50	330	579	1,100	352	113	66
22	116	68	46	42	35	48	318	782	1,340	346	110	68
23	94	68	42	44	35	48	324	1,050	1,380	335	104	73
24	86	66	42	44	35	48	324	†1,100	1,310	313	100	78
25	73	73	42	43	35	46	324	†1,150	1,060	291	97	88
26	68	78	43	43	32	48	346	†1,120	815	276	97	91
27	130	78	45	43	35	48	359	1,090	624	271	100	86
28	352	88	47	43	36	52	385	1,060	615	266	104	83
29	324	78	49	42	-	48	434	1,090	670	247	*101	83
30	206	66	50	39	-	50	503	894	633	228	*98	83
31	152	-	50	38	-	50	-	710	-	206	*95	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	2,741	352	42	88.4	1.38	1.59	5,440
November	2,542	126	66	84.7	1.32	1.47	5,040
December	1,607	66	42	51.8	.809	.93	3,190
Calendar year 1937	66,944	1,190	18	183	2.86	38.95	132,800
January	1,488	68	38	48.0	.750	.86	2,950
February	1,033	41	32	36.9	.577	.60	2,050
March	1,438	55	37	46.4	.725	.84	2,850
April	6,481	503	50	216	3.38	3.77	12,850
May	19,009	1,150	324	613	9.58	11.04	37,700
June	24,305	1,380	464	810	12.7	14.17	48,210
July	10,703	478	206	345	5.39	6.21	21,230
August	3,844	193	95	124	1.94	2.24	7,620
September	2,137	92	52	71.2	1.11	1.24	4,240
Water year 1937-38	77,328	1,380	32	212	3.31	44.96	153,400

Peak discharge.- June 8 (1 and 2 a.m.) 1,240 sec.-ft.; June 23 (1:50 a.m.) 1,700 sec.-ft.
*Discharge interpolated.
†Gage heights missing; discharge computed on basis of range of stage and records for Stehekin River at Stehekin.

Wenatchee Lake near Plain, Wash.

Location.- Water-stage recorder, lat. 47°49'50", long. 120°46'30", in sec. 19, T. 27 N., R. 17 E., on north shore of lake, 7½ miles northwest of Plain and 33 miles upstream from Leavenworth. Zero of gage is at mean sea level (subject to correction for general adjustment of 1929).

Drainage area.- 277 square miles.

Records available.- January 1932 to September 1938.

Extremes.- Maximum water-surface elevation recorded during year, 1,875.59 feet May 26; minimum, 1,869.42 feet Oct. 15, 16.
1932-38: Maximum water-surface elevation recorded, 1,876.57 feet June 16, 1933; minimum, 1,869.27 feet Dec. 1, 1936.

Remarks.- Records excellent. No diversion or regulation. Gage-height record collected in cooperation with Wenatchee Reclamation District.

Gage height, in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69.57	70.43	71.14	70.75	70.01	69.79	70.06	73.55	73.54	72.57	70.28	69.79
2	69.58	70.25	70.99	70.69	70.00	69.81	70.06	73.45	73.46	72.20	70.20	69.84
3	69.55	70.14	70.89	70.60	70.00	69.84	70.08	73.08	73.51	71.90	70.16	-
4	69.53	70.07	70.75	70.52	69.99	69.85	70.11	72.69	73.68	71.78	70.13	69.80
5	69.51	70.00	70.63	70.47	69.98	69.86	70.14	72.32	74.00	71.72	70.12	69.78
6	69.49	69.95	70.54	70.40	69.99	69.87	70.17	72.09	74.34	71.78	70.10	69.77
7	69.48	69.92	70.49	70.37	69.97	69.88	70.21	71.92	74.58	71.84	70.08	69.73
8	69.47	70.26	70.43	70.30	69.95	69.89	70.26	71.83	74.66	71.81	70.04	69.70
9	69.46	70.93	70.37	70.28	69.92	69.90	70.36	71.94	73.97	71.73	70.01	69.68
10	69.46	70.85	70.37	70.30	69.93	69.91	70.48	71.99	73.19	71.52	69.98	69.68
11	69.45	70.72	70.34	70.39	69.92	69.93	70.57	72.04	72.86	71.39	69.97	69.69
12	69.45	70.61	70.34	70.44	69.90	69.97	70.64	72.20	72.96	71.33	69.95	69.69
13	69.45	70.60	70.32	70.45	69.89	70.02	70.68	72.59	73.26	71.29	69.92	69.70
14	69.44	70.59	70.33	70.46	69.90	70.09	70.74	72.72	73.29	71.36	69.90	69.70
15	69.43	70.50	70.39	70.41	69.88	70.18	70.81	72.83	73.14	71.43	69.90	69.71
16	69.46	70.43	70.42	70.37	69.86	70.25	70.93	73.01	73.05	71.39	69.91	69.72
17	69.65	70.36	70.46	70.32	69.83	70.24	71.51	73.05	72.82	71.34	69.92	69.72
18	69.67	70.29	70.49	70.30	69.82	70.30	73.76	72.86	72.57	71.25	69.92	69.73
19	69.64	70.27	70.46	70.27	69.81	70.28	74.60	72.70	72.57	71.18	69.90	69.72
20	69.64	70.25	70.42	70.24	69.81	70.25	73.87	72.89	72.87	71.13	69.89	69.72
21	69.77	70.27	70.39	70.24	69.81	70.19	73.21	73.27	73.42	71.08	69.88	69.71
22	69.80	70.31	70.36	70.25	69.80	70.17	72.80	73.95	74.10	71.02	69.86	69.70
23	69.78	70.32	70.32	70.27	69.79	70.16	72.55	74.63	74.54	70.96	69.83	69.70
24	69.76	70.37	70.31	70.22	69.78	70.14	72.44	75.08	74.58	70.85	69.82	69.69
26	69.72	70.59	70.31	70.18	69.77	70.10	72.33	75.39	74.19	70.77	69.81	69.70
26	69.70	71.23	70.35	70.13	69.77	70.08	72.34	75.54	73.65	70.69	69.81	69.70
27	69.83	71.32	70.30	70.10	69.76	70.08	72.38	75.50	73.18	70.64	69.82	69.68
28	70.32	71.61	70.31	70.09	69.77	70.12	72.46	75.27	73.01	70.58	69.82	69.65
29	71.17	71.54	70.43	70.08	-	70.11	72.69	75.15	72.96	70.49	69.79	69.63
30	70.93	71.33	70.70	70.04	-	70.09	73.13	74.68	72.87	70.41	69.78	69.61
31	70.67	-	70.77	70.02	-	70.07	-	73.96	-	70.34	69.78	-

Note.- Add 1,800 feet to obtain elevation above mean sea level.

Wenatchee River below Wenatchee Lake, Wash.

Location.- Water-stage recorder, lat. 47°49'50", long. 120°46'30", in sec. 19, T. 27 N., R. 17 E., on north shore, 2¾ miles above outlet of Wenatchee Lake, 7½ miles northwest of Plain, and 33 miles upstream from Leavenworth. Gage heights reduced to mean sea level datum (subject to correction for general adjustment of 1929). Discharge measurements made at highway bridge half a mile below lake outlet.

Drainage area.- 277 square miles.

Records available.- January 1932 to September 1938.

Extremes.- Maximum discharge during year, 6,630 second-feet May 26 (elevation of lake surface, 1,875.59 feet); minimum, 167 second-feet Oct. 15, 16 (elevation of lake surface, 1,869.42 feet).

1932-38: Maximum discharge recorded, 8,310 second-feet June 16, 1933 (elevation of lake surface, 1,876.57 feet); minimum, 134 second-feet Dec. 1, 1936 (elevation of lake surface, 1,869.27 feet).

Remarks.- Records excellent. No diversion above station. Flow subject to natural regulation in Wenatchee Lake. Gage-height record collected in cooperation with Wenatchee Reclamation District.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1,869.20	120	1,871.00	1,210	1,873.00	3,300
1,869.50	188	1,871.50	1,710	1,874.00	4,500
1,870.00	391	1,872.00	2,210	1,875.00	5,800
1,870.50	735	1,872.50	2,750	1,876.00	7,200

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	209	679	1,350	960	397	289	426	3,960	3,950	2,830	566	289
2	212	546	1,200	901	391	298	426	3,840	3,850	2,420	512	311
3	203	474	1,100	820	391	311	437	3,400	3,910	2,110	487	*302
4	197	432	960	752	386	316	455	2,960	4,120	1,990	468	293
5	191	391	847	711	381	321	474	2,550	4,500	1,930	462	285
6	185	365	769	655	386	325	493	2,300	4,940	1,990	449	281
7	183	349	727	632	375	330	519	2,130	5,250	2,050	437	265
8	180	553	679	580	365	334	553	2,090	5,360	2,020	414	253
9	178	1,140	632	566	349	339	625	2,150	4,460	1,940	397	246
10	178	1,060	632	580	355	344	719	2,200	3,530	1,730	381	246
11	175	930	610	648	349	355	794	2,250	3,150	1,600	375	250
12	175	829	610	687	339	375	856	2,420	3,260	1,540	365	250
13	175	820	595	695	334	403	892	2,850	3,610	1,500	349	253
14	172	812	602	703	339	443	950	2,990	3,650	1,570	339	253
15	170	735	648	663	330	499	1,020	3,110	3,470	1,640	339	257
16	178	679	671	632	321	546	1,140	3,310	3,360	1,600	344	261
17	238	625	703	595	307	539	1,720	3,360	3,100	1,550	349	261
18	242	573	727	580	302	580	4,210	3,150	2,830	1,460	349	265
19	232	560	703	560	298	566	5,280	2,970	2,830	1,390	339	261
20	232	546	671	539	298	546	4,340	3,180	3,160	1,340	334	261
21	281	560	648	539	298	506	3,550	3,620	3,800	1,290	330	257
22	293	588	625	546	293	493	3,080	4,440	4,630	1,230	321	253
23	285	595	595	560	289	487	2,800	5,320	5,200	1,170	307	253
24	277	632	588	526	285	474	2,680	5,910	5,250	1,060	302	250
25	261	812	588	499	281	449	2,560	6,350	4,750	980	298	253
26	253	1,440	618	468	281	437	2,570	6,560	4,080	901	298	253
27	307	1,530	580	449	277	437	2,620	6,500	3,520	856	302	246
28	595	1,820	588	443	281	462	2,710	6,180	3,310	803	302	236
29	1,380	1,750	679	437	-	455	2,960	6,010	3,260	727	289	228
30	1,140	1,540	910	414	-	443	3,460	5,380	3,160	663	285	222
31	883	-	980	403	-	432	-	4,450	-	610	285	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October	9,858	1,380	170	318	1.15	1.33	19,550
November	24,365	1,820	349	812	2.93	3.27	48,330
December	22,835	1,350	580	737	2.66	3.07	45,290
Calendar year 1937	421,895	6,040	170	1,156	4.17	56.64	836,800
January	18,743	960	403	605	2.18	2.51	37,180
February	9,278	397	277	331	1.19	1.24	18,400
March	13,134	580	289	424	1.53	1.76	26,050
April	55,319	3,280	426	1,844	6.66	7.43	109,700
May	117,890	6,560	2,090	3,803	13.7	15.79	233,800
June	117,250	5,360	2,830	3,908	14.1	15.73	232,600
July	46,490	2,830	610	1,500	5.42	6.25	92,210
August	11,374	566	285	367	1.32	1.52	22,560
September	7,794	311	222	260	.939	1.05	15,460
Water year 1937-38	454,330	6,560	170	1,245	4.49	60.95	901,100

*Gage height missing; discharge interpolated.

Wenatchee River at Plain, Wash.

Location.- Water-stage recorder, lat. 47°45'50", long. 120°39'30", in lot 8, sec. 12, T. 26 N., R. 17 E., at Plain, a quarter of a mile downstream from Beaver Creek, 7½ miles downstream from Nason Creek and 12 miles north of Leavenworth.

Drainage area.- 591 square miles.

Records available.- November 1910 to September 1929 and August 1931 to September 1938 in reports of Geological Survey. August 1904 to September 1933 (monthly discharge) in State Water-Supply Bulletin 5.

Average discharge.- 34 years (1904-38), 2,223 second-feet.

Extremes.- Maximum discharge during year, 11,700 second-feet May 26 (gage height, 8.97 feet); minimum, 294 second-feet Oct. 15, 16 (gage height, 1.62 feet).
1910-29, 1931-38: Maximum discharge observed, 20,800 second-feet Dec. 13, 1921 (gage height, 11.8 feet, former site and datum); minimum discharge, 191 second-feet Dec. 1, 1936 (gage height, 1.34 feet).

Remarks.- Records excellent. Wenatchee Park Land & Irrigation Co. diverts a maximum of about 12 second-feet from Chiwawa River during irrigation seasons. Natural regulation in Wenatchee Lake. Gage-height record collected in cooperation with Wenatchee Reclamation District.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.5	245	3.5	1,720	6.0	5,170
2.0	495	4.0	2,250	7.0	7,000
2.5	850	4.5	2,860	8.0	9,120
3.0	1,260	5.0	3,550	9.0	11,800

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	386	1,070	1,900	1,520	732	569	858	7,040	7,080	4,780	1,070	495
2	386	938	1,720	1,430	725	597	874	6,620	7,040	4,070	1,010	519
3	375	842	1,610	1,320	725	625	922	5,860	7,130	3,550	930	562
4	360	794	1,480	1,240	725	632	986	5,120	7,510	3,340	898	583
5	345	732	1,360	1,180	718	646	1,040	4,510	8,170	3,200	898	555
6	330	688	1,270	1,120	710	660	1,070	4,090	8,930	3,290	874	519
7	321	667	1,220	1,080	695	667	1,110	3,900	9,410	3,370	834	501
8	316	1,330	1,150	1,050	688	674	1,220	3,980	9,510	3,360	794	477
9	312	1,900	1,100	1,030	667	688	1,420	4,070	7,770	3,220	755	453
10	308	1,610	1,090	1,090	667	710	1,570	4,140	6,220	2,860	748	441
11	312	1,490	1,070	1,210	667	725	1,620	4,230	5,700	2,680	732	424
12	312	1,350	1,080	1,200	646	762	1,690	4,680	5,950	2,560	702	430
13	308	1,340	1,070	1,210	639	834	1,740	5,430	6,580	2,480	674	430
14	308	1,340	1,090	1,200	646	938	1,840	5,560	6,580	2,590	667	441
15	298	1,230	1,160	1,150	632	1,020	1,930	5,830	6,240	2,690	653	447
16	321	1,160	1,190	1,100	597	1,040	2,140	6,130	6,040	2,610	660	447
17	483	1,110	1,230	1,070	576	1,020	3,510	6,170	5,500	2,530	667	441
18	477	1,060	1,300	1,040	590	1,060	7,240	5,660	4,950	2,380	681	447
19	430	1,020	1,240	1,000	576	1,050	8,100	5,410	4,970	2,240	653	430
20	418	1,000	1,190	970	569	1,010	6,810	5,950	5,590	2,150	625	424
21	562	1,050	1,160	978	576	962	5,740	6,750	6,700	2,080	597	408
22	543	1,070	1,110	994	569	938	5,120	8,020	8,100	1,990	576	402
23	513	1,070	1,060	1,000	562	938	4,810	9,510	9,050	1,900	555	402
24	483	1,120	1,050	938	549	906	4,630	10,500	8,950	1,740	537	424
25	447	1,430	1,040	890	549	882	4,430	11,200	7,960	1,630	531	441
26	430	2,210	1,030	858	543	874	4,540	11,600	6,850	1,540	531	*427
27	555	2,200	1,000	834	543	898	4,680	11,500	5,900	1,470	543	413
28	1,290	2,760	1,030	818	549	962	4,860	10,800	5,630	1,390	537	396
29	2,020	2,470	1,280	802	-	930	5,340	10,500	5,590	1,300	531	386
30	1,600	2,150	1,570	770	-	890	6,320	9,410	5,380	1,200	507	380
31	1,300	-	1,600	748	-	858	-	7,850	-	1,120	495	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off Inches	Run-off Acre-feet
October	16,849	2,020	298	544	0.920	1.06	33,420
November	40,201	2,760	667	1,340	2.27	2.53	79,740
December	38,450	1,900	1,000	1,240	2.10	2.42	76,260
Calendar year 1937	705,465	10,200	298	1,933	3.27	44.45	1,399,000
January	32,840	1,520	748	1,059	1.79	2.06	65,140
February	17,630	732	543	630	1.07	1.11	34,970
March	25,965	1,060	569	838	1.42	1.64	51,500
April	98,160	8,100	858	3,272	5.54	6.18	194,700
May	212,020	11,600	3,900	6,839	11.6	13.37	420,500
June	206,980	9,510	4,950	6,899	11.7	13.05	410,500
July	77,310	4,780	1,120	2,494	4.22	4.86	153,300
August	21,465	1,070	495	692	1.17	1.35	42,580
September	13,545	583	380	452	.765	.85	26,870
Water year 1937-38	801,415	11,600	298	2,196	3.72	50.48	1,589,000

*Discharge interpolated.

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Wenatchee River at Peshastin, Wash.

Location.- Water-stage recorder, lat. 47°34'50", long. 120°37'00", in SE¼SW¼ sec. 8, T. 24 N., R. 18 E., 1 mile northwest of Peshastin and 3½ miles upstream from Peshastin Creek.

Drainage area.- 1,000 square miles.

Records available.- February 1929 to September 1938 in reports of Geological Survey. October 1928 to February 1929 in Washington State Water-Supply Bulletin 5.

Average discharge.- 10 years (1928-38), 2,914 second-feet.

Extremes.- Maximum discharge during year, 17,500 second-feet May 26 (gage height, 10.78 feet); minimum, 230 second-feet Oct. 12 (gage height, 1.40 feet).
1929-38: Maximum discharge, 20,400 second-feet June 16, 1933 (gage height, 11.82 feet); minimum, that of Oct. 12, 1937.

Remarks.- Records excellent. Several diversions for irrigation above station. Slight artificial regulation at mill pond at Leavenworth and at power plant in Tumwater Canyon and natural regulation in Wenatchee Lake.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 18

1.4	230	3.0	1,250	5.0	3,780
1.7	365	3.5	1,780	6.0	5,420
2.0	525	4.0	2,400	8.0	9,500
2.5	840	4.5	3,070	9.0	12,000

Apr. 19 to Sept. 30

6.0	5,420	9.0	12,400
7.0	7,520	10.0	15,200
8.0	9,850	11.0	18,100

Note.- Same as preceding table below 6.0 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	542	1,350	2,600	2,140	1,010	805	1,400	9,850	10,400	6,650	1,320	574
2	580	1,180	2,340	2,020	990	848	1,400	9,130	10,400	5,620	1,230	580
3	564	1,050	2,140	1,840	990	892	1,450	7,970	10,600	4,850	1,120	610
4	536	1,010	2,020	1,720	968	915	1,620	7,080	11,400	4,530	1,060	640
5	525	922	1,840	1,620	968	945	1,670	6,230	12,400	4,380	1,050	628
6	503	885	1,720	1,500	968	998	1,720	5,620	13,500	4,380	1,040	598
7	476	848	1,620	1,450	938	1,010	1,780	5,230	14,000	4,530	1,010	558
8	470	1,590	1,500	1,450	922	1,010	1,960	5,230	14,000	4,530	945	547
9	470	2,720	1,450	1,350	915	1,040	2,340	5,620	11,400	4,380	900	525
10	464	2,140	1,450	1,450	915	1,090	2,530	5,620	8,890	3,930	885	508
11	454	2,020	1,500	1,670	915	1,110	2,530	5,820	8,200	3,630	855	486
12	426	1,780	1,500	1,620	900	1,200	2,660	6,650	8,660	3,420	840	492
13	458	1,720	1,450	1,620	900	1,350	2,660	7,740	9,610	3,350	812	498
14	442	1,720	1,450	1,670	900	1,560	2,860	7,970	9,610	3,420	798	503
15	437	1,620	1,560	1,620	870	1,670	2,930	8,430	9,130	3,630	784	503
16	454	1,500	1,560	1,500	840	1,670	3,210	8,890	8,660	3,490	757	503
17	580	1,450	1,670	1,450	784	1,620	5,080	8,890	7,970	3,350	757	503
18	672	1,350	1,840	1,450	833	1,670	10,200	7,970	7,080	3,210	777	498
19	610	1,290	1,670	1,350	812	1,620	11,400	7,520	7,080	3,000	770	498
20	598	1,290	1,620	1,320	805	1,500	9,370	8,430	7,970	2,860	724	498
21	724	1,400	1,560	1,330	805	1,450	7,970	9,610	9,850	2,790	705	486
22	744	1,450	1,500	1,330	798	1,400	7,080	11,600	11,900	2,660	686	492
23	698	1,450	1,400	1,350	784	1,400	6,650	14,000	13,200	2,460	646	464
24	666	1,500	1,400	1,270	777	1,350	6,440	15,400	13,500	2,270	634	486
25	622	1,900	1,400	1,200	770	1,320	6,230	16,300	11,600	2,080	610	530
26	598	3,140	1,350	1,160	764	1,350	6,230	16,900	9,850	1,960	610	525
27	628	2,930	1,350	1,120	777	1,400	6,440	16,600	8,200	1,900	616	498
28	1,080	3,780	1,450	1,120	784	1,560	6,650	16,000	7,740	1,780	616	486
29	2,600	3,420	1,960	1,080	-	1,500	7,520	15,400	7,740	1,670	604	470
30	2,020	2,930	2,400	1,030	-	1,450	8,890	13,800	7,520	1,560	580	476
31	1,670	-	2,340	998	-	1,400	-	11,600	-	1,400	569	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	22,312	2,600	426	720	44,260
November	53,335	3,780	848	1,778	105,800
December	52,610	2,600	1,350	1,697	104,400
Calendar year 1937	979,742	14,500	426	2,684	1,943,000
January	44,798	2,140	998	1,445	88,860
February	24,402	1,010	764	872	48,400
March	40,103	1,670	805	1,294	79,540
April	140,870	11,400	1,400	4,696	279,400
May	303,100	16,900	5,230	9,777	601,200
June	302,060	14,000	7,080	10,070	599,100
July	103,680	6,650	1,400	3,345	205,600
August	25,310	1,320	569	816	50,200
September	15,663	640	464	522	31,070
Water year 1937-38	1,128,243	16,900	426	3,091	2,238,000

Peak discharge.- Apr. 18 (12 p.m.) 11,700 sec.-ft.; May 26 (12:55 a.m.) 17,500 sec.-ft.

Chiwawa River near Plain, Wash.

Location.- Water-stage recorder, lat. 47°50'30", long. 120°39'40", in SE¼ sec. 13, T. 27 N., R. 17 E., half a mile upstream from Goose Creek, 6 miles north of Plain, 7 miles upstream from mouth and 11 miles northeast of Chiwaukum.

Drainage area.- 169 square miles.

Records available.- August 1936 to September 1938. May 1911 to October 1914 at site 4 miles downstream, published as Chiwawa Creek near Leavenworth; records equivalent.

Extremes.- Maximum discharge during year, 3,210 second-feet May 25, 26 (gage height, 7.66 feet); minimum, 84 second-feet Oct. 14 (gage height, 3.82 feet).
1911-14, 1936-38: Maximum discharge recorded, that of May 25, 26, 1938; minimum recorded, 67 second-feet Nov. 28, 1936 (gage height, 3.74 feet).

Remarks.- Records excellent except those for periods of ice effect, Dec. 1 to Jan. 20, Jan. 23 to Feb. 4 (computed on basis of two discharge measurements, gage heights, observer's notes, weather records, and records for Wenatchee River below Wenatchee Lake and at Plain), and those for period of missing gage heights, Sept. 4-30 (computed on basis of records for Wenatchee River below Wenatchee Lake and at Plain), all of which are poor. No diversion or regulation.

Rating table, water year 1937-38 except periods of ice effect (gage height, in feet, and discharge, in second-feet)

3.5	34	5.0	596	6.5	1,800
4.0	127	5.5	930	7.0	2,370
4.5	310	6.0	1,330	8.0	3,650

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	112	186	190	500	100	104	130	1,770	1,990	1,210	282	132
2	104	170	170	410	100	110	138	1,600	2,000	1,040	256	135
3	104	157	160	360	100	110	146	1,410	2,060	937	235	138
4	100	151	150	310	100	112	157	1,240	2,190	882	226	150
5	97	143	140	270	107	117	164	1,140	2,390	848	215	150
6	95	143	140	240	107	120	170	1,060	2,640	903	211	140
7	95	140	130	220	107	117	180	1,040	2,750	916	200	130
8	93	311	130	200	107	117	200	1,100	2,740	916	190	130
9	93	287	120	180	104	117	226	1,140	2,100	855	180	120
10	93	218	120	170	107	120	260	1,150	1,650	740	173	120
11	90	215	120	150	107	122	273	1,180	1,580	7[illegible]	167	110
12	88	193	120	150	104	130	282	1,320	1,690	687	164	110
13	86	204	120	140	104	135	296	1,530	1,910	681	160	110
14	84	197	120	140	102	151	320	1,540	1,960	7[illegible]	164	120
15	86	190	120	130	100	164	350	1,620	1,780	760	154	120
16	93	180	120	130	97	157	409	1,700	1,700	7[illegible]	154	120
17	132	176	120	130	110	149	703	1,690	1,510	694	151	120
18	112	170	120	120	100	149	1,360	1,560	1,380	648	157	120
19	102	167	120	120	97	140	1,250	1,570	1,430	616	15[illegible]	110
20	102	164	120	120	97	138	1,100	1,760	1,650	590	149	110
21	138	160	120	124	95	130	993	2,020	2,060	564	146	100
22	124	160	120	132	95	127	979	2,390	2,550	527	140	100
23	114	170	120	120	95	130	958	2,870	2,750	509	140	100
24	107	180	120	110	97	127	965	3,130	2,530	460	138	110
25	104	226	130	110	100	127	944	3,170	2,170	426	135	120
26	102	260	140	110	100	130	1,060	3,170	1,790	392	135	110
27	154	243	170	100	100	132	1,120	3,140	1,530	376	135	110
28	444	287	240	100	102	146	1,180	2,940	1,520	355	135	100
29	415	235	400	100	-	135	1,350	2,900	1,520	3[illegible]	135	100
30	264	211	640	100	-	130	1,620	2,600	1,450	3[illegible]	132	100
31	211	-	620	100	-	130	-	2,150	-	29[illegible]	132	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	4,138	444	84	133	0.787	0.91	8,210
November	5,894	311	140	196	1.16	1.29	11,690
December	5,470	640	120	176	1.04	1.20	10,860
Calendar year 1937	159,504	2,730	70	437	2.59	35.11	316,400
January	5,396	500	100	174	1.03	1.19	10,700
February	2,841	110	95	101	.598	.62	5,640
March	4,023	164	104	130	.769	.89	7,980
April	19,283	1,620	130	643	3.80	4.24	38,250
May	58,600	3,170	1,040	1,890	11.2	12.91	116,200
June	58,970	2,750	1,380	1,966	11.6	12.94	117,000
July	20,637	1,210	292	666	3.94	4.54	40,930
August	5,248	282	132	169	1.00	1.15	10,410
September	3,545	150	100	118	.698	.78	7,030
Water year 1937-38	194,045	3,170	84	532	3.15	42.66	384,900

Icicle Creek above Snow Creek, near Leavenworth, Wash.

Location.- Water-stage recorder, lat. 47°32'25", long. 120°42'55", in SE¼ sec. 28, T. 24 N., R. 17 E., three-eighths of a mile upstream from Snow Creek and 4½ miles southwest of Leavenworth.

Drainage area.- 193 square miles.

Records available.- September 1936 to September 1938.

Extremes.- Maximum discharge during period September 1936 to September 1937, 4,320 second-feet June 3 (gage height, 10.10 feet), from rating curve extended above 3,000 second-feet; minimum not determined, occurred during period of ice effect.
1937-38: Maximum discharge during water year, 4,080 second-feet May 25 (gage height, 9.89 feet); minimum, 96 second-feet Oct. 14 (gage height, 2.15 feet).

Remarks.- Records good except those for periods of ice effect, Nov. 29 to Dec. 2, 1936, Jan. 2 to Mar. 10, Dec. 24, 25, 1937, Jan. 7, 8, Jan. 31 to Feb. 14, 1938 (computed on basis of three discharge measurements, gage heights, weather records, and records for Wenatchee River at Plain and at Peshastin), and those for periods of missing gage heights, Sept. 1-5, Sept. 28 to Oct. 1, Oct. 10-13, 1936, Nov. 29 to Dec. 3, 1937, June 25-28, 1938 (computed on basis of records for Wenatchee River at Plain and at Peshastin), all of which are poor. Discharge for Sept. 14, 15, 1936, Aug. 2-4, 9-14, 1938 interpolated. No diversion. Some regulation in headwater lakes for irrigation.

Revisions.- Revised figures of discharge for September 1936 and for water year 1936-37 are given in the following tables. They supersede the figures published in Water-Supply Paper 832 for these two periods.

Discharge in second-feet 1936-38

1936

Day	Discharge	Day	Discharge	Day	Discharge
Sept. 1	130	Sept. 11	99	Sept. 21	90
2		12	97	22	90
3		13	97	23	92
4		14	97	24	90
5		15	96	25	90
6	115	16	96	26	88
7	111	17	94	27	88
8	107	18	93	28	85
9	104	19	92	29	85
10	101	20	91	30	85

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	85	76	60	88	65	75	194	500	2,360	2,180	272	154
2	85	70	70	80	65	75	187	750	3,410	1,760	254	142
3	84	74	77	75	70	75	187	1,400	3,740	1,500	238	132
4	85	75	75	75	70	80	187	1,800	2,900	1,500	230	130
5	88	76	75	80	70	85	187	1,350	2,630	1,400	230	160
6	86	77	84	75	70	85	187	1,200	2,630	1,180	222	160
7	84	75	147	75	70	90	180	1,150	2,900	1,100	222	147
8	84	71	114	70	70	95	187	1,020	3,200	1,100	215	136
9	82	72	98	70	70	100	201	1,000	2,720	1,100	208	131
10	80	76	90	70	70	115	215	1,020	2,810	1,020	208	126
11	80	79	90	70	70	114	215	890	2,270	975	215	123
12	80	77	87	70	70	120	230	870	2,140	950	215	122
13	85	76	100	75	70	120	310	1,080	2,220	910	201	120
14	93	76	111	75	70	120	369	1,420	2,540	830	194	119
15	115	76	98	75	70	120	410	1,380	2,720	750	187	118
16	100	76	96	75	70	128	356	1,320	2,720	698	173	118
17	93	84	93	75	70	129	332	1,220	2,540	698	166	116
18	90	88	106	70	70	130	321	1,350	2,180	698	160	116
19	87	82	222	70	70	130	321	1,420	2,360	645	160	118
20	84	81	166	70	70	128	332	1,350	2,720	563	154	132
21	83	80	133	70	70	126	344	1,420	3,300	515	147	129
22	82	78	160	70	70	128	321	1,640	3,000	484	147	126
23	81	76	194	70	70	126	300	1,480	2,540	455	166	125
24	81	73	142	70	75	125	290	1,610	1,940	425	173	125
25	80	72	124	70	75	126	321	2,020	1,730	440	154	122
26	79	68	116	70	75	132	425	2,270	1,760	396	142	120
27	78	63	111	70	75	136	455	2,270	1,980	369	135	119
28	78	60	106	70	75	147	425	2,140	2,360	382	130	118
29	76	60	96	70	-	160	396	1,700	2,540	356	126	120
30	78	55	97	65	-	166	410	1,480	2,270	321	128	119
31	77	-	92	65	-	187	-	1,640	-	300	154	-

Discharge, in second-feet, of Icicle Creek above Snow Creek near Leavenworth, Wash., 1936-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	126	173	520	470	170	154	201	2,020	2,220	1,250	246	136
2	125	160	420	410	165	154	208	1,640	2,360	1,020	238	142
3	119	154	320	369	165	160	215	1,400	2,360	910	230	147
4	114	147	321	332	160	160	230	1,250	2,630	870	223	142
5	110	142	300	290	160	160	238	1,080	2,900	850	215	142
6	107	136	281	290	160	160	238	975	3,100	870	208	135
7	104	136	281	270	160	160	246	950	3,200	910	201	133
8	104	652	254	260	160	160	281	1,080	2,900	890	194	132
9	102	441	238	272	160	160	356	1,100	1,980	830	189	128
10	101	369	238	321	160	166	369	1,150	1,580	715	184	130
11	99	332	310	344	160	166	382	1,200	1,610	698	179	130
12	100	290	300	310	160	180	396	1,450	1,900	662	175	127
13	98	281	281	300	160	201	410	1,640	2,100	645	170	127
14	97	272	300	300	160	222	440	1,610	1,870	698	165	129
15	98	254	321	300	160	222	470	1,760	1.800	715	160	124
16	104	238	310	281	160	222	579	1,900	1,730	680	154	122
17	136	222	356	272	147	215	1,370	1,730	1,520	645	160	120
18	120	215	396	263	160	222	2,720	1,450	1,380	595	166	117
19	114	208	344	254	154	222	1,730	1,450	1,400	547	160	115
20	119	222	321	246	147	215	1,400	1,760	1,730	531	147	112
21	154	281	300	246	147	208	1,280	2,220	2,450	500	142	109
22	128	272	290	254	142	201	1,250	2,900	2,900	484	136	108
23	121	290	263	246	142	208	1,200	3,410	2,900	455	132	107
24	116	281	245	238	142	208	1,200	3,630	2,900	410	129	120
25	113	595	245	222	142	201	1,120	3,740	2,500	369	126	131
26	111	698	254	222	142	201	1,150	3,630	2,150	356	125	123
27	147	662	272	215	142	208	1,150	3,520	1,850	356	126	121
28	302	810	455	215	147	215	1,280	3,410	1,600	321	125	119
29	356	770	645	208	-	208	1,520	3,300	1,520	300	123	116
30	238	640	680	187	-	201	1,940	2,630	1,450	272	124	117
31	208	-	547	170	-	194	-	2,220	-	263	136	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
September 1936	3,023	-	85	101	0.523	0.58	6,000
October 1936	2,625	115	77	84.7	.439	.51	5,210
November	2,222	88	55	74.1	.384	.43	4,410
December	3,430	222	60	11	.575	.66	6.800
January 1937	2,243	88	65	72.4	.375	.43	4,450
February	1,975	75	65	70.5	.365	.38	3,920
March	3,673	187	75	118	.611	.70	7,290
April	8,795	455	180	293	1.52	1.70	17,440
May	43,160	2,270	500	1,392	7.21	8.31	85,610
June	77,130	3,740	1,730	2,571	13.3	14.84	153,000
July	26,000	2,180	300	839	4.35	5.02	51,570
August	5,726	272	126	185	.959	1.11	11,360
September	3,843	160	116	128	.663	.74	7,620
Water year 1936-37	180,822	3,740	55	495	2.56	34.83	358,700
October 1937	4,191	356	97	135	.699	.81	8,310
November	10,343	810	136	345	1.79	2.00	20,520
December	10,608	680	238	342	1.77	2.04	21,040
Calendar year 1937	197,687	3,740	65	542	2.81	38.08	392,100
January 1938	8,577	470	170	277	1.44	1.66	17,010
February	4,334	170	142	155	.803	.84	8,600
March	5,934	222	154	191	.990	1.14	11,770
April	25,569	2,720	201	852	4.41	4.92	50,720
May	63,235	3,740	950	2,040	10.6	12.22	125,400
June	64,490	3,200	1,380	2,150	11.1	12.38	127,900
July	19,617	1,250	263	633	3.28	3.78	38,910
August	5,188	246	123	167	.865	1.00	10,290
September	3,761	147	107	125	.648	.72	7,460
Water year 1937-38	225,847	3,740	97	619	3.21	43.51	447,900

Peak discharge.- June 3, 1937 (1:30-2:30 a.m.) 4,320 sec.-ft.; June 8, 1937 (2 a.m.) 3,520 sec.-ft.; June 21, 1937 (7:30 p.m.) 3,410 sec.-ft.; May 25, 1938 (12:30 a.m.) 4,080 sec.-ft.; June 7, 1938 (10 p.m.) 3,520 sec.-ft.; June 23, 1938 (11:50 p.m.) 3,740 sec.-ft.

Yakima River near Martin, Wash.

Location.- Water-stage recorder, lat. 47°19'10", long. 121°20'10", just downstream from dam at outlet of Keechelus Lake, 3½ miles northwest of Martin and 12 miles upstream from Easton.

Drainage area.- 55 square miles.

Records available.- October 1903 to September 1938.

Average discharge.- 34 years (1904-38), 330 second-feet.

Extremes.- Maximum discharge during year, 1,260 second-feet May 24, 25 (computed from combined flow past gage and over lake spillway); minimum, about 1 second-foot Oct. 17-29.

1903-38: Maximum discharge, 7,370 second-feet Mar. 26, 1915, when temporary crib dam was washed out; practically no flow when gates of dam at outlet of Keechelus Lake are closed.

Remarks.- Records excellent except those for extremely low flow, which are poor. Flow over spillway of Keechelus Lake reservoir May 13-18, May 21 to June 29. Records include water diverted over reservoir spillway. Flow partly controlled by storage in Keechelus Lake reservoir (capacity at spillway crest, 152,000 acre-feet). Records furnished by Bureau of Reclamation.

Rating tables, water year 1937-38 except periods when spillway was discharging (gage height, in feet, and discharge, in second-feet)

Oct. 1-15				Oct. 16 to Sept. 30					
2.0	14	3.5	139	1.4	1	3.0	90	5.0	363
2.5	44	4.0	200	1.6	5	3.5	139	5.5	462
3.0	87	4.5	272	2.0	21	4.0	201	6.0	584
				2.5	50	4.5	277	7.0	859

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	214	6	9	756	201	201	5	452	548	584	610	610
2	214	6	9	859	201	201	5	452	561	584	610	610
3	214	6	9	859	201	201	5	452	585	584	610	610
4	214	6	9	691	201	84	6	452	598	584	610	610
5	214	6	9	584	201	6	6	452	638	584	610	610
6	214	6	9	446	201	5	6	452	705	584	610	558
7	214	6	9	299	201	5	6	452	732	584	610	475
8	214	6	9	224	201	5	6	452	761	584	610	392
9	214	6	9	201	201	5	6	452	625	584	610	354
10	214	6	9	201	201	5	6	452	463	584	610	326
11	214	6	9	201	201	5	6	452	396	584	610	326
12	214	6	9	201	201	5	6	452	407	584	610	326
13	214	6	9	201	201	5	6	562	430	584	610	326
14	214	6	9	201	201	5	6	885	441	584	610	309
15	82	6	9	201	201	5	6	893	407	584	610	293
16	2	6	10	201	201	5	6	742	385	584	610	277
17	1	6	10	201	201	5	6	681	363	584	610	261
18	1	7	10	201	201	5	6	678	363	584	610	261
19	1	7	10	201	201	5	314	650	322	584	610	261
20	1	7	10	201	201	5	484	650	381	597	610	261
21	1	7	10	201	201	5	484	701	456	610	610	261
22	1	7	10	201	201	5	484	852	466	610	610	261
23	1	7	10	201	201	5	484	995	476	610	610	261
24	1	7	10	201	201	5	484	1,140	456	610	610	261
25	1	8	10	201	201	5	484	705	403	610	610	261
26	1	8	10	201	201	5	462	907	333	610	610	261
27	1	8	10	201	201	5	452	1,070	298	610	610	261
28	1	9	10	201	201	5	452	1,050	345	610	610	261
29	2	9	10	201	-	5	452	893	461	610	610	261
30	5	9	10	201	-	5	452	705	558	610	610	261
31	6	-	177	201	-	5	-	598	-	610	610	-

Month	Observed				Gain or loss in storage in Lake Keechelus (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	214	1	100	6,160	+50	6,210	101	1.84	2.12
November	9	6	6.73	401	+40,430	40,830	686	12.5	13.95
December	177	9	14.9	916	+22,660	23,580	383	6.96	8.02
Calendar year 1937	1,320	1	237	171,300	+68,960	240,200	332	6.04	81.84
January	859	201	301	18,530	-4,170	14,360	234	4.25	4.90
February	201	201	201	11,160	-5,780	5,380	96.9	1.76	1.83
March	201	5	26.5	1,630	+8,110	9,740	158	2.87	3.31
April	484	5	186	11,090	+23,630	34,720	584	10.6	11.83
May	1,140	452	670	41,220	+5,390	46,610	758	13.8	15.91
June	761	298	479	28,490	-2,030	26,460	445	8.09	9.03
July	610	584	594	36,500	-30,710	5,790	94.2	1.71	1.97
August	610	610	610	37,510	-34,770	2,740	44.5	.809	.93
September	610	261	355	21,150	-19,380	1,770	29.7	.540	.60
Water year 1937-38	1,140	1	297	214,800	+3,430	218,200	301	5.47	74.40

Yakima River at Cle Elum, Wash.

Location.- Water-stage recorder, lat. 47°11'20", long. 120°56'40", in sec. 27, T. 20 N., R. 15 E., at highway bridge at Cle Elum, just upstream from Roslyn Creek and 7 miles upstream from Teanaway River.
Drainage area.- 500 square miles.
Records available.- August 1906 to September 1938.
Average discharge.- 32 years, 1,982 second-feet.
Extremes.- Maximum discharge during year, 8,760 second-feet Apr. 18 (gage height, 8.87 feet); minimum, 98 second-feet Oct. 18 (gage height, 2.98 feet).
1906-38: Maximum discharge, about 25,600 second-feet Nov. 14, 1906 (gage height, 12.5 feet, from floodmarks); minimum, 64 second-feet Nov. 16, 17, 1929, Dec. 4, 1936.
Remarks.- Records excellent. Kittitas high-line canal diverts water above gage for irrigation. Flow partly controlled by storage in Keechelus Lake, Kachess Lake, and Cle Elum Lake reservoirs (combined capacity at gate sills, 731,000 acre-feet). Records furnished by Bureau of Reclamation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 4-26)

Oct. 1 to June 3						June 27 to Sept. 30			
2.9	80	4.5	960	7.0	4,490	4.5	790	6.0	2,500
3.2	158	5.0	1,470	8.0	6,620	5.0	1,260	7.0	4,200
3.5	275	5.5	2,070	9.0	9,000	5.5	1,840	8.0	6,260
4.0	550	6.0	2,760						

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	676	200	996	772	550	461	716	3,150	3,400	1,640	2,360	2,150
2	606	196	1,110	1,090	537	479	716	3,230	2,990	1,840	2,360	2,150
3	599	152	852	1,220	537	524	740	2,840	2,990	1,840	2,430	2,090
4	524	253	628	1,220	524	537	825	2,990	3,220	1,840	2,430	2,090
5	544	168	544	1,200	518	456	816	2,910	4,160	1,840	2,500	1,960
6	550	347	504	1,070	518	410	834	2,680	5,270	1,780	2,570	1,960
7	599	204	473	978	504	415	924	2,200	6,120	1,840	2,650	1,840
8	606	275	438	740	492	415	1,130	1,880	5,670	1,900	2,570	1,720
9	620	700	410	636	485	438	1,190	1,700	4,420	1,840	2,500	1,600
10	571	518	410	740	485	444	1,450	1,760	2,680	1,840	2,430	1,600
11	322	416	404	915	479	461	1,460	1,760	1,870	1,900	2,430	1,660
12	585	372	394	852	473	473	1,470	2,000	1,860	1,900	2,430	1,660
13	578	404	394	843	467	530	1,450	2,990	2,160	1,900	2,500	1,660
14	473	410	426	834	461	578	1,430	4,110	2,640	1,960	2,430	1,660
15	249	426	473	825	450	660	1,470	4,690	3,180	2,020	2,430	1,660
16	185	426	530	700	450	684	1,150	4,690	2,620	2,080	2,360	1,720
17	149	438	636	684	438	606	1,150	4,300	2,460	2,150	2,360	1,720
18	112	426	870	518	444	592	4,910	3,840	2,310	2,220	2,290	1,720
19	123	421	816	585	438	557	5,200	3,480	2,100	2,150	2,360	1,720
20	172	394	748	870	438	530	5,200	3,400	1,910	2,220	2,290	1,660
21	185	444	684	996	432	537	5,100	2,990	2,350	2,280	2,290	1,660
22	262	461	606	756	438	564	4,400	3,070	3,020	2,360	2,360	1,540
23	280	511	571	724	426	636	3,750	3,930	3,880	2,280	2,360	1,260
24	208	550	544	692	438	684	3,320	5,740	3,860	2,360	2,290	1,300
25	155	660	518	660	444	732	3,150	5,960	2,980	2,360	2,290	1,260
26	123	1,030	485	636	450	764	3,070	6,180	2,810	2,280	2,360	1,160
27	118	1,140	498	628	450	748	2,910	6,400	2,360	2,360	2,500	1,100
28	196	1,880	485	613	456	843	2,760	5,960	1,840	2,280	2,360	1,060
29	235	1,820	550	606	-	852	2,760	5,310	1,780	2,360	2,220	994
30	257	1,270	700	585	-	807	2,910	4,890	1,780	2,360	2,220	1,020
31	208	-	684	571	-	798	-	4,300	-	2,360	2,150	-

Month	Observed				Gain or loss in storage* (acre-feet)	Diverted by Kittitas canal (acre-feet)	Adjusted for storage and diversion			
	Discharge in second-feet			Run-off in acre-feet			Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean					Mean	Per square mile	
October	676	112	357	21,960	-8,990	0	12,970	211	0.422	0.49
November	1,880	152	564	33,540	+124,800	0	158,300	2,660	5.32	5.94
December	1,110	394	593	36,460	+88,720	0	125,200	2,036	4.07	4.69
Calendar year 1937	6,920	106	1,271	920,300	+260,700	196,000	1,377,000	1,902	3.80	51.65
January	1,220	518	799	49,110	+37,530	0	86,640	1,409	2.82	3.25
February	550	426	472	26,230	+11,620	0	37,850	682	1.36	1.42
March	852	410	588	36,130	+34,530	0	70,660	1,149	2.30	2.65
April	5,200	716	2,279	135,600	+82,610	7,950	226,200	3,801	7.60	8.48
May	6,400	1,700	3,720	228,800	+81,630	33,070	343,500	5,586	11.2	12.91
June	6,120	1,780	3,024	179,900	+2,170	39,720	221,800	3,727	7.45	8.31
July	2,360	1,780	2,084	128,100	-135,000	64,750	57,850	941	1.88	2.17
August	2,650	2,150	2,390	146,900	-163,300	52,050	15,650	255	.510	0.59
September	2,150	994	1,611	95,890	-118,400	36,650	14,140	238	.476	0.53
Water year 1937-38	6,400	112	1,545	1,119,000	+17,920	234,200	1,371,000	1,893	3.79	51.43

*Storage in Keechelus Lake, Kachess Lake, and Cle Elum Lake.

Yakima River at Umtanum, Wash.

Location.- Water-stage recorder, lat. 46°51', long. 120°29', in NW¼ sec. 20, T. 16 N., R. 19 E., at Umtanum, half a mile upstream from Umtanum Creek and 10 miles south of Ellensburg. Zero of gage is 1,300 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,620 square miles.

Records available.- August 1906 to September 1921 (fragmentary) and October 1935 to September 1938 in reports of Geological Survey. September 1906 to October 1928 (fragmentary) in State Water-Supply Bulletin 5.

Extremes.- Maximum discharge during year, 13,000 second-feet Apr. 19 (gage height, 35.72 feet); minimum, 574 second-feet Oct. 29 (gage height, 30.13 feet).
1906-21, 1935-38: Maximum discharge, about 41,000 second-feet Nov. 15 or 16, 1906 (elevation, 1,341.1 feet above mean sea level, general adjustment of 1929, from flood-marks); minimum, 138 second-feet Oct. 3, 1915 (gage height, 2.86 feet, former datum).

Remarks.- Records excellent except those for period of missing gage heights, Sept. 14-28, which were computed on basis of records for station at Cle Elum and are fair. Flow partly regulated by storage in Lake Keechelus, Lake Kachess, and Lake Cle Elum Reservoirs. Water diverted for irrigation of about 91,000 acres above station. Records furnished by Bureau of Reclamation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

30.0	320	32.0	2,500	34.0	7,220
30.5	615	32.5	3,410	34.5	8,840
31.0	1,110	33.0	4,510	35.0	10,500
31.5	1,740	33.5	5,760	35.8	13,300

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,010	486	2,020	1,690	1,040	1,440	2,020	7,070	4,740	2,020	2,670	2,330
2	937	472	1,800	1,870	1,020	1,880	1,950	6,920	4,170	2,020	2,670	2,330
3	916	465	1,710	1,950	1,020	2,170	2,020	5,760	3,950	2,020	2,670	2,330
4	895	435	1,370	2,020	990	2,330	2,250	5,100	3,950	2,020	2,670	2,330
5	845	559	1,180	1,880	979	2,330	2,420	4,620	4,620	2,020	2,670	2,250
6	855	875	1,090	1,800	1,000	2,330	2,580	4,280	5,620	1,950	2,760	2,250
7	855	591	1,000	1,680	968	2,170	2,670	3,620	6,480	1,880	2,840	2,170
8	906	486	948	1,480	906	2,100	2,930	3,120	6,620	1,950	2,840	2,100
9	926	845	906	1,260	895	2,100	3,520	3,120	5,760	1,950	2,760	2,100
10	926	1,020	906	1,280	916	2,100	3,950	2,930	4,060	1,950	2,670	2,020
11	875	895	906	1,880	906	2,020	3,840	3,020	2,760	2,020	2,580	1,950
12	748	795	916	1,800	885	2,100	3,840	3,020	2,500	2,020	2,670	1,950
13	865	795	926	1,720	865	2,500	3,730	4,170	2,580	1,950	2,670	1,950
14	895	855	937	1,740	895	2,760	3,730	5,230	3,020	1,950	2,760	1,950
15	757	845	958	1,870	865	2,760	3,730	6,040	3,620	1,950	2,670	1,950
16	640	855	1,040	1,670	835	2,840	3,840	6,330	3,410	2,020	2,670	1,950
17	559	906	1,210	1,560	815	2,420	4,280	6,040	3,020	2,100	2,580	1,950
18	493	906	1,650	1,430	835	2,250	8,020	5,360	3,120	2,170	2,580	2,020
19	441	895	1,740	1,260	825	2,250	11,200	4,860	2,840	2,100	2,580	2,020
20	429	916	1,540	1,400	805	1,950	9,170	4,740	2,670	2,020	2,500	2,020
21	465	1,000	1,430	1,650	815	1,800	8,510	4,620	2,760	2,250	2,500	2,020
22	479	1,040	1,340	1,570	815	1,740	7,850	4,620	3,410	2,330	2,500	1,950
23	535	1,140	1,250	1,470	855	1,730	7,220	5,360	4,280	2,330	2,500	1,950
24	575	1,200	1,190	1,370	875	1,880	6,480	6,920	4,860	2,420	2,500	1,850
25	500	1,280	1,110	1,280	937	1,880	6,330	7,690	3,730	2,500	2,500	1,670
26	441	1,950	1,090	1,220	1,070	1,880	6,180	7,850	3,410	2,500	2,500	1,600
27	405	2,100	1,070	1,200	1,200	1,950	6,180	8,020	3,120	2,500	2,580	1,600
28	400	2,670	1,130	1,200	1,280	2,170	5,900	8,180	2,330	2,500	2,670	1,480
29	441	3,020	1,410	1,170	-	2,250	6,040	7,380	2,020	2,500	2,420	1,370
30	486	2,580	1,880	1,090	-	2,170	6,620	6,620	1,950	2,580	2,330	1,330
31	521	-	1,950	1,060	-	2,020	-	5,900	-	2,670	2,330	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	21,021	1,010	400	678	41,690
November	32,877	3,020	435	1,096	65,210
December	39,603	2,020	906	1,278	78,550
Calendar year 1937	712,210	9,850	382	1,951	1,413,000
January	47,520	2,020	1,060	1,533	94,250
February	26,112	1,280	805	933	51,790
March	66,270	2,840	1,440	2,138	131,400
April	149,000	11,200	1,950	4,937	295,500
May	168,510	8,180	2,930	5,436	334,200
June	111,380	6,620	1,950	3,713	220,900
July	67,160	2,670	1,880	2,166	133,200
August	80,810	2,840	2,330	2,607	160,300
September	58,740	2,330	1,330	1,958	116,500
Water year 1937-38	869,003	11,200	400	2,391	1,723,000

Yakima River near Parker, Wash.

Location.- Water-stage recorder, lat. 46°29'40", long. 120°26'10", in sec. 28, T. 12 N., R. 19 E., just downstream from Sunnyside diversion dam, 1½ miles east of Parker and about 3 miles downstream from Ahtanum Creek.

Drainage area.- 3,560 square miles.

Records available.- April 1908 to September 1921, October 1931 to September 1938.

Extremes.- Maximum discharge during year, 17,200 second-feet Apr. 19 (gage height, 9.47 feet); minimum, 28 second-feet Oct. 6 (gage height, 0.93 foot).
1908-21, 1931-38: Maximum discharge, 54,300 second-feet Dec. 23, 1933 (gage height, 15.0 feet, from floodmarks); practically no flow several days during latter part of irrigation seasons as result of diversions.

Remarks.- Records excellent except those below 50 second-feet, which are fair. Water diverted above gage for irrigation of a large area. Flow partly regulated by diversions and by storage in Keechelus Lake, Kachess Lake, Cle Elum Lake, Bumping Lake, and Tieton reservoirs. Records for river station furnished by Bureau of Reclamation. Records of monthly discharge of canals furnished by Office of Indian Affairs and by Bureau of Reclamation or computed from base data furnished by them.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	320	1,150	3,450	4,000	2,650	2,580	2,510	10,200	7,050	972	301	183
2	276	1,150	2,960	3,630	2,650	3,360	2,370	9,230	6,090	1,020	230	189
3	202	1,130	2,880	3,450	2,650	3,900	2,440	7,560	5,640	804	92	193
4	205	1,090	2,510	3,450	2,580	4,000	2,650	5,860	5,640	700	91	186
5	86	1,050	2,370	3,450	2,580	4,200	3,040	4,900	6,320	641	114	173
6	34	1,370	2,240	3,280	2,650	4,300	3,280	3,900	7,820	523	173	262
7	38	1,400	2,180	3,120	2,650	4,200	3,450	2,880	8,930	430	196	287
8	47	1,190	2,110	3,280	2,510	4,000	3,810	2,370	9,360	443	219	242
9	79	1,520	2,040	3,040	2,510	4,100	4,500	2,370	8,360	183	163	127
10	94	2,110	2,040	2,960	2,510	4,300	5,530	2,300	5,640	82	100	58
11	84	2,040	2,040	3,540	2,440	4,200	5,530	2,510	3,630	162	41	45
12	38	1,920	2,240	3,810	2,440	4,500	5,210	2,800	2,960	183	161	56
13	92	1,800	2,180	3,630	2,240	5,100	5,000	4,200	3,120	129	283	66
14	136	1,800	2,240	3,720	2,240	5,860	4,800	5,860	3,450	72	439	84
15	416	1,860	2,370	4,100	2,180	5,640	4,600	7,050	3,810	93	358	61
16	576	1,800	2,440	3,900	2,110	5,320	4,900	7,820	4,000	122	253	45
17	492	1,860	2,510	3,630	2,110	4,600	5,860	8,090	3,630	146	173	76
18	311	1,860	2,960	3,540	2,110	4,100	10,900	7,050	3,540	170	135	74
19	208	1,860	3,360	3,200	2,110	4,200	15,800	5,530	3,040	93	93	91
20	345	1,860	3,120	3,120	2,040	3,540	13,200	5,210	2,720	72	162	99
21	919	1,800	2,880	3,450	2,040	3,120	10,900	5,640	2,960	249	55	76
22	975	1,980	2,720	3,540	2,040	2,880	9,540	5,860	4,600	296	134	60
23	966	2,110	2,580	3,360	2,040	2,720	8,640	7,560	5,860	175	215	289
24	994	2,370	2,440	3,200	1,980	2,600	7,820	10,200	6,560	202	106	266
25	994	2,440	2,370	3,120	1,920	2,800	7,050	11,600	5,190	310	142	287
26	928	2,960	2,370	2,960	1,980	2,650	6,320	12,800	4,070	270	118	296
27	873	3,720	2,370	2,880	2,110	2,800	6,320	13,200	3,240	245	180	249
28	819	4,000	2,440	2,880	2,300	2,960	6,320	14,000	2,190	146	262	223
29	819	5,000	3,280	2,880	-	3,200	7,050	13,200	1,450	102	292	124
30	994	4,400	4,400	2,720	-	2,960	8,090	11,200	1,090	111	215	150
31	1,140	-	4,600	2,650	-	2,720	-	8,930	-	226	212	-

Month	Mean discharge in second-feet						Gain or loss by upstream storage (second-feet)	Combined flow of Yakima River and canals adjusted for upstream storage*	
	Yakima River near Parker	Union Gap Canal (estimated)	New Reservation Canal	Old Reservation Canal	Sunnyside Canal	Combined flow, Yakima River and Canals		Second-feet	Run-off in acre-feet
October....	468	10	339	7.01	484	1,308	-303	1,005	61,800
November...	2,087	-	-	11.0	-	2,098	+2,642	4,740	282,000
December...	2,667	-	-	6.77	-	2,674	+1,971	4,645	285,600
Calendar year 1937	1,774	-	-	-	-	3,277	+467	3,744	2,711,000
January ...	3,338	-	-	3.99	-	3,342	+681	4,023	247,400
February...	2,299	-	-	2.88	-	2,302	+6.8	2,309	128,200
March.....	3,794	10	97.7	4.38	160	4,066	+734	4,800	295,100
April.....	6,248	25	991	38.8	767	8,070	+2,373	10,440	621,200
May.....	7,157	40	2,014	153	1,289	10,650	+1,636	12,290	755,700
June.....	4,749	45	1,769	69.6	1,261	7,894	+12.3	7,906	470,400
July.....	302	40	1,805	82.8	1,276	3,506	-2,900	606	37,260
August.....	188	40	1,702	50.2	1,251	3,231	-3,723	-492	-30,250
September..	154	35	1,206	24.9	1,122	2,542	-2,759	-217	-12,910
Water year 1937-38	2,786	-	-	-	-	4,314	+25.3	4,339	3,142,000

*Totals are equivalent to monthly results previously determined for Yakima River at Union Gap, near Yakima, Wash.

Yakima River at Kiona, Wash.

Location.- Water-stage recorder, lat. 46°15'10", long. 119°28'50", in sec. 19, T. 9 N., R. 27 E., at highway bridge at Kiona, 3½ miles downstream from intake of Kiona canal and 25 miles upstream from mouth.

Drainage area.- 5,520 square miles.

Records available.- August 1896 to March 1915, February 1933 to September 1938.

Average discharge.- 23 years (1896-1914, 1933-38), 4,479 second-feet.

Extremes.- Maximum discharge during year, 15,500 second-feet Apr. 21 (gage height, 11.17 feet); minimum, 1,180 second-feet July 22 (gage height, 3.42 feet).
1896-1915, 1933-38: Maximum discharge, 71,100 second-feet Dec. 23, 1933 (gage height, 21.57 feet); minimum, 105 second-feet Sept. 11, 1906 (gage height, 2.35 feet).

Remarks.- Records excellent. Water diverted above gage for irrigation of large acreage. Flow partly regulated by diversions and by storage in Keechelus Lake, Kachess Lake, Cle Elum Lake, Bumping Lake, and Tieton Reservoir. Records furnished by Bureau of Reclamation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

3.0	900	5.0	3,120	10.0	12,400
3.5	1,270	6.0	4,680	12.0	17,600
4.0	1,800	7.0	6,420		
4.5	2,430	8.0	8,280		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,570	2,040	5,360	6,960	3,880	3,420	4,520	10,000	11,500	2,840	1,410	1,410
2	1,620	2,040	4,680	5,880	3,800	3,880	4,360	11,700	9,640	2,630	1,520	1,360
3	1,680	2,100	4,200	5,530	3,800	4,850	4,040	11,300	8,470	2,700	1,570	1,360
4	1,620	2,100	4,040	5,530	3,720	5,190	4,200	9,640	8,090	2,500	1,520	1,410
5	1,570	2,040	3,720	5,360	3,640	5,360	4,360	8,280	8,090	2,360	1,460	1,360
6	1,520	1,980	3,340	5,190	3,640	5,700	4,680	7,140	8,660	2,240	1,360	1,360
7	1,410	2,170	3,200	4,850	3,720	5,700	5,020	6,240	9,840	2,040	1,320	1,460
8	1,360	2,300	3,050	4,520	3,640	5,700	5,190	5,190	10,700	1,920	1,360	1,570
9	1,360	2,100	2,910	4,520	3,570	5,530	5,360	4,520	11,300	1,860	1,360	1,570
10	1,360	2,300	2,840	4,360	3,570	5,530	6,240	4,360	10,200	1,680	1,360	1,520
11	1,460	2,910	2,840	4,200	3,570	5,700	7,140	4,360	7,710	1,520	1,360	1,460
12	1,460	2,910	2,980	4,680	3,500	5,880	7,140	4,360	5,700	1,460	1,270	1,410
13	1,460	2,770	3,200	4,850	3,500	6,420	6,960	4,680	4,850	1,520	1,270	1,460
14	1,410	2,700	3,200	4,680	3,340	7,330	6,600	6,060	4,850	1,460	1,360	1,460
15	1,460	2,630	3,120	5,020	3,340	7,900	6,420	7,520	5,190	1,410	1,570	1,460
16	1,620	2,700	3,270	5,880	3,270	7,710	6,240	8,660	5,530	1,410	1,570	1,460
17	1,860	2,700	3,340	5,530	3,200	8,090	6,600	9,440	5,530	1,620	1,520	1,460
18	1,800	2,700	3,420	5,190	3,120	6,960	7,900	9,840	5,530	1,620	1,460	1,460
19	1,680	2,770	3,800	5,020	3,200	6,600	11,500	8,850	5,700	1,620	1,460	1,460
20	1,620	2,840	4,200	4,680	3,120	6,600	14,200	7,520	5,190	1,570	1,460	1,460
21	1,570	2,770	3,960	4,520	3,050	5,880	14,900	7,140	4,850	1,460	1,570	1,520
22	2,040	2,770	3,720	4,850	3,050	5,360	13,400	7,520	5,360	1,320	1,570	1,520
23	2,100	2,910	3,570	5,020	3,050	5,190	12,000	8,090	6,780	1,360	1,520	1,460
24	2,100	3,120	3,420	4,850	3,050	5,020	10,900	9,440	7,900	1,360	1,570	1,520
25	2,040	3,270	3,270	4,520	3,050	5,020	10,200	11,300	8,280	1,360	1,570	1,680
26	2,040	3,340	3,200	4,520	2,980	4,850	9,440	12,700	7,140	1,460	1,620	1,680
27	1,980	4,200	3,200	4,360	3,120	4,850	8,850	13,400	6,060	1,520	1,520	1,680
28	1,860	4,680	3,200	4,200	3,270	4,850	8,660	14,200	5,190	1,520	1,460	1,620
29	1,800	5,020	3,880	4,200	-	4,850	8,660	14,700	4,200	1,520	1,520	1,570
30	1,860	5,880	6,240	4,040	-	5,020	9,040	14,900	3,200	1,410	1,570	1,520
31	1,980	-	8,470	3,960	-	4,850	-	13,700	-	1,360	1,520	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	52,270	2,100	1,360	1,686	103,700
November	86,760	5,880	1,980	2,892	172,100
December	116,840	8,470	2,840	3,769	231,700
Calendar year 1937	1,088,840	16,800	1,100	2,983	2,160,000
January	151,470	6,960	3,960	4,886	300,400
February	94,760	3,880	2,980	3,384	188,000
March	175,790	8,090	3,420	5,671	348,700
April	234,720	14,900	4,040	7,824	465,600
May	276,750	14,900	4,360	8,927	548,900
June	211,230	11,500	3,200	7,041	419,000
July	53,630	2,840	1,320	1,730	106,400
August	45,550	1,620	1,270	1,469	90,350
September	44,700	1,680	1,360	1,490	88,660
Water year 1937-38	1,544,470	14,900	1,270	4,231	3,064,000

Kachess River near Easton, Wash.

Location.- Water-stage recorder, lat. 47°15'30", long. 121°11'50", in sec. 5, T. 20 N., R. 13 E., three-quarters of a mile downstream from Kachess Lake and 2 miles northwest of Easton.

Drainage area.- 64 square miles.

Records available.- October 1903 to September 1938.

Average discharge.- 35 years, 288 second-feet.

Extremes.- Maximum discharge during year, 1,530 second-feet June 6 (gage height, 5.90 feet); minimum, 0.6 second-foot (regulated) Oct. 19 (gage height, 0.38 foot).
1903-38: Maximum discharge, 2,240 second-feet (computed from gate opening) Aug. 27, 1920; practically no flow when gates in dam are closed.

Remarks.- Records excellent except those for extremely low flow, which are poor. No diversion. Flow regulated by storage in Kachess Lake reservoir (capacity at crest of spillway, 221,000 acre-feet). Records furnished by Bureau of Reclamation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 9

0	0	2.0	55	4.0	640
.4	.7	2.5	130	5.0	1,090
.8	3.4	3.0	255	5.9	1,530
1.5	22	3.5	435		

Jan. 10 to Sept. 30

0.3	0	1.5	19	3.0	253
.5	.6	2.0	45	3.5	435
1.0	5	2.5	110		

Note.- Same as preceding table above 3.5 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	401	38	4	5	1	1	2	4	253	336	576	730
2	397	6	3	3	1	1	2	4	253	397	555	730
3	375	6	2	3	1	1	2	4	253	397	555	708
4	360	4	3	2	1	1	3	4	316	397	555	708
5	360	2	2	2	1	1	3	4	663	408	555	708
6	360	1	2	2	1	2	3	5	1,260	474	555	708
7	360	1	2	2	1	2	4	5	1,380	597	556	708
8	360	2	2	2	1	2	4	5	888	597	555	708
9	360	3	2	2	1	2	4	5	403	597	555	708
10	360	2	1	3	1	2	5	5	253	577	556	708
11	360	1	1	3	1	2	5	5	253	597	555	708
12	360	1	1	3	1	2	4	244	253	577	555	708
13	360	1	2	3	1	2	4	752	210	597	576	708
14	360	1	2	3	1	2	4	955	155	618	555	708
15	140	2	2	4	1	3	4	955	194	640	555	708
16	3	1	3	3	1	4	5	633	253	632	555	708
17	2	1	4	3	1	3	12	181	253	635	555	708
18	1	1	5	2	1	3	16	17	316	695	555	708
19	1	1	4	2	1	3	8	17	253	675	555	708
20	1	1	3	2	1	2	4	16	420	695	555	708
21	1	1	3	2	1	2	5	19	555	635	555	708
22	1	1	2	3	1	2	5	20	640	695	555	730
23	1	2	2	2	1	2	5	20	640	708	555	775
24	1	2	2	2	1	2	5	20	480	730	576	820
25	1	10	2	2	1	2	5	309	319	730	618	820
26	1	11	2	2	1	2	5	514	253	708	662	820
27	38	10	2	2	1	3	4	534	253	675	685	820
28	81	12	2	2	1	3	4	534	253	640	685	820
29	81	9	3	2	-	3	4	470	270	640	685	820
30	81	5	8	1	-	3	4	427	360	618	685	798
31	81	-	7	1	-	2	-	316	-	597	730	-

Month	Observed				Gain or loss in storage in Lake Kachess (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	401	1	182	11,200	-8,930	2,270	36.9	0.577	0.67
November	38	1	4.6	276	+28,930	29,210	491	7.67	8.56
December	8	1	2.7	169	+21,210	21,380	348	5.44	6.27
Calendar year 1937	1,330	0	212	153,100	+56,910	209,000	289	4.52	61.27
January	5	1	2.4	149	+13,460	13,610	221	3.45	3.98
February	1	1	1.0	56	+5,800	5,860	106	1.66	1.73
March	4	1	2.2	133	+10,220	10,350	168	2.62	3.02
April	16	2	4.8	286	+32,730	33,020	555	8.67	9.67
May	955	4	226	13,890	+32,380	46,270	753	11.8	13.60
June	1,380	155	417	24,800	+1,990	26,790	450	7.03	7.84
July	730	386	604	37,140	-34,500	2,640	42.9	.670	.77
August	730	555	585	35,970	-35,590	380	6.2	.097	.11
September	820	708	738	43,900	-43,340	560	9.4	.147	.16
Water year 1937-38	1,380	1	232	168,000	+24,360	192,300	296	4.16	56.38

Cle Elum River near Roslyn, Wash.

Location.- Water-stage recorder, lat. 47°14'00", long. 121°03'30", in SW¼ sec. 11, T. 20 N., R. 14 E., 1,000 feet downstream from dam at Cle Elum Lake and 4 miles northwest of Roslyn.

Drainage area.- 202 square miles.

Records available.- October 1903 to September 1938.

Average discharge.- 35 years, 914 second-feet.

Extremes.- Maximum discharge during year, 5,690 second-feet Apr. 18 (gage height, 11.34 feet); discharge estimated at 1 second-foot Nov. 23 to Dec. 2.
1903-38: Maximum discharge, 18,700 second-feet Nov. 15, 1906 (gage height, 14.05 feet); practically no flow when gates in dam are closed.

Remarks.- Records excellent except those below 100 second-feet, which are fair. No diversion above station. Flow partly controlled by storage in Cle Elum Lake reservoir (capacity, 358,500 acre-feet at crest of spillway). Records furnished by Bureau of Reclamation.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 23 to June 1)

Oct. 1 to May 22								June 2 to Sept. 30					
4.1	7	5.5	400	7.0	1,250	9.0	3,070	5.3	300	6.5	865	8.0	2,000
4.5	75	6.0	630	7.5	1,640	10.0	4,170	5.5	375	7.0	1,180	9.0	2,980
5.0	223	6.5	910	8.0	2,070	11.3	5,690	6.0	595	7.5	1,560	10.0	4,070

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	521	23	1	34	34	38	350	2,070	2,190	1,560	2,130	1,560
2	476	23	1	34	34	38	346	2,210	2,000	1,560	2,140	1,560
3	436	23	11	34	36	38	346	1,980	2,040	1,560	2,180	1,480
4	404	23	34	34	36	38	356	1,980	2,330	1,560	2,230	1,400
5	416	23	34	34	36	38	376	1,980	3,080	1,560	2,280	1,360
6	424	24	34	34	36	38	396	1,680	3,520	1,560	2,330	1,360
7	467	24	34	34	36	38	420	1,070	3,630	1,560	2,330	1,250
8	472	24	34	34	36	38	458	880	3,630	1,560	2,280	1,110
9	472	24	34	34	36	38	550	570	2,880	1,560	2,140	985
10	360	24	34	34	36	38	655	467	1,690	1,560	2,090	985
11	240	24	34	34	36	38	708	467	1,290	1,600	2,130	985
12	449	24	34	34	36	38	762	735	1,320	1,600	2,140	985
13	444	24	34	34	36	38	790	1,180	1,820	1,600	2,040	985
14	256	24	34	34	36	38	820	1,800	2,480	1,640	1,960	985
15	44	24	34	34	36	38	880	2,020	2,680	1,690	1,910	1,020
16	24	24	34	34	36	38	417	2,350	1,960	1,820	1,860	1,080
17	24	24	34	34	36	40	156	2,550	1,780	1,860	1,820	1,080
18	24	24	34	34	36	44	3,850	2,550	1,560	1,860	1,820	1,080
19	24	24	34	34	36	24	2,650	2,400	1,480	1,910	1,820	1,080
20	24	24	34	34	36	64	3,070	2,210	1,480	1,960	1,820	1,050
21	24	24	34	34	36	109	2,960	1,800	1,730	2,040	1,860	1,050
22	24	8	34	34	38	147	2,650	1,680	2,280	2,040	1,860	890
23	24	1	34	34	38	223	1,940	2,430	3,140	2,050	1,870	645
24	15	1	34	34	38	263	1,760	3,710	2,850	2,040	1,860	635
25	23	1	34	34	38	294	1,760	3,810	2,480	2,050	1,870	581
26	23	1	34	34	38	308	1,720	3,800	2,480	2,040	1,960	492
27	23	1	34	34	38	332	1,720	3,400	1,940	2,050	2,000	423
28	23	1	34	34	38	380	1,720	3,460	1,560	2,050	1,780	337
29	23	1	34	34	-	388	1,680	3,120	1,560	2,090	1,640	300
30	23	1	34	34	-	372	1,800	3,220	1,560	2,130	1,650	300
31	23	-	34	34	-	353	-	2,690	-	2,140	1,600	-

Month	Observed				Gain or loss in storage in Lake Cle Elum (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	521	15	202	12,390	-110	12,280	200	0.990	1.14
November	24	1	17.2	1,020	+55,440	56,460	949	4.70	5.24
December	34	1	31.1	1,910	+44,850	46,760	760	3.76	4.34
Calendar year 1937	4,170	0	685	496,300	+135,900	632,200	873	4.32	58.61
January	34	34	34.0	2,090	+28,240	30,330	493	2.44	2.81
February	38	34	36.4	2,020	+11,600	13,620	245	1.21	1.26
March	388	24	127	7,830	+16,200	24,030	391	1.94	2.24
April	3,850	156	1,269	75,500	+26,250	101,800	1,711	8.47	9.45
May	3,810	467	2,138	131,400	+43,860	175,300	2,851	14.1	16.26
June	3,630	1,290	2,214	131,700	+2,210	133,900	2,250	11.1	12.38
July	2,140	1,560	1,802	110,800	-69,830	40,970	666	3.30	3.80
August	2,330	1,600	1,981	121,800	-112,900	8,900	145	.718	.83
September	1,560	300	968	57,590	-55,730	1,860	31.3	.155	.17
Water year 1937-38	3,850	1	906	656,000	-9,920	646,200	893	4.42	59.92

Naches River below Tieton River, near Naches, Wash.

Location.- Water-stage recorder, lat. 46°44'40", long. 120°46'00", in SW¼NE¼ sec. 36, T. 15 N., R. 16 E., half a mile downstream from Wapatox power canal, three-quarters of a mile downstream from Tieton River, and 3¾ miles northwest of Naches. Zero of gage is 1,550 feet above mean sea level (general adjustment of 1929).

Drainage area.- 943 square miles.

Records available.- August to October 1905, March 1909 to October 1912, May 1915 to September 1928, and October 1935 to September 1938 in reports of Geological Survey. September 1905, October 1908 to September 1912 and June 1915 to September 1929 (mean monthly discharge), in State Water-Supply Bulletin 5.

Average discharge.- 19 years (1908-12, 1916-28, 1935-38), 1,712 second-feet (adjusted for storage and principal diversions).

Extremes.- Maximum discharge during year, 8,400 second-feet May 28 (gage height, 15.48 feet); minimum, 10 second-feet Oct. 19, (gage height, 9.63 feet).

1905, 1908-12, 1915-28, 1935-38: Maximum discharge, 18,800 second-feet Nov. 24, 1909 (gage height, 8.9 feet, former site and datum); minimum, 2 second-feet Jan. 7, 1937 (gage height, 9.40 feet).

Bureau of Reclamation reports a flow of 32,200 second-feet Dec. 23, 1933 (gage height, 14.33 feet, former site and datum).

Remarks.- Records excellent except those for October to December and those below 50 second-feet for remainder of year, which are good. Flow regulated by Bumping Lake and Tieton Reservoirs (combined capacity at crest of spillways, 232,000 acre-feet) and by diversion at Oak Flat for supply of city of Yakima and diversions by Selah Valley, Tieton, and Wapatox canals. Station is maintained by Bureau of Reclamation in cooperation with Pacific Power & Light Co. Records furnished by Bureau of Reclamation. Information concerning municipal diversion at Oak Flat, which is very small in relation to flow past station, furnished by Water Superintendent of city of Yakima.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	145	21	682	1,180	950	412	304	6,150	4,520	1,720	680	200
2	116	21	575	1,000	950	458	317	4,420	4,420	1,720	482	200
3	112	21	491	864	920	464	402	3,800	4,310	1,510	396	193
4	84	20	417	783	873	464	500	3,310	4,420	1,420	412	196
5	30	20	357	729	864	476	612	2,840	4,960	1,370	446	193
6	40	20	312	656	864	500	656	2,480	5,300	1,320	429	203
7	49	19	674	680	837	476	688	2,150	5,660	1,320	308	196
8	49	44	298	920	810	482	828	2,150	5,780	1,230	290	200
9	49	417	228	920	801	514	1,180	2,400	4,420	960	290	193
10	49	334	289	940	765	535	1,340	2,570	3,310	920	278	196
11	48	284	392	1,060	747	542	1,320	2,660	2,930	1,110	350	274
12	48	231	463	1,040	656	648	1,320	3,120	2,840	1,110	440	278
13	46	228	449	1,010	500	783	1,270	3,700	3,220	1,080	458	270
14	40	217	449	1,120	488	950	1,290	4,000	3,020	1,090	458	258
15	34	231	540	1,340	458	910	1,330	4,200	2,930	1,130	452	240
16	29	185	533	1,320	446	828	1,580	4,520	2,930	1,180	370	240
17	22	173	575	1,270	429	696	2,930	4,740	2,840	1,130	360	249
18	12	151	748	1,210	440	680	5,300	4,100	2,570	1,080	317	240
19	12	130	690	1,150	429	598	4,420	3,400	2,150	1,040	672	240
20	12	53	612	1,150	424	500	3,700	3,500	2,320	1,130	375	226
21	13	101	561	1,220	412	440	3,310	4,000	2,840	1,220	345	222
22	14	108	519	1,240	407	396	3,020	4,520	3,700	1,140	440	209
23	14	328	463	1,220	396	365	2,930	5,660	4,000	1,060	440	93
24	14	368	442	1,140	181	360	2,930	6,670	3,800	1,020	429	95
25	14	547	429	1,100	157	330	2,750	6,540	3,220	960	380	104
26	14	986	484	1,060	160	355	2,660	7,660	2,660	837	360	99
27	14	820	417	1,040	170	402	2,750	7,800	2,230	792	350	76
28	15	1,220	643	1,030	212	476	3,310	7,800	2,040	720	335	76
29	18	1,190	1,200	1,000	-	446	4,000	7,220	1,960	712	286	76
30	21	860	1,780	960	-	402	4,740	6,020	1,900	704	243	81
31	22	-	1,440	940	-	330	-	4,960	-	738	215	-

Month	Observed				Gain or loss in storage (acre-feet)	Diversions (acre-feet)	Adjusted for storage and diversions*			
	Discharge in second-feet			Run-off in acre-feet			Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean					Mean	Per square mile	
October	145	12	38.7	2,380	-9,630	25,160	20,910	340	0.361	0.42
November	1,220	19	312	18,540	+32,400	29,990	80,930	1,360	1.44	1.61
December	1,780	228	586	36,000	+32,470	29,580	98,050	1,595	1.69	1.95
Calendar year 1937	6,340	5	830	601,100	+77,590	477,300	1,156,000	1,597	1.69	22.98
January	1,340	656	1,042	64,050	+4,370	29,750	98,170	1,597	1.69	1.95
February	950	157	562	31,230	-11,240	26,840	46,830	843	.894	.93
March	950	330	523	32,170	+10,620	31,730	74,520	1,212	1.29	1.49
April	5,300	304	2,123	126,300	+58,570	39,040	223,900	3,763	3.99	4.45
May	7,800	2,150	4,486	275,800	+18,920	56,710	351,400	5,715	6.06	6.99
June	5,780	1,900	3,440	204,700	-1,440	57,870	261,100	4,388	4.65	5.19
July	1,720	704	1,112	68,380	-43,250	59,330	84,460	1,374	1.46	1.68
August	680	215	390	23,970	-45,630	59,070	37,410	608	.645	.74
September	278	76	187	11,120	-45,740	56,820	22,200	373	.396	.44
Water year 1937-38	7,800	12	1,236	894,600	+420	504,900	1,400,000	1,934	2.05	27.84

*Water is stored in Bumping Lake and Tieton Reservoirs; it is diverted by Tieton, Selah Valley, and Wapatox canals and by city of Yakima at Oak Flat.

Bumping River near Nile, Wash.

Location.- Water-stage recorder, lat. 46°52', long. 121°18', a quarter of a mile downstream from spillway of Bumping Lake dam and 19 miles west of Nile.

Drainage area.- 68 square miles.

Records available.- June to July 1906, April 1909 to September 1938.

Average discharge.- 29 years (1909-38), 296 second-feet.

Extremes.- Maximum discharge during year, 1,880 second-feet May 28 (gage height, 4.97 feet); minimum, 5 second-feet Nov. 21, 22 (gage height, 1.02 feet).
1906, 1909-38: Maximum discharge, 5,180 second-feet Dec. 29, 1917 (gage height, 9.33 feet); practically no flow when gates in outlet conduit are closed.

Remarks.- Records good except those below 50 second-feet, which are fair. No diversion. Flow partly regulated by storage in Bumping Lake reservoir (capacity at crest of spillway, 33,700 acre-feet). Records furnished by Bureau of Reclamation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.0	5	2.0	106	3.5	739
1.2	11	2.5	241	4.0	1,080
1.5	35	3.0	453	5.0	1,880

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	64	101	277	316	296	404	97	259	1,080	479	453	72
2	62	95	277	316	296	358	93	259	1,080	479	453	74
3	59	93	277	316	296	358	93	259	1,080	479	453	72
4	58	90	277	316	277	316	93	259	1,150	479	453	72
5	57	85	277	316	277	316	93	259	1,310	453	453	71
6	54	83	277	316	277	277	95	259	1,390	453	453	72
7	51	80	277	316	277	296	99	259	1,470	453	453	74
8	48	146	277	316	277	277	102	259	1,470	453	453	74
9	47	208	277	316	277	259	110	259	1,080	453	453	74
10	46	208	277	296	277	241	116	241	870	453	453	72
11	46	224	277	296	277	208	132	259	804	453	453	72
12	45	224	277	296	277	208	139	259	837	453	453	72
13	44	224	277	296	259	193	148	259	938	453	453	72
14	44	241	277	316	259	181	149	277	870	453	453	72
15	44	241	277	316	259	170	154	277	804	453	404	72
16	48	241	277	316	259	162	178	277	837	453	358	72
17	66	241	296	296	259	156	259	296	837	453	337	74
18	68	241	296	296	241	151	170	241	739	453	316	74
19	65	97	296	296	241	149	40	404	676	453	316	72
20	65	7	296	296	241	141	116	646	676	453	316	72
21	65	5	296	296	241	134	122	837	804	453	316	72
22	62	5	296	296	241	132	64	1,080	938	453	316	72
23	62	7	296	296	241	127	62	1,310	1,010	453	316	71
24	59	107	296	296	241	121	61	1,470	973	453	277	71
25	56	259	296	296	224	114	58	1,630	837	453	241	69
26	56	277	296	296	224	110	149	1,720	739	453	241	68
27	61	238	296	296	224	110	259	1,720	646	453	241	69
28	75	235	296	296	328	108	277	1,800	616	453	184	56
29	102	277	316	296	-	104	259	1,630	559	453	132	47
30	106	277	316	296	-	102	259	1,390	532	453	92	48
31	106	-	316	296	-	97	-	1,150	-	453	71	-

Month	Observed				Gain or loss in storage in Bumping Lake (acre-feet)	Adjusted for storage		
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet	Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	106	44	61.0	3,750	+400	4,150	67.5	0.993	1.14
November	277	5	162	9,630	+11,600	21,230	357	52.5	5.86
December	316	277	288	17,720	+3,780	21,500	350	5.15	5.94
Calendar year 1937	1,570	5	272	196,800	+12,600	209,400	289	4.25	57.78
January	316	296	304	18,680	-2,110	16,570	269	3.96	4.56
February	328	224	263	14,600	-7,420	7,180	129	1.90	1.98
March	404	97	196	12,060	-5,940	6,120	99.5	1.46	1.68
April	277	40	135	8,020	+17,870	25,890	435	6.40	7.14
May	1,800	241	694	42,650	+15,120	57,770	940	13.8	15.91
June	1,470	532	922	54,850	-798	54,050	908	13.4	14.95
July	479	453	456	28,060	-14,130	13,930	227	3.34	3.85
August	453	71	349	21,450	-15,870	5,580	90.9	1.34	1.54
September	74	47	69.8	4,150	1,640	2,510	42.2	.621	.69
Water year 1937-38	1,800	5	325	235,600	+862	236,500	327	4.81	65.24

Tieton River at Tieton Dam, near Naches, Wash.

Location.- Water-stage recorder, lat. 46°39'30", long. 121°07'20", 900 feet upstream from Wild Cat Creek, 1,200 feet downstream from Tieton Dam, 19 miles upstream from Oak Creek, and 22 miles southwest of Naches.

Drainage area.- 187 square miles.

Records available.- August 1908 to September 1914 (fragmentary), October 1915 to March 1919, and April 1925 to September 1938 in reports of Geological Survey. September 1908 to December 1913, July 1914 to September 1920, and May 1925 to September 1933 in State Water-Supply Bulletin 5.

Average discharge.- 19 years (1908-12, 1918-20, 1925-38), 479 second-feet.

Extremes.- Maximum discharge during year, 3,280 second-feet Apr. 30 (gage height, 7.02 feet); minimum, 5 second-feet Nov. 20 (gage height, 1.32 feet).
1908-14, 1918-20, 1925-38: Maximum discharge, 8,450 second-feet Dec. 22, 1933 (gage height, 9.24 feet); no flow Apr. 4-6, 10, 1930.

Remarks.- Records good. Shifting-control method used July 23 to Aug. 18. No diversion. Flow regulated by storage in Tieton Reservoir (capacity at spillway crest, drums up, 198,000 acre-feet). Records furnished by Bureau of Reclamation.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	564	128	7	12	542	9	6	1,960	1,440	1,030	843	912
2	465	139	7	11	542	9	6	1,080	1,480	1,030	672	912
3	470	139	7	10	542	9	6	1,080	1,480	1,030	632	912
4	420	139	8	10	542	9	6	1,080	1,520	1,010	675	912
5	385	139	8	10	542	32	6	934	1,700	1,010	688	912
6	420	139	8	9	542	43	6	671	1,740	1,010	642	912
7	420	139	8	223	542	24	8	507	1,920	1,010	554	912
8	420	139	8	376	542	9	8	528	1,970	832	555	912
9	420	139	8	380	515	9	9	620	1,610	678	557	912
10	420	139	8	380	490	10	10	702	1,270	759	569	946
11	420	139	9	385	490	10	10	702	1,160	1,010	710	1,020
12	420	139	9	385	359	10	10	759	1,160	970	756	1,020
13	420	57	9	385	265	10	10	934	1,310	1,010	757	1,020
14	411	9	9	385	265	10	10	1,190	1,230	1,030	734	1,020
15	385	8	9	385	265	10	10	1,270	1,270	1,160	741	1,020
16	352	7	9	380	265	10	10	1,520	1,230	1,190	743	1,020
17	163	7	10	385	265	10	11	1,700	1,190	1,160	739	1,020
18	113	6	10	389	265	10	13	1,480	1,040	1,120	740	1,020
19	115	6	9	389	265	10	22	1,120	920	1,160	767	1,020
20	115	6	9	471	265	9	24	970	934	1,310	780	981
21	115	6	9	542	265	9	24	970	1,160	1,400	845	981
22	115	30	9	542	265	8	25	1,080	1,610	1,270	912	946
23	115	70	9	542	175	8	25	1,440	1,740	1,230	912	812
24	115	79	9	548	9	7	25	1,500	1,700	1,190	912	819
25	115	73	9	548	9	7	26	1,190	1,440	1,130	912	812
26	115	73	9	542	9	7	27	1,920	1,230	1,030	912	780
27	115	73	9	542	9	7	229	2,150	1,080	942	912	748
28	115	35	9	542	9	7	741	2,290	1,040	909	912	748
29	115	8	10	542	-	7	1,060	2,150	1,080	906	912	748
30	115	7	13	542	-	7	1,370	1,830	1,040	947	912	742
31	115	-	12	542	-	7	-	1,570	-	949	912	-

Month	Observed				Gain or loss in storage in Tieton Reservoir (acre-feet)	Adjusted for storage			
	Discharge in second-feet			Run-off in acre-feet		Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean				Mean	Per square mile	
October	564	113	277	17,020	-10,030	6,990	114	0.610	0.70
November	139	6	73.7	4,390	+20,800	25,190	423	2.26	2.52
December	13	7	8.9	547	+28,690	29,240	476	2.55	2.94
Calendar year 1937	2,070	6	383	277,000	+65,000	342,000	472	2.52	34.28
January	548	9	366	22,480	+6,480	28,960	471	2.52	2.90
February	542	9	324	17,970	-3,820	14,150	255	1.36	1.42
March	43	7	11.1	680	+16,560	17,240	280	1.50	1.73
April	1,370	6	125	7,440	+40,700	48,140	809	4.33	4.83
May	2,290	507	1,255	77,150	+3,800	80,950	1,317	7.04	8.12
June	1,970	920	1,356	80,720	-640	80,080	1,346	7.20	8.03
July	1,400	678	1,050	64,550	-29,120	35,430	576	3.08	3.55
August	912	554	768	47,240	-29,760	17,480	284	1.52	1.75
September	1,020	742	915	54,450	-44,100	10,350	174	.930	1.04
Water year 1937-38	2,290	6	545	394,600	-440	394,200	544	2.91	39.53

Tieton River at headworks of Tieton canal, near Naches, Wash.

Location.- Water-stage recorder, lat. 46°40'10", long. 121°00'20", in sec. 30, T. 14 N., R. 15 E. unsurveyed, just downstream from intake of Tieton canal, 12 miles upstream from Oak Creek and 16 miles southwest of Naches.

Drainage area.- 240 square miles.

Records available.- April to September 1906 (fragmentary gage-height records), July 1907 to September 1938.

Average discharge.- 29 years (1907-16, 1918-38), 556 second-feet.

Extremes.- Maximum discharge during year, 3,340 second-feet Apr. 30 (gage height, 5.98 feet); minimum, 1 second-foot Nov. 22 (gage height, 1.10 feet).
1907-38: Maximum discharge, 8,910 second-feet Dec. 22, 1933 (gage height, 9.70 feet); no flow at times in 1926, 1929, 1931, 1932, 1934.

Remarks.- Records excellent. Diversions for irrigation by Tieton canal. Flow regulated by Tieton Reservoir, 7 miles upstream from gage. Records furnished by Bureau of Reclamation.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.1	1	1.5	15	2.1	100	3.0	464	4.0	1,220	5.0	2,240
1.2	3	1.8	47	2.5	230	3.5	790	4.5	1,710	6.0	3,340

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	593	110	37	92	580	43	66	2,300	1,260	798	593	612
2	481	125	34	86	580	50	67	1,130	1,260	854	411	606
3	481	125	33	67	580	47	80	1,110	1,260	782	353	600
4	432	125	31	59	560	43	100	1,090	1,310	738	401	606
5	396	122	30	54	580	53	118	972	1,510	745	427	612
6	422	120	28	52	580	64	120	687	1,610	745	382	612
7	422	120	28	226	580	46	125	475	1,810	760	272	606
8	422	143	24	411	580	30	140	486	1,810	593	272	606
9	416	137	20	422	568	42	198	574	1,410	453	272	619
10	422	134	27	416	556	46	190	666	1,060	498	290	659
11	416	134	46	422	556	62	166	666	964	760	427	701
12	416	134	44	422	443	102	180	730	912	738	470	701
13	416	96	40	427	316	125	158	921	1,060	730	475	701
14	416	34	43	459	316	137	155	1,130	1,040	790	453	701
15	391	27	48	475	316	128	143	1,310	1,060	846	453	694
16	367	23	47	464	316	110	180	1,560	1,020	921	443	708
17	218	23	54	464	316	96	432	1,710	972	896	432	708
18	105	22	59	459	321	94	486	1,510	854	846	432	708
19	105	21	54	443	321	88	357	1,110	715	854	453	701
20	102	28	50	492	321	80	294	938	694	998	475	687
21	105	32	47	580	321	75	268	921	887	1,100	526	680
22	105	8	44	586	316	69	238	998	1,410	1,020	600	652
23	105	10	40	593	259	66	202	1,410	1,560	946	600	526
24	105	14	37	580	34	62	180	1,600	1,510	896	600	532
25	102	34	35	580	31	60	131	1,130	1,220	838	593	550
26	100	34	37	580	34	66	105	1,910	1,030	752	593	520
27	102	23	33	580	38	73	243	2,130	870	694	593	486
28	102	56	48	580	40	84	753	2,240	790	659	593	498
29	102	50	110	580	-	78	1,130	2,020	814	638	600	498
30	105	44	149	580	-	75	1,360	1,710	614	659	600	509
31	102	-	115	574	-	67	-	1,410	-	687	606	-

Month	Observed				Gain or loss in storage in Tieton Reservoir (acre-feet)	Diverted by Tieton canal (acre-feet)	Adjusted for storage and diversion			
	Discharge in second-feet			Run-off in acre-feet			Run-off in acre-feet	Discharge in second-feet		Run-off in inches
	Maximum	Minimum	Mean					Mean	Per square mile	
October	593	100	277	17,010	-10,030	-	6,980	114	0.475	.55
November	143	8	70.3	4,180	+20,800	1,090	26,070	438	1.82	2.03
December	149	20	47.5	2,920	+28,690	-	31,610	514	2.14	2.47
Calendar year 1937	2,080	8	291	210,800	+65,000	90,820	366,700	506	2.11	28.65
January	593	52	413	25,400	+6,480	-	31,880	518	2.16	2.49
February	580	31	371	20,590	-3,820	-	16,770	302	1.26	1.31
March	137	30	72.9	4,480	+16,560	468	21,510	350	1.46	1.68
April	1,360	66	280	16,630	+40,700	2,220	59,550	1,001	4.17	4.65
May	2,300	475	1,244	76,470	+3,800	16,080	96,350	1,567	6.53	7.53
June	1,810	694	1,150	68,420	-640	17,860	85,440	1,436	5.98	6.67
July	1,100	453	782	48,070	-29,120	18,980	37,930	617	2.57	2.96
August	606	272	474	29,140	-29,760	19,560	18,940	308	1.28	1.48
September	708	486	620	36,890	-44,100	17,960	10,750	181	.754	.84
Water year 1937-38	2,300	8	484	350,200	-440	94,020	443,800	613	2.55	34.66

North Fork of Ahtanum Creek near Tampico, Wash.

Location.- Water-stage recorder, lat. 46°33'40", long. 120°55'10", in NW¼ sec. 2. T. 12 N., R. 15 E., 100 feet downstream from Nasty Creek, 3½ miles northwest of Tampico and mouth of South Fork, and 20 miles west of Yakima.

Drainage area.- 69 square miles.

Records available.- August 1907 to September 1924 (incomplete), March 1931 to September 1938.

Extremes.- Maximum discharge during year, 446 second-feet May 24 (gage height, 2.52 feet); minimum discharge recorded, 16 second-feet Oct. 7-16, 18-28, Sept. 27-30.
1907-24, 1931-38: Maximum discharge, 755 second-feet Dec. 22, 1933; maximum gage height, 4.6 feet June 18, 1916; minimum discharge, 5.9 second-feet Nov. 22, 1931, or may have been somewhat lower during period of ice effect in February 1936.

Remarks.- Records good except those for period of ice effect or missing gage heights, Dec. 5-30, Jan. 1-17, Feb. 1-14, Mar. 8-18, which were computed on basis of weather records and records for South Fork at Conrad ranch and are poor. Discharge for Sept. 8-12 interpolated. No diversions of importance. No regulation. Records collected in cooperation with Indian Service.

Rating table, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

0.10	4.3	1.00	95
.30	18.0	1.50	183
.50	36	2.00	300
.70	56		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	20	28	80	32	35	67	342	256	113	37	20
2	19	20	28	64	32	39	72	300	259	107	35	20
3	19	20	27	50	32	39	82	264	259	101	35	21
4	18	19	24	44	31	39	92	230	269	96	34	21
5	18	19	23	40	31	39	107	205	284	92	33	22
6	17	18	22	38	30	42	115	195	297	87	33	23
7	16	18	22	36	30	43	118	193	303	85	33	24
8	16	30	21	34	29	50	129	203	287	85	33	23
9	16	26	21	33	29	58	154	207	239	78	33	23
10	16	25	20	31	29	70	162	205	214	74	32	22
11	16	24	21	31	29	100	162	216	207	7[illegible]	31	21
12	16	20	21	30	30	126	158	249	210	67	31	21
13	16	21	22	30	30	140	149	277	207	64	31	20
14	16	27	23	54	29	135	147	287	205	62	32	19
15	16	23	24	80	28	130	154	306	203	60	30	18
15	16	24	26	75	27	110	181	321	195	57	29	18
17	17	27	30	71	27	90	259	303	179	54	28	18
18	16	24	28	68	29	95	348	262	174	53	28	17
19	16	20	26	61	28	81	308	247	160	49	28	17
20	16	31	24	58	27	73	274	256	162	49	27	17
21	16	36	22	57	27	68	262	274	179	47	27	17
22	16	36	20	57	26	64	264	295	210	45	28	18
23	16	48	19	52	27	63	264	331	210	44	26	18
24	16	38	20	49	27	60	254	387	210	43	24	18
25	16	43	22	46	27	57	239	401	179	43	23	18
26	16	45	24	44	28	60	242	370	162	42	22	18
27	16	39	30	45	28	69	244	367	149	41	21	17
28	16	39	50	45	30	76	254	375	140	39	21	16
29	17	34	80	42	-	74	284	340	132	39	21	17
30	18	28	100	34	-	71	326	292	124	37	21	16
31	20	-	95	33	-	66	-	264	-	37	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off: Inches	Run-off: Acre-feet
October	519	20	16	16.7	0.242	0.28	1,030
November	842	48	18	28.1	.407	.45	1,670
December	963	100	19	31.1	.451	.52	1,910
Calendar year 1937	19,930	243	10	54.6	.791	10.75	39,520
January	1,512	80	30	48.8	.707	.82	3,000
February	809	32	26	28.9	.419	.44	1,600
March	2,266	140	35	73.1	1.06	1.22	4,490
April	5,871	348	67	196	2.84	3.17	11,640
May	8,766	401	193	283	4.10	4.73	17,390
June	6,264	303	124	209	3.03	3.38	12,420
July	1,961	113	37	63.3	.917	1.06	3,890
August	888	37	21	28.6	.414	.48	1,760
September	578	24	16	19.3	.280	.31	1,150
Water year 1937-38	31,239	401	16	85.6	1.24	16.86	61,950

Peak discharge.- Apr. 30 (12 p.m.) 370 sec.-ft.; May 24 (11 p.m.) 446 sec.-ft.

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South Fork of Ahtanum Creek at Conrad ranch, near Tampico, Wash.

Location.- Staff gage, lat. 46°31'30", long. 120°54'50", in W½ sec. 23, T. 12 N., R. 15 E., at Conrad ranch, 2⅛ miles upstream from North Fork of creek, 2⅝ miles southwest of Tampico, and 20 miles southwest of Yakima.

Drainage area.- 26 square miles.

Records available.- March 1915 to September 1924 (fragmentary), March 1931 to September 1938.

Extremes.- Maximum discharge observed during year, 127 second-feet Apr. 18 (gage height, 1.96 feet); minimum observed, 5.0 second-feet many times during period Oct. 4 to Nov. 11.

1915-24, 1931-38: Maximum discharge observed, 424 second-feet Dec. 23, 1933 (gage height, 3.10 feet); minimum observed, 2.6 second-feet Aug. 23, 25, 1931 (gage height, 0.35 foot).

Remarks.- Records good except those for periods of ice effect, Dec. 21-24, Jan. 30 to Feb. 4, Feb. 8, which were computed on basis of gage heights and weather records and are poor. Gage read twice daily. Small diversions for irrigation above gage. Records collected in cooperation with Indian Service.

Rating tables, water year 1937-38 except period of ice effect (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 17				Apr. 18 to Sept. 30			
0.6	2.7	1.2	35	0.6	3.3	1.2	35
.7	5.3	1.5	66	.7	6.1	1.5	66
.8	9.3	2.0	134	.8	10.1	2.0	134
1.0	19			1.0	19.9		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.3	5.3	7.7	38	11	11	26	82	73	23	11	7.3
2	5.3	5.3	7.7	25	10	13	28	75	69	23	11	6.9
3	5.3	5.3	7.7	19	10	14	32	66	68	21	11	6.9
4	5.3	5.3	7.7	18	10	15	39	58	68	21	11	7.7
5	5.3	5.3	7.3	16	10	15	45	51	68	20	11	7.7
6	5.3	5.3	6.9	15	10	16	46	47	73	19	10	7.7
7	5.3	5.3	6.9	14	9.7	22	46	45	74	18	9.7	7.7
8	5.3	5.3	6.9	13	9.5	26	49	44	73	18	9.3	7.7
9	5.3	5.3	6.9	13	9.3	31	57	45	65	18	8.5	7.3
10	5.3	5.3	6.9	12	10	37	62	46	62	18	8.9	7.7
11	5.3	5.3	6.9	12	9.3	51	62	49	59	17	8.5	7.7
12	5.3	5.3	6.9	11	8.9	59	59	53	55	16	8.5	6.9
13	5.3	5.3	6.9	11	8.9	68	54	60	53	15	8.5	6.9
14	5.3	5.3	7.3	22	8.9	66	52	64	51	15	8.9	6.9
15	5.3	5.7	7.7	20	8.5	64	53	67	49	15	8.9	6.1
16	5.3	6.1	7.7	18	8.5	53	65	70	47	14	9.3	6.1
17	5.3	7.7	7.3	20	8.1	45	82	70	45	14	9.3	6.1
18	5.3	8.5	7.7	18	8.1	47	124	64	43	14	8.9	6.1
19	5.3	7.7	7.7	18	7.7	39	105	59	39	14	8.5	6.1
20	5.3	7.7	7.7	17	7.7	32	87	57	39	13	8.5	6.1
21	5.3	8.5	7.5	18	7.3	30	75	57	39	13	7.7	6.1
22	5.3	8.5	7.0	17	7.3	28	73	70	37	12	7.3	6.1
23	5.3	8.5	7.0	16	7.7	26	74	77	36	12	7.7	6.1
24	5.3	8.5	7.5	15	8.5	25	70	84	35	12	7.7	6.1
25	5.3	8.5	7.7	15	8.1	25	66	93	33	12	7.7	6.1
26	5.3	8.5	7.7	14	8.5	31	66	98	32	12	7.7	6.1
27	5.3	8.5	7.7	14	8.5	33	63	102	29	12	7.7	6.1
28	5.3	7.7	18	14	8.9	33	62	101	27	12	6.9	6.1
29	5.3	7.7	40	13	-	30	64	96	26	12	6.9	6.1
30	5.3	7.7	45	12	-	29	73	88	23	12	7.3	6.1
31	5.3	-	42	12	-	26	-	78	-	11	7.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	164.3	5.3	5.3	5.30	326
November	200.2	8.5	5.3	6.67	397
December	343.5	45	6.9	11.1	681
Calendar year 1937	5,913.2	101	4	16.2	11,730
January	510	38	11	16.5	1,010
February	248.9	11	7.3	8.89	494
March	1,040	68	11	33.5	2,060
April	1,859	124	26	62.0	3,690
May	2,116	102	44	68.3	4,200
June	1,488	74	23	49.6	2,950
July	478	23	11	15.4	948
August	271.1	11	6.9	8.75	538
September	200.6	7.7	6.1	6.69	398
Water year 1937-38	8,919.6	124	5.3	24.4	17,690

In addition to the records of stream flow obtained at gaging stations and reported in the preceding pages, measurements of flow were made at other points in the Pacific slope basins in Washington and upper Columbia River Basin, as shown in the following table:

Miscellaneous discharge measurements in Pacific slope basins in Washington and upper Columbia River Basin during the water year October 1937 to September 1938

Deschutes River Basin, Wash.

Date	Stream	Tributary to or diverting from-	Locality	Discharge
Sept.15	Deschutes River	Budd Inlet.....	Half a mile above mouth, at Tumwater.	87.0

Lake Washington Basin, Wash.

Oct. 11	Rock Creek.....	Cedar River.....	Landsberg-Issaquah road culvert near Landsberg.	5.8
May 5	....do.....	....do.....	....do.....	26.1
Sept.23	....do.....	....do.....	....do.....	4.9

Snohomish River Basin, Wash.

Oct. 15	North Fork of Tolt River.	Tolt River.....	Sec. 23, T. 26 N., R. 8 E., at logging-railroad bridge near Tolt.	31.5
11	....do.....	....do.....	1,000 feet above mouth, near Tolt..	55.4
13	South Fork of Tolt River.	....do.....	SE¼ sec. 3β, T. 26 N., R. 8 E., at logging-railroad bridge near Tolt.	21.2
11	....do.....	....do.....	1,400 feet above mouth, near Tolt..	28.2

Skagit River Basin, Wash.

Aug. 31	Day Creek.....	Skagit River.....	Above county-road bridge, near mouth, opposite Lyman.	9.8

Kootenai River Basin

Nov. 10	Kootenai River.	Columbia River.....	Grohman Narrows, 2 miles below Nelson, British Columbia; measurements referred to gage No. 10 at Nelson. (8 N. J. 9 of Dominion Water and Power Bureau, Department of Mines and Resources, Canada).	17,120
Dec. 21	....do.....	....do.....	....do.....	12,640
Feb. 9	....do.....	....do.....	....do.....	8,800
Mar. 30	....do.....	....do.....	....do.....	10,390
May 4	....do.....	....do.....	....do.....	49,420
27	....do.....	....do.....	....do.....	80,510
30	....do.....	....do.....	....do.....	95,230
June 2	....do.....	....do.....	....do.....	106,400
8	....do.....	....do.....	....do.....	106,000
17	....do.....	....do.....	....do.....	96,360
July 1	....do.....	....do.....	....do.....	91,780
28	....do.....	....do.....	....do.....	40,010
Sept.22	....do.....	....do.....	....do.....	10,460
Nov. 11	....do.....	....do.....	Glade, British Columbia (station 8 N. J. 1 of Dominion Water and Power Bureau, Department of Mines and Resources, Canada).	21,160
Dec. 21	....do.....	....do.....	....do.....	13,940
Feb. 10	....do.....	....do.....	....do.....	9,400
Mar. 31	....do.....	....do.....	....do.....	11,850
May 4	....do.....	....do.....	....do.....	56,310
June 1	....do.....	....do.....	....do.....	120,500
7	....do.....	....do.....	....do.....	126,000
17	....do.....	....do.....	....do.....	108,100
July 1	....do.....	....do.....	....do.....	103,200
28	....do.....	....do.....	....do.....	42,920
Sept.22	....do.....	....do.....	....do.....	11,430
Oct. 1	Slocan River...	Kootenai River.....	Near Crescent Valley, British Columbia, (station of Dominion Water and Power Bureau, Department of Mines and Resources). Gage is 8 N. J. 13.	941
Nov. 11	....do.....	....do.....	....do.....	1,770
Dec. 22	....do.....	....do.....	....do.....	1,010
Feb. 10	....do.....	....do.....	....do.....	753
Mar. 30	....do.....	....do.....	....do.....	1,110
May 5	....do.....	....do.....	....do.....	4,840
28	....do.....	....do.....	....do.....	14,130
June 8	....do.....	....do.....	....do.....	12,820
18	....do.....	....do.....	....do.....	10,480
July 2	....do.....	....do.....	....do.....	8,190
29	....do.....	....do.....	....do.....	2,430
Sept.23	....do.....	....do.....	....do.....	867

Pend Oreille River Basin

July 29	Blodgett Creek.	Bitterroot River...	N½ sec. 20, T. 6 N., R. 21 W., above all diversions, 4 miles northwest of Hamilton, Mont.	21.1
29	Third Right ditch.	Blodgett Creek.....	Sec. 15, T. 6 N., R. 21 W., 3 miles northwest of Hamilton, Mont.	4.3
29	Rasmussen ditch.	Willow Creek.....	NW¼ sec. 8, T. 6 N., R. 19 W., 5⅛ miles southeast of Corvallis, Mont.	1.6

Miscellaneous discharge measurements in Pacific slope basins in Washington and upper Columbia River Basin during the water year October 1937 to September 1938--Continued

Pend Oreille River Basin--Continued

Date	Stream	Tributary to or diverting from-	Locality	Discharge
July 29	Rock ditch.....	Willow Creek.....	NW¼ sec. 8, T. 6 N., R. 19 W., 5¼ miles southeast of Corvallis, Mont.	6.3
28	Burnt Fork Creek.....	Bitterroot River...	SE¼ sec. 25, T. 8 N., R. 19 W., 11 miles southeast of Stevensville, Mont.	54.2
28	....do.....	....do.....	NE¼ sec. 14, T. 8 N., R. 19 W., 9 miles southeast of Stevensville, Mont.	59.5
28	Patten ditch...	Burnt Fork Creek...	SW¼ sec. 11, T. 8 N., R. 19 W., 8½ miles southeast of Stevensville, Mont.	7.5
28	Sunset canal...	....do.....	SW¼ sec. 11, T. 8 N., R. 19 W., 8 miles southeast of Stevensville, Mont.	18.6

Kettle River Basin, Wash.

Nov. 17	Deep Creek.....	Kettle River.....	300 feet above mouth, near Laurier..	1.1
Jan. 22	....do.....	....do.....	400 feet above mouth, near Laurier..	.9
Mar. 24	....do.....	....do.....	1,000 feet above mouth, near Laurier	9.8
May 17	....do.....	....do.....	....do.....	70.8
June 6	....do.....	....do.....	....do.....	20.6
20	....do.....	....do.....	....do.....	7.5

Okanogan River Basin, Wash.

Nov. 23	Palmer Creek...	Similkameen River..	75 feet above mouth, near Nighthawk.	*52.2
Jan. 19	....do.....	....do.....	50 feet above mouth, near Nighthawk.	*35.9
Feb. 8	....do.....	....do.....	¾ mile above mouth, near Nighthawk..	*59.0
May 14	....do.....	....do.....	At bridge, 1½ miles above mouth, near Nighthawk.	†219
June 23	....do.....	....do.....	....do.....	*141

*Flow out of Palmer Lake.
†Flow into Palmer Lake.

Methow River Basin, Wash.

Oct. 27	Methow Valley Irrigation District canal.	Left bank of Methow River.	A quarter of a mile above station on Methow River at Twisp.	32.8
May 13	....do.....	....do.....	....do.....	71.4
June 9	....do.....	....do.....	....do.....	76.9
Oct. 27	....do.....	Right bank of Twisp River.	At headworks near Twisp.....	12.9
May 13	....do.....	....do.....	Below sluiceway at headworks near Twisp.	13.6
June 9	....do.....	....do.....	Above waterworks near Twisp.....	49.6
Oct. 27	Risley ditch...	....do.....	Upstream side of culvert in Twisp...	2.4
June 9	....do.....	....do.....	....do.....	11.5

Yakima River Basin, Wash.

May 20	Union Gap canal.	Left side of Yakima River.	At entrance to Union Gap, 1 mile southeast of town of Union Gap.	41.3

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